**Explain with Technology**

The second level of *Technology Literacy* includes two projects that empower students in the middle grades, ages 11 through 14, to understand and explain important concepts in the core curriculum as well as across the curriculum. *Explain with Technology* projects can be used across the curriculum because they allow teachers and students to decide what subjects and topics to address. In these projects, students research complex topics, write expository essays on their topics, and explain their topics to a live audience.

In *Explain with Technology* projects, teachers:

- Promote creativity and innovation
- Facilitate critical thinking and decision making
- Help students build research skills and information fluency
- Encourage collaboration and communication
- Cultivate technology literacy and responsible digital citizenship

**Research, Write, Present**

How can you help students develop rigorous research skills while encouraging objectivity? You can use the *Research, Write, Present* project to facilitate student research into complex topics and encourage expository writing about real events. Students become more effective communicators by designing and delivering multimedia presentations on their topics to live audiences.

**Make Decisions with Data**

How can you provide opportunities for students to learn, practice, and apply rigorous decision making skills? You can use the *Make Decisions with Data* project to help students define important decisions and collect and analyze opinion data to inform their decisions. Students become more effective communicators by presenting their decisions to live audiences.

**NETS•S Seal of Alignment**

*Technology Literacy* meets ISTE National Educational Technology Standards for Students (NETS•S)!

[Read More](#) (PDF; 2 pages)

**Get Ready**

Conduct a self-assessment to prepare for facilitation of *Technology Literacy* projects.

See the facilitation self-assessment: [Download](#)

Conduct a self-assessment to prepare for accommodation of all learners.

See the differentiation self-assessment: [Download](#)

For more information on preparing to use *Technology Literacy* projects, see *Teach Technology Literacy*.
**Project Overview**
In the *Research, Write, Present* project, students develop fundamental skills needed to use technology in support of research, creativity, and communication. Students use technology tools and resources more effectively to create and communicate knowledge by gathering and organizing information. You help students develop an enduring understanding of how structures and processes reflect proven strategies for creating and communicating knowledge. You also facilitate as students apply structures and processes to research and present a topic to an audience. As students become more skilled, they may begin to use their new media literacy to improve learning and communication in all aspects of their lives.

**Project Questions**
- What makes an essay interesting and informative to an individual?
- How does gathering and organizing information help students create knowledge?
- What is the relationship between structure and process in research and writing?
- When are written, spoken, and visual communication most effective?

**Expository Writing**
How can you help students develop expository writing skills? In this module, you facilitate students as they explore how authors use the expository style of writing to explain a topic in an interesting and informative manner. You help students learn how to present all relevant information on a topic without favoring any particular point of view. Make sure students understand how various types of expository writing reflect accumulated knowledge about how to write an effective explanation. Finally, you allow students to choose an interesting topic for an informative expository essay.

**Research Process**
Are your students as judicious as you want them to be when using the Internet for research? In this module, you help students understand the importance of locating a variety of credible sources of accurate and reliable information on their topics. You facilitate as student explore the research process, from locating sources to organizing information. Students learn when and how to quote, paraphrase, and summarize their sources by taking notes. You guide students as they use graphic organizers to answer their research questions and outline effective expository essays.
Expository Essay
Do your students sometimes take shortcuts when they write expository essays? In this module, you engage students in using technology tools to help them draft, revise, and edit effective expository essays. You guide students as they draft introductory paragraphs that get readers interested in their topics, body paragraphs that explain their topics, and concluding paragraphs that summarize their topics. Then, you help students use feedback from peers to make their essays more interesting and informative. Students learn that the best expository essays are thoroughly revised to improve content and strictly edited to remove mechanical errors.

Multimedia Presentation
Are your students capable and confident in their oral communication skills? In this module, you can channel student enthusiasm for multimedia to help them explain their topics to a live audience. You facilitate students as they use technology tools for creating and delivering multimedia presentations that are entertaining as well as interesting and informative. You also help students find images, audio, and video to enhance their presentations and use the multimedia legally and ethically. Overall, students engage in developing visual literacy and oral communication skills by designing multimedia presentations and delivering their presentations to a live audience.
Module Overview
In this module, students learn that the purpose of an expository essay, or exposition, is to explain a topic in an interesting and informative manner. Students should know the characteristics of expository writing and be able to analyze an exposition’s effectiveness. You can help students understand how various types of expository writing reflect accumulated knowledge about how to write an effective explanation. Students should understand that they can use expository writing to learn about any topic without favoring any particular point of view.

Module Questions
- How does the expository style of writing help authors explain and inform?
- What can students do to keep themselves and others safe when they use the Internet?
- Why are there different types of expository writing for different purposes?
- What makes a topic a good choice for an interesting and informative essay?
- What types of questions should students ask before they research their topics?

Activity 1: Expository Style
Students explore the expository style of writing. Students read and analyze expository essays to demonstrate that they know what makes an effective expository essay.

Activity 2: Internet Safety
Students explore important guidelines for Internet safety. Students use the expository style to explain three ways to keep themselves and others safe when they use the Internet.

Activity 3: Expository Types
Students explore some useful types of expository writing, such as compare-and-contrast and cause-and-effect. Students read and interpret expository writing on subjects that interest them.

Activity 4: Topic Choice
Students explore how they can use expository writing to learn about subjects that interest them. Students select appropriate topics and types of expository writing for their essays.
Activity 5: Research Questions
Students explore how effective research questions can keep them focused while they research their topics. Students write research questions on their topics and demonstrate that they understand how to use different types of questions effectively.

Look Back
Students reflect on their learning in this module. They should be ready to research their expository essays. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ topic choices and research questions.
Teacher Guide | Research, Write, Present
Expository Style

Activity Overview
In this activity, students explore the expository style of writing. Students learn that expository essays focus on objective information, such as facts and data. A well-written exposition presents all relevant information without favoring any particular point of view.

Activity Questions

- What are some good reasons to write an expository essay?
- When would the expository style not be a good choice for an essay?
- How is the expository style different from other writing students may have done?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms. Key terms related to expository writing include audience, expository, logical, nonfiction, objective, and third person.

Make sure students understand how data, fact, and information are related. You may want to have students use data, fact, and information in sentences to make sure they understand the precise definition of each term. Make sure students understand the difference between fact and opinion and can use both words in a sentence.

You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires an understanding of the vocabulary words related to expository writing.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they explore Web sites about expository writing. Explain how the guiding questions help focus their Web reading. Explain to students that reading the Web effectively requires a constant focus on the purpose of the exploration. You may want to ask students what they know about expository writing and have students write guiding questions of their own.

Make sure students know that everyone should be able to explain the basic features of expository style using correct terminology. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.
*Other names and brands may be claimed as the property of others.
Make sure that students understand the essential information about expository writing they will need for this project.

Students should know that:

- An essay is a short written work that makes an important point about a topic chosen by the author.
- An expository essay is a short written work that explains a topic or informs an audience.

The expository style of writing is a good choice when students want to tell readers what they know about a topic or show readers how to do something.

Expository essays:

- Present all relevant information without favoring any particular point of view
- Focus on objective information, such as facts and data
- Are usually written in third person, using pronouns such as he, she, or they

Discuss a variety of examples of how the expository style can be used, such as research papers, book reports, and presentations.

**Task: What to Do**

Students read and analyze expository essays to demonstrate that they know what makes an effective expository essay. Students may read one of the online essays provided in the task, other essays on the Web, or expositions from textbooks or magazines.

Discuss the example of an expository analysis with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Monitor progress to make sure that each student provides specific examples of effective (or ineffective) expository writing in the essay. If you have a presentation station, you may want to model using the spelling and grammar checking features of the word processing application. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

**Quiz: Check Your Understanding**

Introduce the quiz to students. Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic purposes and uses of the expository style of writing.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Student Name
Date

Expository Analysis of, “How to Make a Simple Birthday Cake”

The expository essay about making a simple birthday cake is a good example of the expository style/genre of writing. The author chose to use the process type of expository writing that explains how something is done. I feel that was the best possible choice for the subject the author chose. The first paragraph clearly states the topic of the paragraph which is how to make a birthday cake. Each of the following paragraphs logically explains the process. All the information in each paragraph is relevant and helps the reader understand the process. The last Paragraph of the essay restates the topic and does not include any new information.

I feel the essay could have been improved if the author had used a wider choice of transition words. In the fourth paragraph the words then and next were used so often that it became monotonous. There are a variety of transition words that could have been used that would have moved the story along more effectively. Since the author chose the “How-to” or process style/genre of expository writing, I feel it was important for the author to not only explain how to put the icing on the cake, but how to make the icing as well. All in all I think this was a good example of a process essay.
Activity Overview
In this activity, students explore some basic ways for keeping themselves, their families, and their schools safe when they use the Internet. They learn that the best policy is never to say or do anything online that you would not say or do anywhere else.

Activity Questions
- What are some of the potential risks students face when they use the Internet?
- What should students never do when they go online?
- How can students protect themselves, their families, and their schools when they go online?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with Internet, network, password, and protocol. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires a fundamental Internet vocabulary. Encourage students to remember and visualize these terms any time they use the Internet.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them stay safe on the Internet. You may want to ask students what they know about risks on the Internet and what questions they have about Internet safety.

Look Ahead
Task: Students explain three ways to keep themselves and others safe when they use the Internet.
Goal: Students demonstrate that they can use the expository style of writing effectively.

See the example: Strategies for Internet Safety

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.
*Other names and brands may be claimed as the property of others.
Information: What to Know
Make sure students understand that the Internet is real, and what they say and do online matters. Whether students are sending e-mail, instant messaging, or surfing the Web, they should always use the Internet safely.

Basic guidelines for Internet safety include:

- **Never give out personal information online.** Never give out information that someone could use to identify you, your family, or your school.
- **Remember that the Internet is real.** What you say about other people online has just as much effect as what you say to them in person.
- **Use strong passwords and keep them secret.** Passwords protect information by making sure that only authorized people can get access.
- **Know the rules anywhere you go online.** Many people use computers in more than one place, such as schools, homes, libraries, cafés, and friends’ houses. Always know the rules for using any computer.

Task: What to Do
Students demonstrate that they can use the expository style of writing effectively by explaining three ways to keep themselves and others safe when they use the Internet. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher or librarian.

Discuss the example of strategies for Internet safety with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with basic guidelines for Internet safety, such as how to maintain privacy, avoid bullying, and use strong passwords.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student Name
Date

Internet Safety on the World Wide Web

Searching the Internet can be fun and exciting, but before you begin there are some important things you should know about being safe and smart. Never give your whole name, address or phone number to anyone on the Internet. If a Web site asks for your name talk to your parents or teacher before taking any action. If they feel it is an appropriate site, use only your first name or a code name. When you are on the Internet no one should ever ask you for your address or phone number. If they do, sign off, and let your teacher or parents know immediately.

Protecting your password is very important. Don’t give it to anyone, not even your best friend! Your password protects your computer and files from someone entering them. If someone has your password they can get into your computer and do things that may cause a problem for you later. They can also get into your files and harm them.

Last, but not least, do not download anything from the Internet without your parent’s or teacher’s permission. Some downloads can damage your computer by infecting it with a virus. It is also possible to risk your family’s privacy. Also remember it is illegal to download games or music that are copyrighted without paying for them. If you follow these rules and use your common sense, surfing the Internet can be fun and educational.
Activity Overview
In this activity, students explore some useful types of expository writing, such as compare-and-contrast, classify-and-divide, and cause-and-effect. Students learn how to distinguish different expository types and use them to become better writers, readers, and learners.

Activity Questions

- How can students recognize different types of expository writing?
- How can students use different expository types in their writing?
- What makes an expository essay interesting and informative?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with pairs of key terms, such as cause and effect; classify and divide; and compare and contrast.

You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires a vocabulary for expository types.

Review key terms such as data, expository, fact, information, nonfiction, objective, and third person. Have students recall the images or symbols they associated with these words. Encourage students to remember and visualize these vocabulary words any time they read expository writing.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before exploring Web sites about expository types. Explain how the guiding questions help focus their Web reading. You may want to have students write guiding questions of their own.

You may want to have students recall some good nonfiction they have read as they explore the expository types. Encourage students to remember and visualize some memorable data, facts, and information they have read. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.
Information: What to Know
Help students understand that they can use the expository style to write about almost any topic in almost any subject. While most expository types can be used in almost any subject area, some are particularly useful for certain subjects.

Students should be able to distinguish the following five types of expository writing:

- **Cause-and-effect** expositions explain why an event happens.
- **Classify-and-divide** expositions sort people, groups, places, events, ideas, actions, or objects into categories based on similarities and differences.
- **Compare-and-contrast** expositions explain the similarities and differences among people, groups, places, events, ideas, actions, or objects.
- **Definition** expositions explain the most important characteristics of a person, group, place, event, idea, action, or object.
- **Process** expositions tell an audience how to complete an action. They follow a sequence from a starting point to a successful conclusion.

Task: What to Do
Students read and interpret expository writing on subjects that interest them to demonstrate that they can recognize different types of expository writing. Students may read one of the online essays provided in the task, other essays on the Web, or expositions from textbooks or magazines.

Discuss the example of an *expository interpretation* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Monitor progress to make sure that each student provides specific examples of effective (or ineffective) expository writing in the essay. Remind students to use word processing tools to check spelling and grammar. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the most important types of expository writing.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect.

You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Expository Interpretation of Climate Change
From
United States Environmental Protection Agency
http://epa.gov/climatechange/kids/gw.html

Climate Change uses the cause and effect style/genre of expository writing very effectively. For every cause an effect is clearly explained. In my opinion this was the best choice for global warming. When dealing with climate change, each cause has an effect. The author could have chosen to discuss global warming in a definition type format, but I don’t think that it would have been as effective or engaging. I think that seeing the causes and effects discussed together strengthened the author’s position that global warming can be very dangerous for the world community.

This essay has a lot of information that is clearly and logically explained. Each paragraph clearly states the topic and purpose. It explains that global warming is an average increase in the Earth’s temperature. As the Earth’s temperature rises it causes some of the glaciers to melt and this causes the seas to rise. Over the last 100 years the seas have risen 6-8 inches worldwide and this has caused the erosion of shorelines. The erosion causes the destruction of homes and some crops that can be affected by salt that is present in ocean waters. The Greenhouse effect makes the Earth warmer by trapping energy in the atmosphere. When the gases can’t escape the Earth’s atmosphere, global warming occurs. This warming can cause problems for plants, animals and humans that can be devastating. The cause and effect style/genre of expository writing made it very easy to understand the dangers of global warning.

In conclusion, global warming affects climate change and it is because of what humans are doing to the Earth that is causing the warming of the Earth to occur at a much faster rate. If humans do not change how they treat the Earth, the affects can be very harmful.
Research, Write, Present | Expository Writing

**Topic Choice**

**Activity Overview**
In this activity, students explore how expository writing can be used in the arts, literature, history, math, or science. Students choose topics for their expository essays and think about what types of expository writing are most appropriate for explaining their topics.

**Activity Questions**

- How does brainstorming help students choose their topics?
- How can students make sure their topics are narrow enough to explain thoroughly?
- What type(s) of expository writing can help students learn about and explain their topics?

**Vocabulary: Words to Remember**
Introduce *brainstorm* to students with a brief explanation and help students associate an image or symbol with the term. Review key terms such as *cause, effect, classify, divide, compare,* and *contrast.* Have students recall the images or symbols they associated with these words.

**Exploration: Learning from the Web**
Make sure students review the guiding questions for this activity before they explore Web sites about choosing a topic for an essay. Explain how the guiding questions help focus their Web reading.

You may want to ask students what topics interest them and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

**Information: What to Know**
Make sure students understand how they can learn about the arts, literature, history, math, or science by writing an expository essay on a topic in those subjects. You may want to walk through the four stages of choosing a topic with the whole class. If possible, create a topic as a class and explain or have students explain the strategies they are using.
Question students to make sure they know how to:

- **Make a list of topics** by freely brainstorming ideas
- **Evaluate the topics** and identify a topic that interests them and about which they can tell a meaningful story
- **Narrow the focus** of their topics to a single event
- **Check for sources** to make sure they can find enough information about the topic

**Task: What to Do**

Students demonstrate that they can select an appropriate topic and a specific type of expository writing for their expository essays. Encourage students to consult the Internet sources provided in the task, other sources on the Web, and textbooks or magazines.

Discuss the example of an *expository topic selection* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand how to brainstorm and evaluate topics before narrowing the focus.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Student Name

Date

Global Warming

I chose the topic global warming because it is a subject that has always interested me. I found it unbelievable that only a 1 degree rise in the Earth’s temperature in 100 years could cause such devastating consequences. When I saw the movie, *Inconvenient Truth*, I was shocked at the magnitude of the problems caused by global warming. It told of problems that I never could have imagined.

I think global warming is a subject that would be interesting to many people. My audience would be my peers and teachers. I think the best way to begin solving the problem is to create an awareness with the people that are going to be the caretakers of the earth for the next 70 or 80 years. We can’t begin to correct the problems until we know what they are and what causes them.

The type of expository writing that I am going to use is cause and effect. I think it is the most logical choice because it clearly lays the out the facts for the audience in an easy to understand format. I think the information will make a bigger impact when the causes and effects are addressed together. In order to write my expository essay on global warming I am going to have to know what global warming is, how it affects the world, what causes it and what can be done to stop it. Only then will I be able to explain to my audience the dangers that lie ahead if global warming is not slowed.
Activity Overview
In this activity, students explore how writing a few effective research questions can keep them focused while they research their topics. Students learn how to ask different types of questions to get more than one type of information on their topics.

Activity Questions

• What types of questions should students ask to help them find what they want to know about their topics?
• How does the type of questions students ask affect the type of information they get?
• Why do students need different types of information?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with convergent, divergent, and evaluative. Encourage students to remember and visualize convergent, divergent, and evaluative any time they ask a question.

Make sure students understand the differences among convergent, divergent, and evaluative. You may want to have students use all three words in sentences to make sure they understand the precise definition of each term.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they explore Web sites on information that helps them develop effective research questions. Explain how the guiding questions help focus their Web reading.

You may want to ask students what they know about different types of questions and have students write guiding questions of their own. Remind students to think about and visualize convergent, divergent, or evaluative as they explore. You may also want to have students turn in notes or report out on their exploration.

Information: What to Know
Make sure students understand that effective research questions are big enough to hold their interest and small enough to answer.

Pose questions and lead a short class discussion to make sure students can distinguish among four different types of questions:
Fact questions always have a correct answer.
Convergent questions require more explanation than fact questions, but they usually have correct answers.
Divergent questions usually have many acceptable answers.
Evaluative questions require judgment to decide among various opinions or answers.

You may want to give several examples of each kind of question and have students vote on whether each question is factual, convergent, divergent, or evaluative. You may also want to have students brainstorm examples of each type of question in pairs, small groups, or as a class.

Task: What to Do
Students write some questions to guide research on their topics and demonstrate that they understand how to use different types of questions effectively. Remind students to think about and visualize whether their questions are convergent, divergent, or evaluative.

Discuss the example of research questions with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example. You may want to have students generate examples of different types of questions before they begin.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand the differences among convergent, divergent, and evaluative questions.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Research Questions for Global Warming

1. What is global warming?
2. Does global warming have an effect on the weather where I live?
3. What is the greenhouse effect?
4. What role do greenhouse gases play in keeping the Earth warm?
5. How could a slowly melting glacier affect my food supply?
6. Is there something I can do to help slow the effects of global warming?
Research, Write, Present | Expository Writing
Look Back

Thinking about Learning
In this module, students explored expository writing skills, selected a good topic for an expository essay, and wrote some effective research questions.

Students have learned:

- How expository style can help them write an interesting and informative essay
- How to protect themselves, their families, and their schools when they use the Internet
- How to recognize different types of expository writing with different purposes
- How expository writing can help them learn about almost any topic in any subject
- How various types of questions can keep them focused while they research a topic

Checklist for Expository Writing
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to begin researching the topics of their expository essays.

Rubric for Expository Writing
Help students use the rubric to self-assess their research questions and topic choices. Explain to students the importance of paying attention to writing mechanics. Make sure students' self-assessments are accurate. Encourage students to use their self-assessments to improve their research questions and expository topics.

Reflection on Expository Writing
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their research questions and topic choices with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about expository writing
- Why they chose their expository topics
- What they learned about research questions
- How they wrote their most effective research questions

Encourage students to take their research questions and topic choices home to share with parents, guardians, or other trusted family members.
Module Overview
In this module, students learn how to locate a variety of credible sources of accurate and reliable information on their topics. Students should know when and how to quote, paraphrase, and summarize their sources by taking notes. Students should know how to use graphic organizers and outlines to answer their research questions and write effective expository essays. You can help students understand that effective research strategies help them to be successful in school, work, and life.

Module Questions
- How can students locate and use a variety of credible sources for their research?
- When should students quote, paraphrase, or summarize sources?
- How does e-mail work and how can students use e-mail for research?
- Why are graphic organizers good tools for showing what students learn?
- How can students use graphic organizers to outline their expository essays?

Activity 1: Research Strategies
Students learn how to use keyword searches to find information in library catalogs, databases, and Web sites. Students locate some credible sources to help answer their research questions.

Activity 2: Information Gathering
Students explore how to gather reliable and accurate information. Students quote, paraphrase, and summarize their sources to gather information on their research questions.

Activity 3: Electronic Mail
Students explore how e-mail offers the possibility of exchanging written messages with millions of people in the world. Students find e-mail sources relevant to the topics of their expository essays.

Activity 4: Graphic Organizer
Students explore how graphic organizers help arrange many different pieces of information into a few logical ideas or concepts. Students graphically organize the information they gathered.

Look Ahead
Review the checklist and rubric before introducing the module to students. When you introduce the module, discuss the checklist and rubric with the whole class or have students review the checklist and rubric individually or in small groups.

See the checklist: Research Process Checklist
See the rubric: Research Process Rubric
Activity 5: Essay Outline
Students explore how most successful writers plan the essays they want to write before they begin writing. Students use their graphic organizers to outline their expository essays.

Look Back
Students reflect on their learning in this module. They should be ready to write their expository essays. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ graphic organizers and essay outlines.
Research, Write, Present | Research Process

Research Strategies

Activity Overview
In this activity, students learn how to locate credible sources and find accurate and reliable information. Students explore a variety of sources, such as books, encyclopedias, databases, and the Internet. Students learn how to use keyword searches to find information in library catalogs, databases, and Web sites.

Activity Questions

- How can students get the most accurate hits from a keyword search?
- What are the strengths and weaknesses of different search programs?
- What specific criteria are most important when students evaluate a source?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as accurate, credible, criterion, keyword, and reliable. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone understands the vocabulary words. Encourage students to remember and visualize these terms any time they conduct research.

Make sure students understand how database, search engine, and search directory are related. You may want to have students use all three terms in one sentence. You may also want to have students work in pairs or small groups to draw an image or symbol that represents each word.

Review convergent, divergent, and evaluative research questions. You may want to have students use all three words in a paragraph to make sure they understand the precise definition of each term. Remind students that the purpose of research is to answer questions.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them quickly locate credible sources of accurate and reliable information.

Look Ahead
Task: Students locate some credible sources on their topics.

Goal: Students demonstrate that they can find accurate and reliable information to help them answer their research questions.

Preview the example of a source list before introducing the activity to students.

See the example: Source List
You may want to ask students what they know about finding and evaluating Web sites, and have students write guiding questions of their own. You may also want to have students take notes or report out to the class, another student, or a small group of students.

**Information: What to Know**

Make sure students know that the single most important strategy for successful research is to use a variety of sources, such as books, encyclopedias, databases, periodicals, and the Internet. Make sure students understand how to use *keywords* effectively in each context.

Some strategies to narrow an Internet search are to use:

- Additional keywords
- Quotes around names or exact phrases.
- AND or a plus sign (+)
- NOT or a minus sign (-)

Some strategies to expand a search are to use:

- Fewer keywords
- OR

Students should understand that evaluation requires judging a Web site against specific criteria. You can find many different lists of criteria, but they all have at least three goals in common. They all include criteria to make sure that a Web site is a *credible*, *accurate*, and *reliable*.

**Task: What to Do**

Students locate some credible sources of accurate and reliable information to help them answer their research questions. If you have a presentation station, you can model keyword searches and Web site evaluation before students begin their research independently. If you are a classroom teacher, this is an excellent time to collaborate with the librarian.

Discuss the example *source list* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with basic strategies for searching with keywords and evaluating Web sites.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Web Sites for Global Warming


Research, Write, Present | Research Process
Information Gathering

Activity Overview
In this activity, students explore how to gather reliable and accurate information from their sources. Students learn when and how to quote, paraphrase, or summarize ideas.

Activity Questions

- What are some ways to take notes?
- What are some strategies to help students take more effective notes?
- How can students make sure they do not commit plagiarism?

Vocabulary: Words to Remember
Introduce the new vocabulary words to students with a brief explanation of each term. Help students understand how paraphrase, quote, and summarize are similar and different from each other. Encourage students to associate a distinct image or symbol with each word and visualize these terms when they are taking notes.

You may want to have students use paraphrase, quote, and summarize in one paragraph to make sure they understand the precise definition of each term. Discuss plagiarism and make sure students understand how the term is related to paraphrase, quote, and summarize.

Review key research terms such as accurate, credible, criterion, keyword, and reliable. Have students recall the images or symbols they associated with these words. Remind students that a good research vocabulary will help them be successful in school, work, and life.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they explore Web sites on information that helps them gather information quickly and effectively. Students explore some fundamental research strategies for quickly gathering accurate and reliable information using library catalogs, databases, and Web sites.

You may want to ask students what they know about taking notes and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore the Web sites. You may also want to have students report out to the class, another student, or a small group of students.
**Information: What to Know**

Make sure students understand that *plagiarism* is when you fail to cite a source you have quoted, paraphrased, or summarized. Students should be able to explain the difference between paraphrasing and summarizing a source. Students should understand that summarizing involves more analysis than paraphrasing. Explain to students that summarizing sources is the best way for them to avoid plagiarism, but they still must cite their sources in a bibliography.

Review the following five basic types of notes:

- **Quote.** Copying an author’s exact words is the simplest way to take notes.
- **Paraphrase.** Putting another author’s ideas into your own words is often the best way to take notes.
- **Summary.** Explaining the main points and important details of another author’s ideas is usually the most efficient way to take notes.
- **Facts and Data.** Recording facts or data from a source is sometimes useful.
- **Original Ideas.** Recording your own ideas while gathering information is important.

Make sure students know that they can use a word processing application to take notes and are aware that specialized computer programs can also help with taking notes. Students should understand that electronic notes have the advantage of being easy to organize as well as quick and easy to search.

**Task: What to Do**

Students demonstrate that they can gather information effectively by taking good notes to help them answer their research questions. Monitor progress to make sure that each student understands how to *quote, paraphrase, and summarize* a source. Remind students of the importance of avoiding *plagiarism*.

Discuss the example of *notes* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to avoid plagiarism by understanding when and how to *quote, paraphrase, and summarize* their sources.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
**Task Example**

<table>
<thead>
<tr>
<th>Student Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
</tbody>
</table>

**Notes for Global Warming: What Is Global Warming?**

<table>
<thead>
<tr>
<th>Web site</th>
<th>Information</th>
<th>Paraphrase</th>
<th>Summarize</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://epa.gov/climatechange/kids/gw.html">http://epa.gov/climatechange/kids/gw.html</a></td>
<td>Global warming refers to an average increase in the Earth’s temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.</td>
<td>Global warming has to do with the increase in the Earth’s temperature. A warming earth can have devastating consequences on rainfall, sea level, plants, and many other living things. Scientists are concerned about how humans contribute to global warming.</td>
<td>Global warming is very dangerous. It affects the world’s climate and other living things. Scientists are concerned with how human contribute to global warming.</td>
</tr>
<tr>
<td><a href="http://www.homeworxspot.com/features/globalwarming.htm">http://www.homeworxspot.com/features/globalwarming.htm</a></td>
<td>Global warming is the process in which heat from the sun is trapped in the earth's atmosphere as a result of pollution. Scientists think that the Earth's surface temperature has risen 1 degree Fahrenheit over the last 100 years. One degree over many years may not seem like much, but global warming can be devastating to our planet.</td>
<td>Global warming has caused the Earth’s temperature to rise 1 degree. Heat from the sun gets trapped in the atmosphere because of pollution. Global warming is very dangerous.</td>
<td>Global warming causes the Earth’s temperature to increase by 1 degree. It is very dangerous.</td>
</tr>
<tr>
<td><a href="http://www.ipcc.ch/">http://www.ipcc.ch/</a></td>
<td>“Scientists have agreed that there is 90% certainty that the burning of fossil fuels and other human activities are driving climate change”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. *Other names and brands may be claimed as the property of others.*
Activity Overview
In this activity, students explore how e-mail offers the possibility of exchanging written messages with millions of people in the world. Students explore how e-mail works by learning about its four basic components—address, message, mail client, and mail server.

Activity Questions
- How does e-mail work?
- What do students need to know in order to send and receive e-mail?
- How does e-mail change the way we communicate with others?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as application, attachment, body, client, header, and server. Encourage students to remember and visualize these terms any time they send or receive e-mail messages.

You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary.

Remind students that technical vocabulary is important for everyone to learn, not just students interested in math, science, and engineering. In the 21st century, using correct terminology to discuss technology is an essential literacy skill.

Exploration: Learning from the Web
Explain to students that the more they know about how e-mail works the more effectively they can communicate with millions of people around the world. Make sure students know that everyone should be able to explain the basic components of e-mail using correct terminology. Encourage students to take notes or draw pictures while they explore the Web sites.

Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them use e-mail more effectively. You may want to ask students what they know about e-mail and what questions they have about how e-mail works. You may also want to have students turn in notes or report out on their exploration.

Look Ahead
Task: Students find e-mail sources on the topics of their expository essays.
Goal: Students demonstrate that they can use e-mail to gather information during the research process.
See the example: E-mail Sources
Information: What to Know
Make sure students are aware that e-mail has been one of the most popular online activities since the very beginning of the Internet.

Students should know four basic components of e-mail:

- **Address.** Every person who sends or receives e-mail must have a unique address. An example of an e-mail address is:
  
  john.doe@intel.com

- **Message.** An e-mail message has two main parts—a header and a body. The header contains the addresses of the sender and recipient(s) and the subject of the message while the body contains the contents of the message.

- **Mail Client.** A computer or application that gets information from another computer or application through a network is called a client. A mail client is an application used to send and receive e-mail.

- **Mail Server.** When you send e-mail, your mail client routes it to a mail server. Servers are computers that are shared by many users.

Question students to make sure they can identify the location and purpose of the basic parts of an e-mail address and message. If you have a presentation station, you can lead the whole class or groups of students in a tour of the e-mail client’s graphical user interface, or GUI. Ask students to identify features that you name or have them give the name of features that you identify. You may want to lead a discussion of similarities and differences between the e-mail client’s GUI and the interfaces of other kinds of applications.

Task: What to Do
Students find e-mail sources relevant to the topic of their expository essays to demonstrate that they can use e-mail to gather information during the research process. Students can use one of the Web sites listed in the task, another Web site, or local connections to find e-mail sources. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher or librarian.

Discuss the example of e-mail sources with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Remind students of the importance of keeping themselves, their families, and their school safe when they use the Internet. You may want to review guidelines for Internet Safety from the Expository Writing module. Monitor students closely to make sure they are using e-mail in an appropriate and safe manner. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic components of e-mail.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or
incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student Name
Date

**E-mail Sources for Global Warming**

I chose e-mail alerts from *Google* as one of my e-mail sites because I need the latest information possible for my essay. When you register with this site they send e-mails alerting you to the latest information on the subject you indicate. I tried to pick Web sites that were current, but some of them are a year or two old and the information may not be as current as I’d like. Global warming is a subject that is ever changing and the latest information is vital for an expository essay.

The other e-mail site that I chose is *Science Q&A from the New York Times Learning Network*. With this site I have the option of asking specific questions that I might need clarification on. I also feel that I will get the best possible information because the site is devoted to questions related to science and it is from a reliable source.
Activity Overview
In this activity, students explore how graphic organizers help arrange many different pieces of information into a few logical ideas or concepts. Students learn how to select and use graphic organizers to help them put their ideas together and show what they learned about their topics.

Activity Questions
- What are the strengths and weaknesses of various types of graphic organizers?
- Which graphic organizers are most appropriate for the information students collected?
- How is the type of information collected related to the type of expository writing that should be used?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with concept, conclusion, graphic, and organize. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary words.

Review key terms such as paraphrase, quote, and summarize. Have students recall the images or symbols they associated with these words. Remind students that a good research vocabulary will help them be successful in school, work, and life.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them graphically organize the information they have collected. You may want to ask students what graphic organizers they have used and what questions they have about how to use graphic organizers to represent knowledge. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that graphic organizers are ideal tools for arranging many pieces of information into a few logical concepts or ideas. Make sure students know that an effective graphic organizer is a visual representation of knowledge. You may want to discuss the difference between information and knowledge with students.
Question students to make sure they know how to choose the types of graphic organizers to best help them accomplish their goals:

- The fishbone is a popular graphic organizer for showing cause-and-effect relationships.
- A Venn diagram is a popular graphic organizer for comparing and contrasting two or more concepts or ideas.
- A clustering diagram, also called a concept map, is an effective way to sort and group information into categories.
- Some graphic organizers, such as interaction outlines and problem-solution, represent special processes.

**Task: What to Do**

Students organize the information they gathered on their topics and demonstrate that they can use graphic organizers to represent knowledge. Make sure students know how to create graphic organizers in word processing or diagramming software before they begin the task.

If you have a presentation station, you may want to create a graphic organizer with the whole class or groups of students. If you are a classroom teacher, you may want to check with the computer teacher to find out what tools are available for students to use. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Discuss the example of a graphic organizer with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with a variety of graphic organizers.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student Name
Date

Organizer for Global Warming

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy gets trapped in the atmosphere by greenhouse gasses</td>
<td>Global Warming</td>
</tr>
<tr>
<td>Glaciers begin melting</td>
<td>Seas rise causing shore erosion endangering natural systems and manmade structures and causing damage to crops.</td>
</tr>
<tr>
<td>The seas are warming</td>
<td>The number of Category 4 and 5 hurricanes has almost doubled in the last 30 years.</td>
</tr>
<tr>
<td>Climate changing</td>
<td>Many animals may become extinct by 2050</td>
</tr>
</tbody>
</table>
Activity Overview
In this activity, students explore how most successful writers plan the essays they want to write before they begin writing. Students learn how to plan their expository essays by creating outlines based on their graphic organizers.

Activity Questions
- How can students distinguish main points from supporting points?
- What main points should students include in their expository essays?
- How can students use a word processing application to create an outline?

Vocabulary: Words to Remember
Introduce the vocabulary words and help students associate an image or symbol with outline and structure. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone the new vocabulary words. Encourage students to remember and visualize outline and structure any time they plan an essay.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them outline their expository essays. You may want to ask students what they know about outlines and what questions they have about how to create an outline. Encourage students to take notes or draw pictures while they explore Web sites.

Information: What to Know
Make sure students understand how to distinguish the main points they need to explain their topics from the supporting points that explain the main points. Main points are usually the most important concepts identified in a graphic organizer. Supporting points are smaller concepts or facts and data used to develop the bigger concepts.
Students should know how to use the following steps to create an outline:

1. Identify main points to explain your topic
2. Determine the most logical order of main points
3. Give each main point a short, descriptive label
4. Identify the supporting points to explain each main point
5. Determine the most logical order of supporting points for each main point
6. Give each supporting point a short, descriptive label

**Task: What to Do**

Students outline their expository essays to demonstrate that they can craft effective structures for interesting and informative essays. Make sure students know how to create an outline in word processing or note-taking software before they begin the task.

If you have a presentation station, you may want to create an outline with the whole class or groups of students. If you are a classroom teacher, you may want to check with the computer teacher to find out what tools are available for students to use. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Discuss the example of an *expository essay outline* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with why and how to create an outline.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student name
Date

Outline for Global Warming

I. Global warming
II. Who is affected by global warming
   A. Humans
   B. Sea life
   C. Animal Kingdom
III. How human are affected by global warming
   A. Loss of life due to increased storm activity
   B. Loss of property and eroding shoreline
   C. Loss of food source due to drought
   D. Increased deaths due to severe heat waves
IV. How marine life is affected by global warming
   A. Dying off of coral
   B. Loss of cold water habitats for marine life
   C. Changing food supply, breeding and nesting habits
V. How the animal kingdom is affected by global warming
   A. Northward migration to avoid warmer weather
   B. Competition with new predators
   C. Changes in animal habits
VI. Conclusion
Research, Write, Present | Research Process
Look Back

Thinking about Learning
In this module, students explored research strategies for locating credible sources of information. Students quoted, paraphrased, and summarized the credible sources they found. Finally, students used their notes to create graphic organizers and used the graphic organizers to outline their essays.

Students have learned:

- How to locate a variety of credible sources to answer their research questions
- How to take effective notes by quoting, paraphrasing, and summarizing their sources
- How e-mail addresses, messages, clients, and servers work and how to use them
- How to graphically organize their notes and visually represent their research
- How to use a graphic organizer to plan an expository essay by outlining its structure

Checklist for Research Process
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to write their expository essays.

Rubric for Research Process
Help students use the rubric to self-assess their outlines and graphic organizers. Explain to students the importance of paying attention to how they conduct their research and gather their information. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their outlines and graphic organizers.

Reflection on Research Process
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their interview questions and narrative topics with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- How they located different kinds of sources and determined they were credible
- How they quoted, paraphrased, and summarized sources in their notes
- How they used email to find additional sources on their topics
- What they learned about their topics when you created graphic organizers
- How they used their graphic organizers to outline expository essays

Encourage students to take or e-mail their outlines and graphic organizers home to share with parents, guardians, or other trusted family members.
Module Overview
In this module, students learn that expository essays usually begin with an introductory paragraph that gets readers interested in a topic, include three (or more) body paragraphs that explain the topic, and end with a concluding paragraph that summarizes the topic. You can help students understand the importance of using feedback from peers to make their essays more interesting and informative. Students should understand that the best expository essays are thoroughly revised to improve content and strictly edited to remove mechanical errors.

Module Questions

- What makes an introductory paragraph engaging to readers?
- What kinds of body paragraphs present main points in a smooth and logical order?
- How can students write concluding paragraphs that readers will remember?
- How does peer review help make an expository essay more interesting and informative?
- What tools can help students find and correct problems with writing mechanics?

Activity 1: Introductory Paragraph
Students learn how to engage an audience in their essays by introducing their topics in clear and interesting ways. Students draft introductory paragraphs for their expository essays.

Activity 2: Body Paragraphs
Students explore techniques for explaining their topics in an interesting and informative manner. Students use their outlines to draft body paragraphs that explain their topics thoroughly.

Activity 3: Concluding Paragraph
Students explore techniques for offering readers new viewpoints or insights in a memorable manner. Students draft concluding paragraphs that summarize and synthesize their essays.

Activity 4: Peer Review
Students explore how revision helps them create the most interesting and informative essays they can write. Students use peer reviews to revise their expository essays.

Activity 5: Writing Mechanics
Students explore word processing tools than can help them find and correct mechanical errors. Students edit their expository essays to find and correct mechanical problems.
Look Back
Students reflect on their learning in this module. They should be ready to create multimedia presentations based on their expository essays. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ expository essays.
Activity Overview
In this activity, students learn how to introduce their topics to an audience in a clear and interesting way. If the audience believes that the essay will be clear and interesting, then they will be encouraged to keep reading the essay.

Activity Questions
- How do outlines help students draft their expository essays?
- What are the important parts of an effective introductory paragraph?
- What are the common characteristics of effective introductory paragraphs?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with draft, introduction, paragraph, and transition. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary words.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them draft an introductory paragraph. You may want to ask students what they know about introductory paragraphs and have students write guiding questions of their own. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that effective paragraphs are the building blocks of any well-crafted essay.

Effective paragraphs usually have at least two common characteristics:

- *State the main point of the paragraph clearly.* The main point that will be developed should be clearly stated in a sentence, often called the *topic sentence.*
**Present supporting points in a logical order.** The supporting points should be presented in an order that leads the reader to the main point.

An effective expository essay usually begins with an introductory paragraph that gets readers interested in the topic. Effective introductory paragraphs usually have at least three common characteristics:

- Tell readers what the essay is about
- Engage readers in the topic
- Tell readers what they will get from the essay

**Task: What to Do**

Students draft introductory paragraphs to engage readers in their expository essays. Discuss the example of an introductory paragraph with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic characteristics of effective introductory paragraphs.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student Name
Date

First Paragraph for Global Warming

No one knows for sure why the dinosaur disappeared, but it is commonly believed that a change in environment may have played a significant role. What do dinosaurs have in common with global warming? Our climate is also changing, and if we don’t listen to the warning of scientists, we too, could become extinct. According to a new report released by the Intergovernmental Panel on Climate Change (IPCC) in Paris, scientists have agreed that global warming is very likely caused by human activity, particularly the burning of fossil fuel. Global warming occurs when the gasses from the burning of fossil fuels causes the gasses that are released to become trapped causing the greenhouse effect. If the greenhouse effect becomes stronger, it could make the Earth warmer than usual.” Even a little extra warming may cause problems for humans, sea life and the animal kingdom.
Research, Write, Present | Expository Essay
Body Paragraphs

Activity Overview
In this activity, students explore techniques for explaining their topics thoroughly in body paragraphs. Students learn how to make their essays interesting and informative by using their outlines to make sure that their essays are well organized and complete.

Activity Questions
- What are the important parts of an effective body paragraph?
- What are the common characteristics of effective body paragraphs?
- What transition words might be appropriate for each student’s essay? How can outlines help students draft the body paragraphs of their essays?

Vocabulary: Words to Remember
Introduce analyze with a brief explanation of the term. You may want to have students use analyze in a sentence or act out the word. Make sure students understand why they must be able to analyze their topics in order to write interesting and informative essays.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them write effective body paragraphs. Explain that the body is probably the most important part an expository essay. If a topic is thoroughly explained in the body, then the essay will be interesting and informative.

You may want to ask students what they know about body paragraphs and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know that the body is the main content of any essay. In an expository essay, the body paragraphs must provide enough information to explain the topic thoroughly.
Effective body paragraphs usually have some common characteristics:
- Explain one main point
- Provide information to support the main point
- Present main points in a logical order
• Follow your outline to structure your essay
• Connect main points with smooth transitions
• Balance the structure of your essay

Make sure students understand how to connect main points by using transition words in the topic sentence or a concluding sentence. Remind students to use transition words and sentences only when they are needed. If the main points are presented in a logical order, students should not need to use too many transition words.

Task: What to Do
Students draft body paragraphs that explain their topics thoroughly. Monitor progress to make sure students write body paragraphs with one main point, adequate supporting points, and transitions that are logical and smooth.

Discuss the example of body paragraphs with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic characteristics of effective body paragraphs.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Global warming is causing serious problems for people around the world. One of the problems caused by global warming is the melting of the Polar Ice Cap and glaciers. When the ice melts it flows into the seas causing them to rise. Over the last 100 years the seas have risen 6-8 inches worldwide. When the seas heat up they take up more space and they overflow their banks. This can cause serious flooding of homes, eroding shoreline and destruction of crops. The warming of the sea water also causes storms to become more severe. The increasing number of hurricanes is blamed by some of the warmer waters which create the storms. The heat waves that have affected the world lately can also be traced to a warming earth. Thousands of people around the world have died from the unusually hot weather. Last, but not least, there have been more droughts around the world because of global warming. The increased drought threatens our food source because people in some parts of the world may not have enough to eat because they cannot grow the crops they need.

The warming water also affects sea life. Coral which is vital to sea life, can become bleached out which causes it to die off. It is important to know that more than 25% of all known marine fish live in coral reefs. Other marine life may be affected when their habitat becomes not fit to live in and their food source disappears. According to a study conducted by Stanford’s Institute for International Studies, polar bears, walruses and seals are finding their usual homes are no longer comfortable places to live as the Arctic sea ice melts. The warmer waters are affecting their food supply, breeding and nesting habits and in some cases causing them to die off. So, if something isn’t done soon the water ecosystems will be changed forever.

Scientists have found that about 1,200 of the 1,500 animals that have been examined show temperature-related changes consistent with global warming. This is causing many species of animals and birds to migrate northward to avoid the warmer weather, and as a result, they are running into human barriers, or other serious difficulties. For example, when the cold-hardy arctic fox moved northward, to escape the warmer weather, it ran into larger more aggressive animals that it couldn’t compete with. Also, some mammals are breaking hibernation sooner which can also cause serious problems. In all, global warming is already having a devastating effect on the animal kingdom.
Research, Write, Present | Expository Essay
Concluding Paragraph

Activity Overview
In this activity, students learn how to write concluding paragraphs that summarize their topics and combine the main points in their essays into new ideas or concepts. Students explore techniques for offering a new viewpoint or insight and making a lasting impression on readers.

Activity Questions
- What are the important parts of an effective concluding paragraph?
- What are the common characteristics of effective concluding paragraphs?
- How can students make sure their readers remember their essays?

Vocabulary: Words to Remember
Introduce synthesize to students with a brief explanation and help students associate an image or symbol with the term. You may want to have students use the word in a sentence or act out the word. Make sure students understand how synthesize is different from analyze. You may want to have students work in pairs to draw an image or symbol that represents synthesize.

Exploration: Learning from the Web
Remind students that their conclusions contain the last words an audience read, so they want it to be memorable. Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them write effective concluding paragraphs. Encourage students to take notes or draw pictures while they explore Web sites.

Information: What to Know
Make sure students understand the importance of leaving their audiences with a clear and satisfying conclusion that stays in their memories.

Effective concluding paragraphs usually have some common characteristics:
- Remind the reader what the essay has explained
- Offer the reader a new viewpoint or insight
- Make a lasting impression on the reader
Task: What to Do
Students draft concluding paragraphs that summarize and synthesize their essays and make a lasting impression on readers. Discuss the example of a concluding paragraph with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic characteristics of effective concluding paragraphs.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student name
Date

Concluding Paragraph

We now know that humans are causing the world to heat up by the burning of fossil fuels, so it is going to be the responsibility of all countries around the world, to do their part. Global warming has been blamed on everything from the melting of the polar ice caps to the increase in devastating storms, the loss of coral to the changing migration habits of the animal kingdom. According the IPCC report, even if people stopped burning the fossil fuels today, which are responsible for global warming, the effects would not go away in our lifetime. Therefore, if we do not want to go the way of the dinosaurs, it is going to be the responsibility of all of us, to do our part, to slow down the warming of our planet.
Research, Write, Present | Expository Essay

Peer Review

Activity Overview
In this activity, students explore how the best expository writers revise their first drafts to create the most interesting and informative essays they can write. Students learn how to look at their writing from different points of view and use word processing tools to track changes during revisions and make suggestions during peer reviews.

Activity Questions
- How can students put themselves in the minds of their readers?
- How can students identify the strengths and weaknesses of their expository writing?
- What can students do to improve their writing?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as peer, point of view, revise, and thesaurus. Make sure students understand how antonym and synonym are related.

You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires a vocabulary for peer review.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they begin their exploration. Explain how the guiding questions help focus their Web reading. You may want to have students write guiding questions of their own. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Explain that peer review is one of the most effective strategies for revising an essay. The best expository writers use suggestions from their peers to improve their essays and provide helpful suggestions to help their peers revise their essays.

Information: What to Know
Make sure students understand the importance of being as objective as possible when they revise an essay. Explain that revising is about looking at their writing from different points of view. Remind students to focus on content rather than grammar, spelling, or punctuation.
Help students understand why they need to put aside personal feelings and opinions.

Make sure students understand why peer review is one of the most effective ways to get another point of view on their essays. When reviewing an essay, students point out the parts that are especially well-crafted as well as any parts that may need to be revised. The most effective peer reviews offer specific suggestions for improvement.

**Task: What to Do**
Students use a peer review to revise their expository essays so their essays are as interesting and informative as possible. Make sure students maintain an objective and constructive mindset and offer specific suggestions for improvement.

Make sure students know how to insert comments, track changes, and use the thesaurus in their word processing software before they begin the task. If you have a presentation station, you may want to model effective use of these word processing tools. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a peer review with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand the basic purposes and techniques for revising an essay.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Student Name
Date

Global Warming

No one knows for sure why the dinosaurs disappeared, but many theories suggest that a change in environment may have played a significant role. What do dinosaurs have in common with global warming? As a result of global warming our climate is also changing, and if we do not heed the warning of scientists, we too, could become extinct. According to a new report released by the Intergovernmental Panel on Climate Change (IPCC) in Paris, scientists have agreed that global warming is very likely caused by human activity, particularly the burning of fossil fuel. Global warming occurs when the gasses from the burning of fossil fuels causes the gasses that are released to become trapped resulting in the greenhouse effect. If the greenhouse effect becomes stronger, it could make the Earth warmer than usual. If the earth becomes even slightly warmer than normal it may cause problems for humans, sea life and the animal kingdom.

Ironically, global warming, enhanced by human activity, is causing serious problems for people around the world. One of the problems caused by global warming is the melting of the Polar Ice Cap and glaciers. When the ice melts it flows into the seas causing them to rise. Over the last 100 years the seas have risen 6-8 inches worldwide. When the seas heat up they take up more space and they overflow their banks. This can cause serious flooding of homes, eroding shoreline and destruction of crops. The warming of the sea water also causes storms to become more severe. The increasing number of hurricanes is blamed by some on the warmer waters which fuel the storms. The heat waves that have affected the world of late can also be traced to a warming earth. Thousands of people around the world have died from the unusually hot weather. Last, but not least, droughts have become more common around the world because of global warming. The increased droughts around the world threaten our food source because people in some parts of the world may not have enough to eat because they cannot grow the crops they need.

The warming water also affects sea life. Coral, which is vital to sea life, can become bleached out which causes it to die off. It is important to note that coral reefs harbor more than 25% of all known marine life. Other marine life may be affected when their habitat becomes not fit to live in and their food source disappears. According to a study conducted by Stanford's Institute for International Studies, polar bears, walruses and seals are finding their usual homes are no longer comfortable places to live as the Arctic sea ice melts. The warmer waters are affecting their food supply, breeding and nesting habits and in some cases causing them to die off. If something isn't done soon these delicate ecosystems will be altered forever.

Scientists have examined about 1,200 animals of various species and have found that these animals have shown temperature-related changes consistent with global warming. This is causing many species of animals and birds migrating northward to avoid the warmer weather, and as a result, they are running into human barriers, or other serious difficulties. When the cold-hardy arctic fox moved northward, to escape the warmer weather, it ran into larger more aggressive animals that it couldn’t compete with. Equally important, some mammals are breaking hibernation sooner which can also cause serious problems.
In all, global warming is already having a devastating effect on the animal kingdom. We now know that humans are disrupting and increasing the natural warming of the earth by the burning of fossil fuels. It is going to be the responsibility of all countries around the world, to do their part. Global warming has been blamed on everything from the melting of the polar ice caps to the increase in devastating storms, the loss of coral to the changing migration habits of the animal kingdom. According the IPCC report, even if people stopped burning the fossil fuels today, which are responsible for global warming, the effects would not go away in our lifetime. Therefore, if we do not want to go the way of the dinosaurs, it is going to be the responsibility of all of us, to do our part, to slow down the warming of our planet.
Activity Overview
In this activity, students learn that poor writing mechanics can make even the most interesting and informative exposition hard to read. Students learn that word processing tools can help them find and correct mechanical errors, but the tools are not substitutes for good judgment.

Activity Questions
- Why is editing important?
- What should students concentrate on when they edit?
- What are the strengths and weakness of each student’s writing mechanics?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as edit, mechanics, and proofread. You may want to have students use each word in a sentence or act out the word.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them edit their expository essays. Encourage students to take notes or draw pictures while they explore Web sites. Remind students that they do not want readers to be distracted by spelling and grammar errors.

Information: What to Know
Make sure students know that editing is finding and correcting problems with writing mechanics. Students should know how to use word processing tools to help check both spelling and grammar. Make sure students understand that these tools are not substitutes for good judgment.

Task: What to Do
Students edit their expository essays to find and correct mechanical problems. Make sure students know how to check spelling and grammar in their word processing software before they begin the task. If you have a presentation station, you may want to model effective use of these word processing tools.

Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.
Discuss the example of an *edited expository essay* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand the basic purposes and techniques for editing an essay.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Student Name
Date

The Warming of the Earth

No one knows for sure why the dinosaurs disappeared, but many theories suggest that a change in environment may have played a significant role. What do dinosaurs have in common with global warming? As a result of global warming our climate is also changing, and if we do not heed the warning of scientists, we too, could become extinct. According to a new report released by the Intergovernmental Panel on Climate Change (IPCC) in Paris, “Scientists have agreed that there is 90% certainty that the burning of fossil fuels and other human activities are driving climate change.” Global warming occurs when the gasses from the burning of fossil fuels causes the gasses that are released to become trapped resulting in the greenhouse effect. If the greenhouse effect becomes stronger, it could make the Earth warmer than usual. If the earth becomes even slightly warmer than normal it may cause problems for humans, sea life and the animal kingdom.

Ironically, global warming, enhanced by human activity, is causing serious problem for people around the world. One of the problems caused by global warming is the melting of the Polar Ice Cap and glaciers. When the ice melts, the resulting water flows into the seas causing them to rise. Over the last 100 years the seas have risen 6-8 inches worldwide sometimes causing them to overflow their banks. This can lead to soil erosion and serious flooding which can cause loss of property and destruction of crops. The warming of the seas also causes storms to become more severe. The increasing number of hurricanes is blamed by some on the warmer waters which fuel the storms. The heat waves that have affected the world of late can also be traced to a warming earth. Thousands of people around the world have died from the unusually hot weather. Last, but not least, droughts have become more prevalent around the world because of global warming. The increased droughts threaten our food source. This represents a crisis for people in some parts of the world who do not have enough food to eat because they cannot grow the crops they need.

The warming water also affects sea life. Coral, which is vital to sea life, can become bleached out which causes it to die off. It is important to note that coral reefs harbor more than 25% of all known marine life. Other marine life may be affected when their habitat becomes not fit to live in and their food source disappears. According to a study conducted by Stanford’s Institute for International Studies, polar bears, walruses and seals are finding their usual homes are no longer comfortable places to live as the Arctic sea ice melts. The warmer waters are affecting their food supply, breeding and nesting habits and in some cases causing them to become endangered.

Scientists have examined about 1,200 animals of various species and have found that these animals have exhibited temperature-related changes consistent with global warming. This is causing many species of animals and birds to migrate northward to avoid the warmer weather, and as a result, they are encountering human and man-made barriers, and other serious difficulties. When the cold-hardy arctic fox moved northward to escape the warmer weather, it ran into larger and more aggressive animals with which it could not compete. Global warming is also disrupting the natural cycle of some mammals by causing them to break hibernation sooner than normal.

In all, global warming is already having a devastating effect on the animal kingdom. We now know that humans are disrupting and increasing the natural warming of the Earth by
the burning of fossil fuels. Scientists are holding global warming, at least in part, responsible for the melting of the polar ice caps, the increase in devastating storms, the loss of coral and the changing migration patterns in the animal kingdom. Due to the fact that we are all exist on this planet together, the consequences for one group will ultimately affect the others. Unfortunately, According the IPCC report, even if people stopped burning the fossil fuels today, the negative effects of global warming will not be completely eliminated within the next 100 years. In conclusion, if we do not want mankind to go the way of the dinosaurs, it is going to be the responsibility of all of us, to slow down the warming of our planet.
Research, Write, Present | Expository Essay

Look Back

**Thinking about Learning**

In this module, students drafted their essays with engaging introductions, informative bodies, and memorable conclusions. They used peer review to make their essays more interesting, informative, and memorable. Finally, students edited their essays to make sure readers are not distracted by mechanical errors.

Students have learned:

- How to write introductory paragraphs that engage readers
- How to present their main points in a smooth and logical order in body paragraphs
- How to write concluding paragraphs that readers will remember
- How to use peer reviews to improve their expository essays
- How to edit their essays to find and correct problems with writing mechanics

**Checklist for Expository Essay**

Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to create multimedia presentations based on their expository essays.

**Rubric for Expository Essay**

Help students use the rubric to self-assess the introductions, bodies, and conclusions of their expository essays. Make sure students’ self-assessments are accurate. Make sure students’ perceptions of how well they collaborated with peers during revision are accurate. Encourage students to use their self-assessments to improve their essays.

**Reflection on Expository Essay**

Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their interview questions and narrative topics with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about writing effective paragraphs
- How they engaged readers in their essays
- How they used their outlines to explain their topics thoroughly
- How they made sure readers will remember their essays

Encourage students to take or e-mail their expository essays home to share with parents, guardians, or other trusted family members.
Teacher Guide

Research, Write, Present Multimedia Presentation

Module Overview
In this module, students learn how to use technology tools to explain their topics to a live audience. Students should know what technology tools can be used to create and deliver a presentation and be able to use them effectively. You can help students understand how to use multimedia to give an audience visual information that helps explain their topics. Students should understand how to create and deliver presentations that are entertaining as well as interesting and informative.

Module Questions
- What technology tools can help students explain their topics to a live audience?
- Why do graphic design principles make presentations more effective?
- How can students find and use multimedia to help explain their topics?
- What copyright laws govern educational use of multimedia in presentations?
- How can students deliver interesting, informative, and entertaining presentations?

Activity 1: Presentation Tools
Students explore technology tools for creating and delivering interesting, informative, and entertaining presentations. Students use their essay outlines to create presentations.

Activity 2: Presentation Design
Students explore visual representations of information. Students use principles of graphic design to make their presentations as visually appealing and easy to read as possible.

Activity 3: Multimedia Formats
Students explore how well-chosen multimedia can enhance a presentation. Students find images, audio, or video on the Internet to help explain their topics.

Activity 4: Copyright and Fair Use
Students explore copyright laws and the conditions and limitations of fair use for educational purposes. Students identify the copyright status of the multimedia they find.

Activity 5: Presentation Delivery
Students explore strategies for delivering interesting, informative, and entertaining presentations to live audiences. Students prepare, practice, and deliver their presentations to an audience.

Look Ahead
Review the checklist and rubric before introducing the module to students. When you introduce the module, and rubric with the whole class or have students review the checklist and rubric individually or in small groups.

See the checklist: Multimedia Presentation Checklist
See the rubric: Multimedia Presentation Rubric
Look Back
Students reflect on their learning in this module. Make sure students can confidently explain their topics to a live audience. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ multimedia presentations.
Activity Overview
In this activity, students explore technology tools for creating and delivering multimedia presentations that are entertaining as well as interesting and informative. A multimedia presentation uses words, numbers, symbols, images, audio, and video to explain a topic.

Activity Questions
- What are the main parts of a presentation?
- How does a presentation application help create the main parts?
- What is a peripheral and what do all peripherals have in common?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation. Make sure students understand the difference between hardware and software. You may want to have students use hardware and software in one sentence to make sure they understand both terms.

Help students associate an image or symbol with key hardware terms such as input, output, and peripheral as well as key software terms such as Word Processing application, graphical user interface, icon, program, and template. You may want to have students work in pairs to quiz each other on the terms or work in small groups to draw an image or symbol to represent each term. Encourage students to remember and visualize basic hardware and software terms any time they use a computer.

Explain to students that a good technical vocabulary helps them use technology more productively. When you have a problem with technology, a good technology vocabulary helps you understand the problem and effectively ask for help when needed. Remind students that a good technical vocabulary will help them be successful in school, work, and life.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they begin their exploration. You may want to ask students what they know about presentations and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the
Information: What to Know
Make sure students understand that a projection device is one example of a peripheral, a hardware device that can provide input to a computer or accept output from a computer.

A projection device needs two main features to work:

- **Projection.** The most common type of presentation projection device is the LCD (liquid crystal display) projector. Other types include DLP (digital light processing) and RGB (red, green, and blue) projectors. You can also use television monitors to display presentations to smaller audiences.

- **Universal serial bus (USB).** Projectors and other peripherals must be connected to a computer to provide input or accept output. In the past, peripherals used various types of connections, such as parallel ports, serial ports, and S-Video ports. Today, USB technology provides a single, high-speed port for any kind of peripheral.

Review the main menus and toolbars of a graphical user interface (GUI). Make sure students understand that a presentation software GUI shares many common features with the interfaces of other kinds of applications.

Question students to make sure they can identify and explain the purpose of the main menus and toolbars in a presentation application GUI. Students should know that the Slide Show menu is one feature that presentation applications do not share with the GUIs of other applications.

If you have a presentation station, you may want to have students examine your projection device and discuss how it is connected to your computer. You can also lead the whole class (or groups of students) in a tour of the presentation application’s GUI and ask students to identify features that you name or to give the name of features that you identify.

Task: What to Do
Students demonstrate that they can identify and use a presentation application’s menus by creating presentations from the outlines of their expository essays. Question students before, during, and after this task to make sure they can explain how to create presentations using correct terminology.

Make sure students know how to import an outline from their word processing software into their presentation software before they begin the task. If you have a presentation station, you may want to model effective use of the presentation software. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a presentation draft with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.
Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic features of presentation software and the Universal Serial Bus (USB).

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Activity Overview
In this activity, students explore how visual representations of information can make a strong impression on people. Students learn that graphic design is the art of creating publications and presentations that capture and hold the attention of readers and viewers.

Activity Questions
- What should students do when creating presentations?
- What should students not do when creating presentations?
- What design principles can students use to improve their presentations?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key graphic design terms such as alignment, balance, contrast, proximity, repetition, and white space. You may want to have students work in small groups to draw an image or symbol to represent each term. Encourage students to remember and visualize these terms any time they read publications or view presentations.

Review key technology terms such as application, multimedia, program, and template. Have students recall the images or symbols they associated with these words. Remind students that using correct terminology to discuss technology is an essential literacy skill in the 21st century.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them make their presentations visually appealing. You may want to have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Explain that a quality presentation looks good, is easy to read from a distance, and communicates a message. Students should know the basic “dos and don’ts” for designing quality presentations. The overarching theme is to use design elements creatively but correctly and sparingly so that their designs are visually appealing and easy to read or view.
Make sure students can identify and explain each of the six basic design principles. Make sure students understand that these principles are *guidelines*, not rules.

Question students to make sure they understand these principles:

- **Alignment** makes a publication easy to read.
- **Balance** sets the tone for a publication.
- **Contrast** directs a reader’s attention to a specific place or idea.
- **Proximity** uses space to show how type and graphics are related.
- **Repetition** helps a reader navigate through a publication.
- **White space** gives a reader’s eyes a rest.

**Task: What to Do**

Students demonstrate that they can use principles of graphic design to make their presentations as visually appealing and easy to read as possible. Remind students to consider their purposes and audiences when designing their presentations.

Discuss the example of a *presentation with design elements* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand how to apply basic principles of graphic design to create presentations that are visually appealing and easy to read.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect.

You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Activity Overview
In this activity, students explore how to use a few well-chosen images and audio or video clips to enhance their presentations. Students learn how to find and use the most effective images, audio, and video in their presentations.

Activity Questions
- What are the strengths and weakness of various multimedia formats?
- How can students find multimedia to enhance their presentations?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as compress, download, extension, and format. Encourage students to remember and visualize these terms any time they download multimedia from the Internet.

You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires a multimedia vocabulary.

If students are not familiar with URLs, you may want to review the Web Basics activity from the Online Research module of the Research, Write, Publish project. Remind students that technical vocabulary is important for everyone to learn because using correct terminology to discuss technology is an essential literacy skill in the 21st century.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them find and use multimedia to enhance their presentations. You may want to ask students what multimedia formats they have seen and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that computer files are stored in particular file formats that correspond to different file extensions. All formats are good for some purposes but not for others.
Image Formats

- **GIF** (Graphics Interchange Format) is a good format for very simple graphics and graphics with transparent, or cut out, areas.
- **JPG or JPEG** (Joint Photographic Experts Group) provides adjustable quality images with many colors.
- **PNG** (Portable Network Graphics) provides high quality images and supports transparent, or cut out, areas.
- **TIF or TIFF** (Tagged Image File Format) provides very high quality images.

Audio Formats

- **AIFF** (Audio Interchange File Format) is a very high quality audio format that was developed by Apple*.
- **MP3** (MPEG-1 Layer 3) is popular on the Internet because it can store CD-quality music in relatively small-sized files.
- **WAV** (Waveform) was an early and very common audio format for Windows operating systems, but it can also be used on a Mac operating system.
- **WMA** (Windows Media Audio) is a relatively new audio format developed by Microsoft* for the Windows operating system.

Video Formats

- **AVI** (Audio Video Interleave) is a common video format for the Windows operating system.
- **MOV or QT** (QuickTime Movie) was created by Apple and included with every Mac operating system.
- **MPG or MPEG** (Motion Picture Experts Group) is a video format from the same organization that developed the MP3 audio format.
- **WMV** (Windows Media Video) is a relatively new video format developed by Microsoft for the Windows operating system.

Task: What to Do

Students demonstrate that they can find images, audio, or video on the Internet and use the multimedia to enhance their presentations and help explain their topics. Students may use the Web sites listed in the task or other multimedia sources on the Internet. You may also have sources of multimedia available through your school network.

Make sure students know how to find and download multimedia files before they begin the task. If you have a presentation station, you may want to model effective search strategies and file management techniques. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a media citations document with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.
Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some basic characteristics of multimedia formats.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Media Citations for Global Warming PowerPoint

Climate Change

http://www.sxc.hu/photo/335236

Many of the world’s freshwater glaciers are shrinking, as warming temperatures melt them away. Some have disappeared all together. This image was selected to show an example of how global warming affects the Earth.

Partly Bleached Coral Reef

http://www.sxc.hu/photo/728528

A partly bleached coral reef is white next to healthy coral. Rising ocean temperatures, one of the many effects of global warming, are threatening coral reefs around the world. This image was selected to show an example of how global warming affects the marine life.

Changing of Migration Patterns

http://www.sxc.hu/photo/797985

A polar bear walks across rocky ground. The bears depend on sea ice as a platform from which they can hunt seals, their main prey. This image was selected to show an example of how global warming can affect the migration patterns of the animal kingdom.

Video on Global Warming

http://www.nwf.org/wildlifeandglobalwarming/globalwarmingandwildlife.cfm

The video clip provides a summary of global warming and its affects on humans, sea life and animal kingdom.
Activity Overview
In this activity, students learn how copyright laws protect the rights of people who create original works. Students should know the conditions and limitations of fair use of copyrighted materials for educational purposes. Students should also know when and how to obtain permission to use copyrighted images in publications.

Activity Questions
- When does fair use allow students to use copyrighted images, audio, or video?
- What are the limits on fair use of a copyrighted image, audio, or video?
- When should students get permission to use copyrighted images, audio, or video?

Vocabulary: Words to Remember
Introduce fair use to students and related key terms such as copyright and public domain. Help students associate an image or symbol with fair use, copyright, and public domain.

Explore the meaning of terms such as copyright, fair use, and public domain in a specific context, such as legal terms like copyright and fair use. You may want to have students use copyright, fair use, and public domain in one sentence to make sure they understand how these terms are related.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites about copyright laws and fair use. You may want to ask students if they have ever used an image, song, or movie without permission. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know that copyright laws protect the works of authors, artists, and others by preventing people from changing creative works without permission and claiming the works as their own. Copyright laws also prevent people from profiting from other people’s work without permission. Make sure students understand that they must assume that a work is copyrighted even when it is not marked with a copyright symbol ©.
Make sure students know that fair use of copyrighted works for educational purpose applies only under certain conditions and limitations. Students should understand that no exact rules exist for fair use in all cases, but they can follow some accepted guidelines for school projects. Make sure students understand that they should always give credit to the creators of images just as they cite the authors of text.

**Task: What to Do**
Students identify the copyright status of the multimedia they find and determine if they can use the media without permission or if they need to obtain permission from the copyright holders. Monitor students to make sure they correctly identify the copyright status of their media files.

Discuss the example of *media copyright information* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**
Remind students that the quiz is not scored and answers are not recorded. Encourage students to read the feedback they get when they answer each question. The quiz makes sure students are familiar with the basic principles of copyright and fair use.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Student Name

Date

Media Copyright Information for Global Warming PowerPoint

1. First Choice Image Web site:

   Copyright Permission Status:
   With respect to Content designated as available for download for educational purposes, librarians, teachers, support staff, administrators, and other staff of educational institutions are authorized to download, print, reproduce, and distribute such Content as may be beneficial for use in educational settings. This authorization extends only as far as is necessary to directly benefit students. Content subject to this Section may not be disseminated beyond the user’s particular educational institution and may under no circumstances be used for commercial purposes.

   Copyright Contact Information:
   http://www.nationalgeographic.com/community/terms.html#content

   Second Choice Image Web Site:
   http://www.sxc.hu/photo/335236

   Copyright Permission Status:
   This image is royalty-free. I am allowed to use this image in digital format on websites and multimedia presentations.

   Copyright Information:
   http://www.sxc.hu/info.phtml?f=help&s=8_2

2. First Choice Image Web site:

   Copyright Permission Status:
   With respect to Content designated as available for download for educational purposes, librarians, teachers, support staff, administrators, and other staff of educational institutions are authorized to download, print, reproduce, and distribute such Content as may be beneficial for use in educational settings. This authorization extends only as far as is necessary to directly benefit students. Content subject to this Section may not be disseminated beyond the user’s particular educational institution and may under no circumstances be used for commercial purposes.

   Copyright Contact Information:
   http://www.nationalgeographic.com/community/terms.html#content

   Second Choice Image Web Site:
   http://www.sxc.hu/photo/728528

   Copyright Permission Status:
   This image is royalty-free. I am allowed to use this image in digital format on websites and multimedia presentations.

   Copyright Information:
   http://www.sxc.hu/info.phtml?f=help&s=8_2

3. First Image Choice Web site:
Copyright Permission Status:
With respect to Content designated as available for download for educational purposes, librarians, teachers, support staff, administrators, and other staff of educational institutions are authorized to download, print, reproduce, and distribute such Content as may be beneficial for use in educational settings. This authorization extends only as far as is necessary to directly benefit students. Content subject to this Section may not be disseminated beyond the user's particular educational institution and may under no circumstances be used for commercial purposes.

Copyright Contact Information:
http://www.nationalgeographic.com/community/terms.html#content

Second Choice Image Web Site:
http://www.sxc.hu/photo/797985
Copyright Permission Status:
This image is royalty-free. I am allowed to use this image in digital format on websites and multimedia presentations.

Copyright Information:
http://www.sxc.hu/info.phtml?f=help&s=8_2

4. Global Warming Video Clip Web site:
http://www.nwf.org/wildlifeandglobalwarming/globalwarmingandwildlife.cfm
Copyright Permission Status:
This Site is owned by the National Wildlife Federation ("NWF"). NWF maintains this Site for your personal, educational, non-commercial purposes. All materials on this Site, including, but not limited to, artwork, photographs, maps, data, text, trademarks, service marks, and logos ("Content") are the exclusive property of NWF or our contributors and are copyrighted. No portion of the Content may be copied, downloaded, reproduced, reused, distributed, transmitted, or modified for any purpose without NWF's express written permission. Any unauthorized use of the Content may violate copyright laws, trademark laws, and other applicable laws.

Copyright Contact Permission Status:
In the process of requesting NWF’s authorization to use any Content displayed on the Site. E-mail sent to: info@nwf.org using the subject "reprint permission."
Activity Overview
In this activity, students explore strategies for delivering interesting, informative, and entertaining presentations to live audiences. Students learn how to prepare and practice their presentations and speak to their audiences in a professional but conversational tone.

Activity Questions
- How can students prepare to deliver successful presentations?
- What should students try to accomplish during their presentations?
- What should students try to avoid during their presentations?

Vocabulary: Words to Remember
Introduce conversational and professional to students with a brief explanation and help students associate an image or symbol with each term. Encourage students to remember and visualize conversational and professional any time they deliver or view presentations.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them deliver interesting, informative, and entertaining presentations. You may want to ask students if they have delivered presentations and what questions they have about delivering presentations. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know how to do the following before they deliver their presentations:
- Review the presentation with Slide Sorter on the View menu
- Run the presentation from either the View or Slide Show menu
- Practice delivering the presentation in front of a mirror, friend, or trusted adult
- Connect and use the projector
Make sure students know how to do the following *during* their presentations:

- Speak to the audience in professional but conversational tones
- Summarize the main points on the slides instead of reading from them or reciting them from memory
- Watch the audience to make sure that they are understanding the presentation
- Watch the time and try to stay on schedule

**Task: What to Do**

Students demonstrate that they can explain their topics by delivering interesting, informative, and entertaining multimedia presentations. Make sure students know how to use the projection device before they deliver their presentations. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a *final presentation* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Be sure to provide ample time for students to discuss their presentations with others. Question students to provide general feedback, asking them to explain why they liked or did not like something. Encourage students to offer constructive suggestions for improvement.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some basic guidelines for preparing and delivering presentations.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

What is Global Warming?

- **Global Warming** occurs when the burning of fossil fuels causes the gases that are released to become trapped, resulting in the greenhouse effect.

**Watch a video on Global Warming**
Who is Affected by Global Warming?

- **Humans**
  - Warming of the Earth

- **Sea life**
  - Warming of the Water

- **Animal Kingdom**
  - Changing of Migration Patterns

Global Warming Affect on Humans

- Loss of life due to increased storm activity
- Loss of property and eroding shoreline
- Loss of food source due to drought
- Increased deaths due to severe heat waves
Global Warming Affect on Marine Life

- Dying off of coral
- Loss of cold water habitats for marine life
- Changing food supply, breeding and nesting habits

Global Warming Affect on Animal Kingdom

- Northward migration to avoid warmer weather
- Competition with new predators
- Changes in animal habits
Conclusion

– If we do not want mankind to go the way of the dinosaurs, we need to understand and reverse the affects of global warming:

• Warming of the Earth
• Warming of the Water
• Changing of the Migration Patterns for Animal Kingdom
Research, Write, Present | Multimedia Presentation
Look Back

Thinking about Learning
In this module, students explored how to use technology tools to present topics to audiences. Students designed effective presentations, found and downloaded multimedia from the Internet, documented the copyright status of the media, and delivered their presentations to a live audience.

Students have learned:

- How to use presentation tools to explain their topics to an audience
- How to apply basic design principles to make their presentations more effective
- How to find multimedia that enhances their presentations and helps explain their topics
- How to observe copyright laws when they use multimedia in their presentations
- How to deliver interesting, informative, and entertaining presentations

Checklist for Multimedia Presentation
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students can confidently prepare and present multimedia presentations to live audiences.

Rubric for Multimedia Presentation
Help students use the rubric to self-assess the content, design, multimedia, and delivery of their presentations. Explain to students the importance of paying attention to both technical mechanics and writing mechanics. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their presentations.

Reflection on Multimedia Presentation
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their multimedia presentations with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about presentation tools
- What they learned about designing effective presentations
- How they prepared to deliver their presentations
- What they liked about their presentations and what they want to do better next time

Encourage students to take or e-mail their multimedia presentations home to share with parents, guardians, or other trusted family members.
Teacher Guide

Make Decisions with Data

Project Overview
In the Make Decisions with Data project, students develop fundamental skills needed to use technology in support of decision making, data analysis, and communication. Students use technology tools and resources to help them make more informed decisions by collecting and analyzing data. You can help students develop an enduring understanding of how to consider different points of view with reason and fairness. In this project, you provide students with opportunities to become more effective researchers, decision makers, and presenters by learning to analyze and visualize data. As students become more proficient, they begin to use data to improve decision making in all aspects of their lives.

Project Questions
- How can critical thinking skills help students make better decisions about complex topics?
- How can collecting opinion data through surveys before making a decision be helpful?
- How do analyzing and visualizing data help students make decisions?
- How can students use analysis and visualizations of data to explain decisions?

Decision Making
Are your students prepared to make important decisions about their futures? In this module, you promote fundamental thinking skills that can help students make better decisions throughout their lives. Make sure students understand that critical thinkers are effective decision makers because they consider different points of view with reason and fairness. With your facilitation, students understand how surveys collect data on people and their opinions, and how survey data can inform many important decisions about complex topics. Then, students choose and research important decisions on which to create their own surveys.

Data Collection
What can students do when they need more information to make a decision? In this module, students learn how to collect opinion data by administering surveys. You guide students to help them understand that opinions are often useful data because important decisions have significant effects on people. You can help students write survey questions and compile questionnaires to collect data from other students. Make sure students understand how database applications store and manage data for quick and easy retrieval. After students collect their data, they plan databases to store and manage their survey data.
**Data Analysis**
Do your students know how to use data to inform decision making? In this module, you facilitate an exploration of database applications as an effective technology tool to store and manage data, and spreadsheet applications as a tool for analyzing and visualizing data. Students should understand how visual representations of data, such as charts and graphs, can help them evaluate possibilities and make choices. You help students learn how to create forms and queries to enter and retrieve survey data, and use formulas and functions and create charts and graphs to analyze their data. Students also format their data and visualizations before sharing their analysis with peers.

**Expository Presentation**
Do your students feel a sense of accomplishment when they share their work with others? In this module, students share their successful decision making with a live audience by creating, preparing, and delivering expository presentations. You facilitate as student reflect on how they defined decisions, gathered information, developed alternatives, evaluated possibilities, and made choices. You can help students understand how to use the expository style of writing to explain their decisions by conveying the most important ideas and concepts in few words. Finally, students use technology tools to create and deliver presentations that are entertaining as well as interesting and informative.
Module Overview
In this module, students learn that they make decisions whenever they consider alternatives and make a choice. Students should know that critical thinking can help them evaluate alternatives and make important decisions. You can help students understand that critical thinkers are effective decision makers because they consider different points of view with reason and fairness. Students should know that surveys collect data on people and their opinions and that survey data can inform many important decisions about complex topics.

Module Questions
- How can critical thinking skills help students make decisions?
- What are statistics and how can basic statistics be used to summarize survey data?
- How can students define important decisions around complex topics?
- What strategies can students use to gather accurate and reliable information from credible sources?
- How can graphic organizers help students develop alternative choices for their decisions?

Activity 1: Thinking Skills
Students explore how to examine a complex decision from multiple points of view. Students analyze news stories to show that they can think critically about current events.

Activity 2: Survey Data
Students explore how to use data to help them make decisions. Students analyze the results of surveys on topics that interest them to show that they can think critically about survey data.

Activity 3: Decision Definition
Students explore how decision making can help them learn about complex topics. Students define important decisions and write questions to guide research on the decisions.

Activity 4: Information Gathering
Students explore strategies for gathering accurate and reliable information. Students take effective notes that quote, paraphrase, and summarize credible sources.

Activity 5: Decision Alternatives
Students explore strategies for developing alternative choices. Students use graphic organizers to organize the information they gather into different choices for their decisions.
Look Back
Students reflect on their learning in this module. They should be ready to collect survey data. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ decision definitions and alternatives.
Make Decisions with Data | Decision Making
Thinking Skills

Activity Overview
In this activity, students explore how to examine a complex decision from multiple points of view to make sure they consider all of its parts. Students learn key fundamental skills to help them think critically about complex decisions.

Activity Questions
• Why is being able to think critically an important skill?
• What skills can help students think critically?
• When can critical thinking help students make decisions?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as complex, concept, consistent, logical, objective, persistent, precise, reflective, and relevant. You may want to have students use each word in a sentence, act out each word, or quiz each other on the terms.

You may want to pair students with complementary partners or peer tutors to make sure everyone acquires a fundamental vocabulary for discussing critical thinking. The thinking skills vocabulary is used throughout the project, so make sure students understand each term.

Encourage students to remember and visualize consistent, logical, objective, persistent, precise, relevant, and reflective any time they are thinking critically about decisions. Make sure students understand that in this context critical does not imply finding fault.

Exploration: Learning from the Web
Students explore how critical thinking can help them make complex decisions. Encourage students to visualize consistent, logical, objective, persistent, precise, reflective, and relevant as they explore. Make sure students review the guiding questions for this activity before they begin their exploration. You may want to ask students what questions they have about how to think critically about decisions. Encourage students to take notes or draw pictures while they explore Web sites.

Information: What to Know
Make sure students understand the importance of being aware of not only what they think, but how they think.

Pose questions and lead a short class discussion to make sure students understand how all critical thinkers share some basic characteristics:
• **Accurate.** Critical thinkers are careful to use true information.
• **Clear.** Critical thinkers communicate in ways that are appropriate for their audiences.
• **Consistent.** Critical thinkers always work in orderly and methodical manners.
• **Logical.** Critical thinkers put information together in orderly ways.
• **Objective.** Critical thinkers put aside personal feelings and opinions.
• **Persistent.** Critical thinkers overcome any obstacles they encounter. They continue to think critically until they reach logical conclusions.
• **Precise.** Critical thinkers use clear and specific ideas and language.
• **Reflective.** Critical thinkers always monitor their thinking while focusing on tasks at hand.
• **Relevant.** Critical thinkers only use important information.

Make sure students know that decision making is an important part of almost any field of study or occupation. Many methods and processes have been created for making different kinds of decisions.

Question students to make sure they know how to follow a decision making process:

1. Define the decision to be made.
2. Gather information about the topic that is relevant to the decision.
3. Develop alternatives.
4. Evaluate the possibilities of each alternative.
5. Choose the best alternative.

**Task: What to Do**

Students read and analyze news stories about complex topics to show that they know how to think critically about current events. Monitor progress to make sure that each student understands **consistent, logical, objective, persistent, precise, reflective, and relevant,** and uses the terms correctly when discussing the decision making process.

Discuss the example of a **decision analysis** with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Students may read news stories from the online sources provided in the task, other sources on the Web, or newspapers or magazines in your classroom or library. If you are a classroom teacher, this is an excellent time to collaborate with the librarian.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand objectivity and logic, and are familiar with the decision making process.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Decision Analysis of Cyberbullying Protection

Article: Mean Messages

This article discusses how to keep students safe from bullying in cyberspace. Cyberbullies use e-mail and the Internet to target and humiliate students. This bullying is becoming more frequent as students use the Internet more. This problem will keep growing so it is important for students to know more about cyberbullies. They need to know how to make decisions on using the Internet safely and protecting themselves from cyberbullies.

Some students are so afraid of reading hurtful e-mails about themselves that they stop using e-mail or avoid using the Internet. This is not the best way to handle cyberbullying because these students need to know how to use the Internet for school and work. Other students change their e-mail accounts often to avoid seeing any annoying or cruel e-mail messages. This is not a good solution either. The best solution for dealing with cyberbullies is education. Learning safe ways to use the Internet makes it easier to avoid becoming a victim. Every student need to take responsibility for knowing how to deal with hurtful messages. Then, students can continue to use the Internet and still protect themselves.

After reading this article, I have tips to use every time I use e-mail. I will recommend these tips to other students to help them learn how to safeguard themselves. The tips provided in this article are easy to apply for everyone. The tips are:

1. Be private.
   Do not share your passwords, pictures, or secrets with anyone else.
2. Take five.
   Do something you like for five minutes before replying to a cruel or hurtful message.
3. Stop, block, and tell.
   Stop before you reply to a mean or bullying message. Block senders who send these kinds of messages. Tell a parent or teacher about the message.
4. Save the evidence.
   Save copies of bullying messages.
5. Google yourself.
   Every week or so, search for your name to see if it shows up in any unwanted places. If it does, tell a parent or teacher.
Make Decisions with Data | Decision Making
Survey Data

Activity Overview
In this activity, students explore how to use data to help them make decisions. Students learn that data is information that has been collected by observation or measurement and that surveys are used to collect data on people’s opinions.

Activity Questions

What can students learn from survey results?
Why do students need to think critically about survey results?
How can students use surveys to collect data on topics that interest them?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as chart, data, dataset, population, sample, and statistics. Encourage students to remember and visualize these terms any time they participate in or read about a survey.

Make sure students understand the differences between fact and opinion. Make sure students understand the similarities and differences among the three measures of central tendency. You may want to have students use mean, median, and mode in one sentence to make sure they understand the precise definition of each term.

Review key critical thinking terms such as consistent, logical, objective, persistent, precise, relevant, and reflective. Have students recall the images or symbols they associated with these words. Remind students that being able to discuss thinking skills using correct terminology will help them be successful in school, work, and life.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they explore how surveys collect data on people and their opinions. You may want to ask students what they know about reading survey data and have students write guiding questions of their own. You may also want to have students share some of their opinions and discuss what facts could support their opinions.
Remind students to use critical thinking skills as they explore surveys. Encourage students to visualize **chart**, **data**, **mean**, **median**, **mode**, and **percentage** as they read and take surveys. Encourage students to take notes or draw pictures while they explore Web sites. You may want to have students report out to the class, another student, or a small group of students.

**Information: What to Know**

Make sure students know that surveys ask questions to collect data on people’s opinions about a topic. Remind students that an **opinion** is something a person believes about a topic, while a **fact** is something that most people agree is true because it is supported by objective data.

Question students to make sure they understand the difference between fact and opinion, and can think of examples, such as:

- **Fact:** Greenhouse gases that trap heat in the atmosphere cause global warming.
- **Opinion:** Global warming must be stopped immediately regardless of the economic cost.

Also, question students to make sure they understand how to calculate **mean**, **median**, **mode**, and **percentage**. Make sure students know how to read and interpret charts showing percentages and measures of central tendency.

**Task: What to Do**

Students analyze the results of surveys on topics that interest them to show that they can think critically about survey data. Students may analyze surveys from the Web sites listed in the task, other credible Web sites, or credible sources available in the school.

Discuss the example of a **survey analysis** with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to read and interpret common statistics for reporting survey results.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Statistical Analysis of Education Indicators

Forum on Child and Family Statistics: Education Indicators
From:  http://www.childstats.gov/americaschildren06/index.asp

The data on this site shows different factors that affect education. A wide range of ages is covered in the data. Statistics are provided for pre-school, elementary school, high school and college students. This data can be used by teachers and school systems to decide which subjects to teach and how much time should be spent on each subject. The information from the data helps these decision makers understand where students are succeeding and where they are failing.

To show how the data helps, here is an example. The data provided shows that average reading score of 4th graders increased from 2003 to 2005, but the average reading scores of 8th graders declined in the same period. This information is a starting point for the next action of the decision makers. They need to think about the reasons why the reading scores would have declined. It may be that the 8th graders are not as interested in learning about reading as the 4th graders. There may be other reasons, such as the methods used to teach reading or the number of student per teacher, so all possible reasons need to be considered.

After the decision makers consider all the reasons, then they need to think about the different actions they can take to close the achievement gap. They need to decide on the changes that will help the 8th graders read better. My recommendation is to add more technology to the 8th grade reading curriculum. I think that technology makes every subject more interesting, so I am confident that adding technology would make 8th grade reading more appealing. If they like the subject more, the 8th graders will do better in reading.
Activity Overview
In this activity, students explore how they can use the decision making process to learn about complex topics that interest them. Students learn that defining decisions involves brainstorming potential topics, evaluating the topics, narrowing the focus, and making sure they can gather enough accurate and reliable information to make decisions.

Activity Questions
How does brainstorming help students choose topics and define decisions?
How can students make sure their decisions are defined narrowly enough to make effectively?
What types of questions can students ask to help them make decisions?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with convergent, divergent, and evaluative. You may want to have students use each word in a sentence or act out the word.

Encourage students to remember and visualize the terms any time they see or hear a question. You may want to have students use convergent, divergent, and evaluative in one paragraph to make sure they understand the precise definition of each term.

Review key statistics terms such as chart, data, mean, median, mode, percentage, population, and sample. Have students recall the images or symbols they associated with these words. Question students to make sure they recall the differences between fact and opinion.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them define decisions. Remind students to think about and visualize convergent, divergent, or evaluative as they explore. You may also want to have students turn in notes or report out on their exploration.

Information: What to Know
Make sure students understand how they can use the decision making process to learn...
about complex topics that interest them. You may want to walk through the four stages of choosing a decision topic with the whole class.

Question students to make sure they know how to:

- Make a list of topics by freely brainstorming ideas
- Evaluate the topics, identify a topic that interests them, and think of some decisions that could be made
- Narrow the focus of the topic to a single decision
- Check for sources to make sure they can find enough information to make the decision

Make sure students understand that effective research questions are big enough to hold their interest and small enough to answer.

Question students to make sure they can distinguish among four types of questions:

- Fact questions always have a correct answer.
- Convergent questions require more explanation than fact questions, but they usually have correct answers.
- Divergent questions usually have many acceptable answers.
- Evaluative questions require judgment to decide among various opinions or answers.

**Task: What to Do**

Students demonstrate that they can define interesting and important decisions by choosing topics and writing effective questions to guide research. Monitor progress to make sure students select complex topics and define decisions that are important but tractable.

Students may use the Web sites listed in the task, other familiar Web sites, and the school library or media center to help them find topics. If you are a classroom teacher, this activity is a good time to coordinate with the librarian.

Discuss the example of a decision definition with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to choose topics and write effective research questions when defining decisions.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Learning about Making Schools Safe

Bullying is a serious problem at many schools. Some students are afraid to come to school because they fear being bullied by other students. At our school, I need to make some decisions on actions to take to make my school safe. There are many different ideas on how to handle bullying. Some students think it is best to walk away or do nothing when others are being bullied. Others think that responsible adults should be involved as quickly as possible. And yet other students think that confronting bullies on their own terms is the best approach.

Before I can decide on the best action to make our school safe, I need to find out more about bullying. I need to understand how, when, and why students are bullied at my school. Knowing this information will make it easier to select the best actions to take. I need to know more about how the students in my room feel about bullying, how they define bullying, and what actions they take when they are involved in bullying. I need to understand why students think victims are bullied. After I collect this information on the students’ view on bullying, I can use it to evaluate the best way to make our school safe.

Here are my research questions that I will investigate to learn more about creating a safe environment in my school:
1. What are different options for action to take when bullying happens?
2. How effective are these actions?
3. What are educators’ and child safety experts’ recommendations for handling bullying?
4. What are effective actions for students take to stop bullying?
5. Why do some students bully other students?
Make Decisions with Data | Decision Making
Gathering Information

**Activity Overview**
In this activity, students explore strategies for gathering accurate and reliable information to make important decisions about complex topics. Students learn when and how to quote, paraphrase, or summarize a variety of sources, such as books, encyclopedias, databases, periodicals, and the Internet.

**Activity Questions**
- How can students get the most accurate hits from a keyword search?
- What are some strategies students can use to help them take effective notes?
- How can students make sure they do not commit plagiarism?

**Vocabulary: Words to Remember**
Introduce the vocabulary words to students with a brief explanation of each word. Help students understand how *paraphrase*, *quote*, and *summarize* are similar and different from each other. Encourage students to associate a distinct image or symbol with each word and visualize these terms when they are taking notes.

You may want to have students use *paraphrase*, *quote*, and *summarize* in one sentence to make sure they understand the precise definition of each term. Discuss *plagiarism* and make sure students understand how the term is related to *paraphrase*, *quote*, and *summarize*.

Review key research terms used throughout the project, such as *accurate*, *credible*, *criterion*, *keyword*, and *reliable*. Have students recall the images or symbols they associated with these words. Remind students that a good research vocabulary will help them be successful in school, work, and life.

**Exploration: Learning from the Web**
Students explore some fundamental research strategies for quickly gathering accurate and reliable information using library catalogs, databases, and Web sites. Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them gather information quickly and effectively.

You may want to ask students what they know about taking notes and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.
**Information: What to Know**

Make sure students understand that *plagiarism* is when you fail to cite a source you have quoted, paraphrased, or summarized. Students should be able to explain the difference between paraphrasing and summarizing a source. Students should understand that summarizing involves more analysis than paraphrasing. Explain to students that summarizing sources is the best way for them to avoid plagiarism, but they still must cite their sources in a bibliography.

Review the following five basic types of notes:

- **Quote.** Copying an author’s exact words is the simplest way to take notes.
- **Paraphrase.** Putting another author’s ideas into your own words is often the best way to take notes.
- **Summary.** Explaining the main points and important details of another author’s ideas is usually the most efficient way to take notes.
- **Facts and Data.** Recording facts or data from a source is sometimes useful.
- **Original Ideas.** Recording original ideas while gathering information is important.

Make sure students know that they can use a word processing application to take notes and are aware that specialized computer programs can also help with taking notes. Students should understand that electronic notes have the advantage of being easy to organize as well as quick and easy to search.

**Task: What to Do**

Students gather accurate and reliable information by taking effective notes from credible sources. If you have a presentation station, you can review keyword search and Web site evaluation, and model effective note-taking with the whole class before students begin their research. If you are a classroom teacher, this is an excellent time to collaborate with the librarian.

Discuss the example notes with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with basic strategies for searching with keywords and taking effective notes.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Learning about Bullying

Here are the sources I used to learn more about bullying in middle school:

- **Sticks and Stones and Names Can Hurt You: De-Myth-tifying the Classroom Bully!** ([http://www.educationworld.com/a_issues/issues102.shtml](http://www.educationworld.com/a_issues/issues102.shtml))
  
  This article is targeted to teachers, but it contains lots of useful information about bullies. It sets straight ten myths about bullying, such as:

  "THE MYTH: Bullies suffer from insecurity and low self-esteem. They pick on others to make themselves feel more important.
  
  THE RESEARCH: Most bullies have average or above-average self-esteem. They "suffer" from aggressive temperaments, a lack of empathy, and poor parenting."

- **Advice on Stopping Bullying from BullyStoppers.com** ([http://www.bullystoppers.com/bullying_help_for_students.htm](http://www.bullystoppers.com/bullying_help_for_students.htm))
  
  The author of the site offers different strategies for stopping bullying. The strategies are outlined by the situations where bullying happens.

  Many of these strategies work in different situations. One strategy is sitting close to friends because it is less likely that you will be singled out for bullying. Talking to an adult about the bullying and being aware of where you are and who is around you are strategies that can be used in many situations. Finally, choosing a different route through the halls at school or walking home can make it more difficult for a bully to find you.

  These ideas will be important for my project because they show the different places and ways that students are bullied. I did not realize all the places where bullying happens. I thought it only happened after school, not in school or on the bus. I will need to find out more from my classmates on where they find bullying occurring. I also need to know more about the ways that other students are bullied.

- **Effects of Bullying from Stop Bullying Now** ([http://www.stopbullyingnow.hrsa.gov/index.asp?area=effects](http://www.stopbullyingnow.hrsa.gov/index.asp?area=effects))
  
  This resource talks about how bullying affects both the bullies and the students being bullied. It points four different ways that bullying affects society.

  First, more students are bullied than most people realize. Some studies show that 15%-25% of students say they have been bullied and 15%-20% say they have bullied others. Second, bullying can hurt your future prospects. Students who bully are more likely to drop out of school. They are also more likely to have other bad habits like smoking, drinking, and drug abuse.

  Third, students avoid school because of bullying. These students stay home from school because they are afraid. Finally, students who bully can have many problems later in life. They are more likely to get into fights and vandalize property when they are older. Sixty percent of middle schoolers who bullied have a criminal record by the time they are 24 years old.
• **The Legal Eagle’s Students’ Corner**
  ([http://www.njsbf.com/njsbf/student/eagle/winter02-6.cfm](http://www.njsbf.com/njsbf/student/eagle/winter02-6.cfm))
This site has many facts on bullying. These facts are from professional organizations that work with children and schools. From these facts, I can use these facts to help me understand more about the reasons for bullying and the best strategies to stop bullying at my school.
  
  ▪ Bullying is the most common form of violence in our society. Between 15 percent and 30 percent of students are bullies or victims. (*National Association of School Psychologists*)
  
  ▪ Since 1992, there have been 250 violent deaths in schools that involved multiple victims. In virtually every school shooting, bullying has been a factor. (*National Association of School Psychologists*)
  
  ▪ An estimated 160,000 children miss school everyday due to fear of attack or intimidation by other students. (*National Education Association*)
  
  ▪ Since 1992, there have been 250 violent deaths in schools that involved multiple victims. In virtually every school shooting, bullying has been a factor. (*National Association of School Psychologists*)

• **My Ideas**
I learned a lot from reading the different resources on bullying that I found. I now know that bullying occurs in many more places that I originally thought. Bullying is a problem in school, but it is also a problem for students on the way to and from school, after school, and on the Internet. I understand there are many ways to handle bullies, but some ways are more effective than others. Talking back to a bully may be satisfying at the moment, but it does not change the bullying situation. The bullying will continue. Avoidance strategies, like walking another way or changing the hall you take to class work better, but they are not long-term solutions. I need to know if any of these avoidance strategies works and whether the bullies find someone else to pick on and never bother you again. Getting an adult involved seems to be a good solution, but I need to know more about whether other students think you are a tattle-tale.
Activity Overview
In this activity, students explore how they can use their notes to develop alternative choices for their decisions. Students learn how to select and use graphic organizers to help them organize their information and develop alternative choices for their decisions.

Activity Questions
- What are the strengths and weaknesses of various types of graphic organizers?
- Which graphic organizers are most appropriate for the information each student collected?
- What types of graphic organizers could help students develop alternative choices?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with graphics, knowledge, organize, and understanding. You may want to have students use each word in a sentence or act out the word. Encourage students to remember and visualize these terms any time they use graphic organizers.

Review key research terms, such as convergent, divergent, and evaluative, as well as key note-taking terms, such as paraphrase, quote, and summarize. Have students recall the images or symbols they associated with these words. Encourage students to remember and visualize these terms any time they organize information gathered from research.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them graphically organize the information they collected into decision alternatives.

You may want to ask students what questions they have about how to use graphic organizers to represent knowledge and develop alternative choices for decisions. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that graphic organizers are ideal tools for arranging many pieces of information into a few logical concepts or ideas. Make sure students know that an effective graphic organizer is a visual representation of knowledge. You may want to discuss the difference between information and knowledge with students.
Question students to make sure they know how to choose the type of graphic organizer that will best help them develop alternative choices for their decisions:

- The fishbone is a popular graphic organizer for showing cause-and-effect relationships.
- A Venn diagram is a popular graphic organizer for comparing and contrasting two or more concepts or ideas.
- A clustering diagram, also called a concept map, is an effective way to sort and group information into categories.
- Some graphic organizers, such as interaction outlines and problem-solution, represent special processes.

**Task: What to Do**

Students demonstrate that they can use graphic organizers to represent knowledge by developing at least two alternative choices for their decisions. Make sure students know how to create graphic organizers in word processing or diagramming software.

If you have a presentation station, you may want to create a graphic organizer with the whole class or groups of students. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to check with the computer teacher to find out what tools are available for students to use.

Discuss the example of a graphic organizer with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with various types of graphic organizers.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Learning about Bullying

I used a compare and contrast organizer to look at the difference between two approaches to handling bullying. When someone is being bullied, others can walk away and do nothing or they can fight back against the bully. I wanted to compare these two different strategies to see the strengths and weaknesses of each.

Compare /Contrast Organizer

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Walk Away or Do Nothing</th>
<th>Fight Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Action</td>
<td>Passive</td>
<td>Aggressive</td>
</tr>
<tr>
<td>Amount of Action</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Risk of Retaliation</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Danger of Escalation</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Ability to Stop Future Bullying</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Chances of Success</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

After reviewing these two different strategies, I do not think that either is effective in handling a bullying situation. These two strategies are opposite to each other, but neither strategy will stop the bullying incidents and each may have grim consequences for the victim and the onlookers. I now see that more investigation is needed to discover successful ways to stop bullying and promote a safe school environment.

Chain of Events Organizer

When Onlookers Ignore Bullying

A bully calls a student a name and starts picking on the victim. Onlookers ignore or start to walk away.

Student victim waits for next attack by the bully. Bully keeps intimidating student victim. No one helps.

Student victim is hurt and knows that no one will help.

When Onlookers Fight Bullying

A bully calls a student a name and starts picking on the victim. One of the onlookers tells the bully to stop.

Bully, victim and onlooker wait for the next confrontation. Bully gets mad at both the victim and the onlooker and begins to taunt both.

Bully, victim and onlooker start to fight. Nothing is resolved.
Thinking about Learning
In this module, students explored critical thinking skills, the decision making process, and survey data. Students defined decisions and gathered information to help them develop alternative choices for their decisions.

Students have learned:

- How to use critical thinking skills to make important decisions effectively
- How basic statistics can summarize survey data and inform decision making
- How to define interesting and important decisions around complex topics
- How to gather accurate and reliable information from credible sources
- How to use graphic organizers to develop alternative choices for decisions

Checklist for Decision Making
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to create surveys to collect data on their decisions.

Rubric for Decision Making
Help students use the rubric to self-assess their decision definition, information gathering, and decision alternatives. Remind students of the importance of paying attention to writing mechanics. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their decision definitions and alternatives.

Reflection on Decision Making
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their decision definitions, notes, and graphic organizers with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about critical thinking and decision making
- How statistics summarizing survey results can inform decision making
- How they chose their topics and defined decisions
- How they gathered information and developed alternative choices for their decisions

Encourage students to take or e-mail their decision definitions, notes, and graphic organizers home to share with parents, guardians, or other trusted family members.
Module Overview
In this module, students learn how to collect opinion data by administering surveys. You can help students understand that people’s opinions are often useful data because important decisions often have significant effects on people. Students write effective survey questions and compile questionnaires to collect data from other students. Students learn how database applications store and manage data for quick and easy retrieval. Students then plan databases to store and manage their survey data, and use a database application to create tables for their data.

Module Questions
- What kinds of survey questions collect the most useful opinion data?
- What guidelines can help students collect accurate opinion data?
- How do database applications store and manage data?
- How can students plan an effective design for their survey databases?
- How can students create database tables to store their survey data?

Activity 1: Survey Questions
Students explore strategies for writing effective survey questions. Students create questionnaires to show that they can write effective open-ended and close-ended survey questions.

Activity 2: Survey Administration
Students explore ways to collect survey data with questionnaires. Students work with partners to conduct pilot tests of their questionnaires and administer their surveys.

Activity 3: Database Basics
Students explore how database applications store and manage data on a computer for quick and easy retrieval. Students learn how to use a database application to manage their survey data.

Activity 4: Database Planning
Students explore some strategies for planning a database to manage their survey data. Students work with partners to design a database for their team’s survey data.

Activity 5: Database Tables
Students explore some ways to create tables in a database application. Students create databases from their plans and test the databases with samples of their survey data.

Look Ahead
Review the checklist and rubric before introducing the module to students. When you introduce the module, discuss the checklist and rubric with the whole class or have students review the checklist and rubric individually or in small groups.

See the checklist: Data Collection Checklist
See the rubric: Data Collection Rubric
Look Back
Students reflect on their learning in this module. They should be ready to analyze their survey data. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ survey data.
Make Decisions with Data | Data Collection
Survey Questions

Activity Overview
In this activity, students explore strategies for writing effective survey questions. Students learn how to write close-ended and open-ended questions as well as questions to collect demographic data on respondents.

Activity Questions
- What kinds of questions should students ask in their surveys?
- What kinds of questions should students avoid?
- What characteristics do most effective questions have in common?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as bias, close-ended, and open-ended. Make sure students understand the distinction between close-ended and open-ended questions. You may want to have students use questionnaire, respondent, and survey in one sentence to show that they understand how these terms are related.

Review key terms such as data, fact, logical, objective, opinion, point of view, and statistics. Have students recall the images or symbols they associated with these words. You may want to have students use each word in a sentence or act out the word.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them write effective survey questions. You may want to ask students what questions they have about creating survey questionnaires. You may also want to have students turn in notes or report out on their exploration.

Information: What to Know
Make sure students understand how and when to use each of the two basic types of survey questions, close-ended and open-ended.

Close-ended questions simplify data collection because they have a finite number of possible answers.
Effective close-ended questions:

- Collect numerical data that is easy to analyze
- Give three or four logical answer choices for each question
- Avoid very long questions or answers

Open-ended questions can provide more detailed information than close-ended questions, but open-ended questions may require more time and effort.

Effective open-ended questions:

- Provide detailed information or quotes
- Are limited to ideas or concepts that are too important or too complex to understand adequately with close-ended questions

You may want to give several examples of each kind of question and have students vote on whether each question is close-ended or open-ended. You may also want to have students brainstorm examples of each type of question in pairs, small groups, or as a class.

**Task: What to Do**

Students create questionnaires to show that they know how to write effective survey questions. Monitor progress to make sure that each student understands open-ended and close-ended and can write effective questions of both types. You may want to check that students collect some demographic data from respondents as well.

Discuss the example of survey questions with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students understand the distinction between open-ended and close-ended.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Survey on Bullying: What Do You Think?

Directions: In this survey, you will be asked questions about bullies. It feels bad to be bullied so we want to know your thoughts and opinions about bullies and why they do it.

All your answers will be kept confidential and will not be shared with anyone else.
Thanks for taking this survey.

Closed-ended questions
1. What is your gender?
   - Girl
   - Boy

2. Do you know any bullies in your school?
   - Yes
   - No
   - Not Sure

3. Do you think bullying is a problem at your school?
   - No, our school does not have a bullying problem
   - Yes, there is a bullying problem at our school
   - Yes, there is a severe bullying problem at our school

4. Where does most bullying usually take place?
   - School
   - After School
   - Other

5. Bullies are usually:
   - Girls
   - Boys
   - Both girls and boys
Open-ended questions

6. What kind of bullying has happened to you?
(Students can select more than one answer.)
- Cyber (sent nasty emails or text messages)
- Racial or religious
- Name calling
- Left out of activities
- Humiliated because I look different
- Physically attacked – kicked, punched or hurt in someway
- Asked for money and things
- Intimidated from doing something I wanted to do
- I have never been bullied.
- Other answers: ___________________________________

7. Why do you think that kids bully others?
(Students can select more than one answer.)
- Other kids are mean to them
- They want to be in charge
- They are not doing well in school
- They do not like themselves
- They think it makes better than the victim
- They like to be cruel to others.
- Other answers: ___________________________________

8. Why do victims get bullied?
(Students can select more than one answer and can write in an answer.)
- Tattling in front of the bully
- Being the new kid
- Saying frivolous (not needed) facts
- Interacting with the bully in a way he/she doesn't like
- Telling the bully what to do
- Being an outsider
- The victims have high irritating voices
- No reason--bullies just pick on whoever they can
- I don’t know
- Other answers: ___________________________________
In this activity, students explore ways to collect survey data with a questionnaire. Students learn some basic guidelines for collecting accurate survey data.

Activity Questions

- What are some ways to administer a survey?
- What are the advantages and disadvantages of interviews and questionnaires?
- What are the advantages and disadvantages of printed, e-mailed, and online questionnaires?

Vocabulary: Words to Remember

Introduce the vocabulary words to students with a brief explanation of each term. Help students associate images or symbols with key terms such as *administer, convenience, pilot, probability, random, and representative*. Encourage students to remember and visualize these terms as they collect data with their questionnaires.

Review key terms such as *bias, close-ended, open-ended, questionnaire, respondent, and survey*. Have students recall the images or symbols they associated with these words. You may want to have students use survey terms, such as *population, sample, random, and representative* in one sentence to make sure they understand how these terms are related. You may also want to have students work in pairs to quiz each other on the new and review words.

Exploration: Learning from the Web

Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them use questionnaires to collect survey data. You may want to ask students what questions they have about administering surveys. You may also want to have students turn in notes or report out on their exploration.

Information: What to Know

Make sure students understand the advantages and disadvantages of various methods of collecting data with questionnaires.

Pose questions and lead a short class discussion to make sure students know some guidelines to help them collect valuable data:
1. **Identify a population.** A population is all members of the group of people from whom you want to collect facts and opinions.

2. **Select a representative sample.** A sample is the members of your population that you will ask to complete your questionnaire.

3. **Prepare questionnaires.** Determine the best method for delivering your questionnaire to respondents and collecting the completed surveys.

4. **Conduct a pilot test.** Give your questionnaire to one or two respondents.

5. **Deliver the survey.** Provide your sample with enough information to complete and return your questionnaire as conveniently as possible.

6. **Collect the data.** Make sure you collect as many completed questionnaires from your sample as possible.

**Task: What to Do**

Students work with a partner to conduct a pilot test by administering their surveys and demonstrating that they can use questionnaires to collect accurate data. Monitor progress to make sure students are deliberate in choosing representative samples of the populations they want to survey.

If you are a classroom teacher, you may want to check with the computer teacher to make sure students know how to use a word processing application to create forms. You can also collaborate with the computer teacher to offer students a variety of methods for collecting data.

Discuss the example of a *completed questionnaire* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some basic methods for collecting survey data from a representative sample.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Population to Surveyed: Students in my classroom
Total Number of Surveys: 25

Survey Questions for Bullying: What Do You Think?

Directions: In this survey, you will be asked questions about bullies. It feels bad to be bullied so we want to know your thoughts and opinions about bullies and why they do it.

All your answers will be kept confidential and will not be shared with anyone else. Thanks for taking this survey.

1. What is your gender?
   - Girl
   - Boy

2. Do you know any bullies in your school?
   - Yes
   - No
   - Not Sure

3. Do you think bullying is a problem at your school?
   - No, our school does not have a bullying problem
   - Yes, there is a bullying problem at our school
   - Yes, there is a severe bullying problem at our school.

4. Where does most bullying usually take place?
   - School
   - After School
   - Other
   - Not Sure
   - No Opinion

5. Bullies are usually:
   - Girls
   - Boys
   - Both girls and boys
6. What kind of bullying has happened to you?  
(Students can select more than one answer.)  
- Cyber (sent nasty emails or text messages)  
- Racial or religious  
- Name calling  
- Left out of activities  
- Humiliated because I look different  
- Physically attacked – kicked, punched or hurt in someway  
- Asked for money and things  
- Intimidated from doing something I wanted to do  
- I have never been bullied.

7. What do you do if someone bullies you?  
- Fight back  
- Try to talk to the bully  
- Just walk away and do nothing  
- Talk to an adult or teacher  
- I have never been bullied

8. What do you do when you see someone is being bullied?  
- Just watch or walk away and do nothing  
- Join in  
- Say or do something to stop it  
- Tell an adult or teacher.  
- I have never seen anyone being bullied

9. Why do you think that kids bully others?  
(Students can select more than one answer.)  
- Other kids are mean to them  
- They want to be in charge  
- They are not doing well in school  
- They do not like themselves  
- They think it makes better than the victim  
- They like to be cruel to others.

10. Why do victims get bullied?  
(Students can select more than one answer and can write in an answer.)  
- Tattling in front of the bully  
- Being the new kid  
- Saying frivolous (not needed) facts  
- Interacting with the bully in a way he/she doesn't like  
- Telling the bully what to do  
- Being an outsider  
- The victims have high irritating voices  
- No reason—bullies just pick on whoever they can  
- I don’t know  
- Other reasons written by students
Make Decisions with Data | Data Collection
Database Basics

Activity Overview
In this activity, students learn that a database is a collection of information organized so that they can quickly retrieve the specific information they need. Students explore how database applications specialize in storing and managing data on a computer for quick and easy retrieval.

Activity Questions

- How is a database application similar to, and different from, other applications?
- How does a database application store and manage data?
- How can students use a database application to manage their survey data?

Vocabulary: Words to Remember
Introduce the new and review vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key software terms such as application, graphical user interface (GUI), icon, and program. You may want to have students use each word in a sentence or act out the word.

Make sure students understand how cell, column, field, record, and row are related. Encourage students to remember and visualize these terms any time they use a database application. You may want to have students use record and field in a sentence to make sure they understand the distinction between these terms.

Help students understand that technical vocabulary is important for everyone to learn, not just students interested in math, science, and engineering. When you have a problem with technology, a good technology vocabulary helps you understand the problem and effectively ask for help when needed. In the 21st century, using correct terminology to discuss technology is an essential literacy skill.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they begin their exploration. You may want to ask students what questions they have about databases and database applications. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know that a database is a collection of information organized and stored...
on a computer so that the information can be quickly and easily searched. Students should understand that database applications are similar to spreadsheet applications.

Database applications store data in tables made up of rows and columns, similar to worksheets in spreadsheet applications. Just as one workbook in a spreadsheet application may contain many worksheets, one database may contain many tables. In database terminology, rows contain records, and columns contain fields.

A record is all the information in a database that pertains to one person, place, or thing. In a survey database, each record contains the data collected from one respondent. A field is one distinct item of information in each of the records. In a survey database, each field contains an answer provided by a respondent to one question.

Question students to make sure they can identify the location and purpose of the main menus and toolbars in the database application. If you have a presentation station, you can lead the whole class or groups of students in a tour of the spreadsheet application’s GUI and ask students to identify features that you name or to give the name of features that you identify.

**Task: What to Do**

Students describe five menu options in their database application’s graphical user interface and explain how they can be used to manage their survey data. Monitor progress and question students to make sure they can use database vocabulary words correctly.

Discuss the example of a database GUI explanation with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

If you have a presentation station, you can lead the whole class in a tour of the database application’s GUI before students begin working independently. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to check with the computer teacher to find out how much students know about using database applications.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with a standard GUI for a database application.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Database Basics

Microsoft Access will help me to manage the data I collected from my survey. Five menu options that will help me do this are:

- Insert Menu
  - Table
    A table holds data so I need to create a table for the information from my survey. Tables are the starting point for a database.
  - Form
    A form is used for data entry. I can arrange all the fields in a layout that works better for data entry. I can also add rules for the data entry in a form. Forms make my data entry more accurate.
- Query
  A query will let me see just the data that I want to see. I can filter the records in different tables by using examples and Boolean operators. Queries made it simple to find the data I want.

- Tools Menu
  - Relationships
    The Relationship option will tell Access how the data in the tables is related to each other. I can show how the tables are connected. The Relationships option makes it easy to show the connection.

- View Menu
  - Toolbars
    - Task Pane
      The Task Pane show options I can use for different actions in Access. The Task Pane opens automatically when I do certain things, like open a database file and it shows me what to do. The Task Pane lets me get help whenever I need it. I will analyze my data faster with the Task Pane.
Make Decisions with Data | Data Collection

Database Planning

Activity Overview
In this activity, students explore some strategies for planning databases to manage their survey data. Students learn how to break down their information into the smallest meaningful data items, create a field for each item, and group fields into tables.

Activity Questions
What should students remember when they plan databases?
What are some possible benefits for students of creating databases for their survey data?
How can students use what they learn to plan their survey databases?

Vocabulary: Words to Remember
Introduce Boolean, datum, primary key, and relational database to students with a brief explanation and help students associate an image or symbol with each term. Encourage students to remember and visualize these terms when they use a database application.

Review key database terms such as field, record, and graphical user interface. Have students recall the images or symbols they associated with these words. You may want to have students use each word in a sentence, act out each word, or quiz each other on the terms.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them plan a database to manage their survey data. You may want to ask students what they know about databases and what questions they have about how to design databases.

Encourage students to take notes or draw pictures while they explore Web sites. You may want to pair students with their partners for the exploration as well as the task. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand why planning is perhaps the most important part of creating a database.

Six basic planning steps can help students design effective and efficient databases:

Look Ahead
Task: Students work with partners to design databases for storing and managing their survey data.
Goal: Students demonstrate that they understand basic database principles by creating an effective database design.
Preview the example of a database design before introducing the activity to students.
See the example: Database Design
Task: What to Do
Students demonstrate that they understand basic database principles by working with a partner to design a database for the team’s survey data. Monitor progress to make sure students break down their survey data into the smallest possible data items.

Discuss the example of a database design with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example. If you are a classroom teacher, this task is a good opportunity to collaborate with the computer teacher.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some basic guidelines for designing databases.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
**Task Example**

Name
Date

**Database Design for Bullying Survey Data**

The database for the results of my survey on bullying will have three tables. The first table will contain information on the survey question—question number and question text. The second table will contain the information on the answers to the survey questions—question number, options for answers, and the number of students who chose each option. The third table will contain data for the “other” answers typed by students for Question 10—question number and text of answer.

Here is a chart of the tables and their relationships:
Activity Overview
In this activity, students explore some ways to create tables in a database application. Students learn how to use a wizard and toolbar to ensure that data is entered correctly.

Activity Questions
- What major steps are involved in creating database tables?
- How do students enter data into the tables they create?
- How many ways are there to create a table and enter data?

Vocabulary: Words to Remember
Introduce datasheet view, design view, interactive, keystroke, and wizard to students with a brief explanation and help students associate an image or symbol with each term. You may want to have students use each word in a sentence or act out the word. Encourage students to remember and visualize these terms any time they work with database tables.

Review key database terms such as Boolean, datum, primary key, and relational database. Have students recall the images or symbols they associated with these words. Remind students that using correct terminology to discuss technology is an essential literacy skill in the 21st century.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them create database tables. You may want to ask students what questions they have about how to create database tables. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know the two main ways to create tables in database applications. Students can create a table by selecting Design View or the Table Wizard from the Insert menu or Database toolbar. Students should understand that creating a table involves defining fields with a name, data type, and description.

Most database applications have at least six data types:
Text fields store shorter text data, usually up to 255 characters.

Memo fields store longer text data, usually up to tens of thousands of characters.

Number fields store most numbers, although you can set the field size property to specific kinds of numbers, such as integers and decimals.

Date/Time fields store dates and times. You can change the way dates and times are displayed in a field with the format property.

Currency fields store amounts of money. You can change the way currency data is displayed in a field with the format property.

Yes/No (Boolean) fields store data that can have only one of two values, yes (1) or no (0).

Make sure students understand that the Table Wizard helps make sure they remember to set all the properties of the table and its fields, but it does not make decisions for them.

In most database applications, the table wizard requires at least four steps to create a table:

1. Select sample tables and fields. Select the tables containing fields to be include in the database from the listed sample tables.
2. Set a primary key. The wizard usually sets a primary key by default.
3. Establish relationships. The wizard may ask if the table being creating is related to other tables already in the database.
4. Create the table. The wizard usually opens the table by default.

Task: What to Do
Students demonstrate that they can identify and use a database application’s menus and toolbars by creating a database and testing it with a sample of their survey data. Monitor pairs of students to make sure that each partner can correctly create database tables. Make sure all students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Make sure students know how to create tables in the database software before they begin the task. If you have a presentation station, you can model effective use of Design View and the Table Wizard. If you are a classroom teacher, you may want to collaborate with the computer teacher to make sure students can create database tables correctly.

Discuss the example of data tables with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to create database tables.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
## Task Example

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Answer 1 Text</th>
<th>Answer 1 Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Girl</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>No, our school does not have a bullying problem</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>School</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>Tattling in front of the bully</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answer 2 Text</th>
<th>Answer 2 Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy</td>
<td>15</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>Yes, there is a bullying problem at our school</td>
<td>9</td>
</tr>
<tr>
<td>After School</td>
<td>4</td>
</tr>
<tr>
<td>Being the new kid</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answer 3 Text</th>
<th>Answer 3 Responses</th>
<th>Answer 4 Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Sure</td>
<td>6</td>
<td>Telling the bully what to do</td>
</tr>
<tr>
<td>Yes, there is a severe bullying problem</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Saying stupid things</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answer 6 Text</th>
<th>Answer 6 Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reason--bullies just pick on whoever they can</td>
<td>13</td>
</tr>
</tbody>
</table>
Make Decisions with Data | Data Collection

Look Back

**Thinking about Learning**
In this module, students explored some ways to prepare and administer surveys. Students also explored how database applications work and how databases differ from many other technology tools students may have used. Students planned effective database designs and used their designs to create tables to store their survey data.

Students have learned:

- How to create effective questionnaires for surveys
- How to collect accurate opinion data by administering surveys
- How database applications use tables to store and manage data
- How to plan an effective design for their survey databases
- How to create database tables to store their survey data

**Checklist for Data Collection**
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to analyze their survey data.

**Rubric for Data Collection**
Help students use the rubric to self-assess their survey questions and database tables. Explain to students the importance of paying attention to both technical mechanics and writing mechanics. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their survey questions and database tables.

**Reflection on Data Collection**
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their survey questions and database tables with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about preparing and administering surveys
- How database applications work and how they differ from other applications
- What they learned about planning effective database designs
- How they created their database tables and why they chose those methods

Encourage students to take or e-mail their survey questions and database tables home to share with parents, guardians, or other trusted family members.
Module Overview
In this module, students learn how to use a database application to store and manage their survey data and a spreadsheet application to analyze and visualize their survey data. You can help students understand how visual representations of data, such as charts and graphs, can help students evaluate alternatives and make choices for almost any decision. Students learn how to create forms and queries to enter and retrieve survey data. Students also learn how to use formulas and functions along with charts and graphs to analyze their data.

Module Questions
- How do forms help students enter data into their survey databases?
- How can students use queries to retrieve survey data that informs their decisions?
- What formulas and functions can help students analyze their survey data?
- What charts and graphs can help students interpret and visualize their survey data?
- How can students share their data, charts, and graphs with peers?

Activity 1: Database Forms
Students explore how database forms format the data stored in tables so that the data is easier to read. Students create database forms and use them to enter the rest of their survey data.

Activity 2: Database Queries
Students explore how to use database queries to answer questions with their survey data. Students design and run queries that select information to help them make their decisions.

Activity 3: Decision Possibilities
Students explore how to use spreadsheet formulas and functions to analyze data. Students use formulas and functions to summarize their survey data so they can evaluate decision alternatives.

Activity 4: Data Visualization
Students explore how different kinds of charts and graphs visually represent different kinds of data. Students create charts and graphs to visualize their data and help them make choices.

Look Ahead
Review the checklist and rubric before introducing the module to students. When you introduce the module, discuss the checklist and rubric with the whole class or have students review the checklist and rubric individually or in small groups.

See the checklist: Data Analysis Checklist
See the rubric: Data Analysis Rubric
Activity 5: Decision Choice
Students make their choices and explain their decisions to peers. Students format their worksheets so that the data and visualizations are easy for peers to read, interpret, and understand.

Look Back
Students reflect on their learning in this module. Make sure students are ready to create presentations explaining their decisions. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ decision choices.
Make Decisions with Data | Data Analysis

Database Forms

Activity Overview
In this activity, students explore how database forms format the data stored in tables so that the data is easier to read. Students learn how to use a database application to create database forms quickly and efficiently by selecting a wizard from a menu or toolbar.

Activity Questions
- What major steps are involved in creating database forms?
- How can students use forms to enter data into their databases?
- How many ways are there to create a form and enter data?

Vocabulary: Words to Remember
Introduce form to students with a brief explanation and help students associate an image or symbol with the new term. Review key database terms such as datasheet view, design view, interactive, and wizard. Have students recall the images or symbols they associated with these words.

You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary words.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them create database forms. You may want to ask students what questions they have about how to create database forms. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know that electronic forms have two parts—controls and labels. Controls accept information from users and display information from the database. Labels tell people who use the form what each control does. Most controls are bound to fields in the database.

Look Ahead
Task: Students create forms and use them to enter the remaining records of their survey data.
Goal: Students demonstrate that they can create forms to enter data into a database.
Preview the example of a database form before introducing the activity to students.
See the example: Database Form
Several kinds of controls provide ways to enter and display different kinds of data. Make sure students can identify common form controls, such as text box, option (radio) button, check box, list box, combo box, and command button.

Student should understand why designing a form can be very time-consuming. Each control has as many as 50 properties that determine everything from the field to which the control is bound to the font in which the value is displayed. Even though many properties can usually be left at their default values, creating a form in design view requires a lot of time and expertise. If students do not need complete and precise control, they can save a lot of time by using a Form Wizard.

Make sure students know that they can create forms by selecting the Form Wizard from the Insert menu or Database toolbar.

In most database applications, creating a form involves the following five basic steps:

1. **Select tables.** Select the tables that contain the data you want to enter.
2. **Select fields.** Select the fields from each table that you want to include in the form.
3. **Choose layout.** Choose the basic layout for your form.
4. **Format labels.** You can usually choose a format from a number of basic designs.
5. **Create the form.** The wizard usually opens the form by default.

**Task: What to Do**
Students demonstrate that they can identify and use a database application’s menus and toolbars by creating database forms and using the forms to enter the rest of their survey data. Monitor progress to make sure students create their forms correctly and do not lose data.

Make sure students know how to create forms in the database software before they begin the task. If you have a presentation station, you can model effective use of the Form Wizard. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to collaborate with the computer teacher to make sure students can create database forms correctly.

Discuss the example of a **database form** with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to create database forms.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Data for Bullying Survey

Click the combo box to choose another record to view.

Question Number: 1
Question Text: What is your gender?

<table>
<thead>
<tr>
<th>Text for Choice</th>
<th>Number Who Selected This</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Choice:</td>
<td></td>
</tr>
<tr>
<td>Girl</td>
<td>10</td>
</tr>
<tr>
<td>Second Choice:</td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>5</td>
</tr>
<tr>
<td>Third Choice:</td>
<td></td>
</tr>
<tr>
<td>Fourth Choice:</td>
<td></td>
</tr>
<tr>
<td>Fifth Choice:</td>
<td></td>
</tr>
<tr>
<td>Sixth Choice:</td>
<td></td>
</tr>
<tr>
<td>Seventh Choice:</td>
<td></td>
</tr>
<tr>
<td>Eighth Choice:</td>
<td></td>
</tr>
<tr>
<td>Ninth Choice:</td>
<td></td>
</tr>
</tbody>
</table>

Click the combo box to choose another record to view.

Question Number: 2
Question Text: Do you know any bully in your school?

<table>
<thead>
<tr>
<th>Text for Choice</th>
<th>Number Who Selected This</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Make Decisions with Data | Data Analysis

Database Queries

Activity Overview
In this activity, students explore how to use database queries to answer questions with their survey data. Students learn how to design basic queries by selecting the fields that contain the information they need and specifying criteria that retrieves the right records.

Activity Questions
- How do students decide what information they want to retrieve?
- What major steps are involved in creating database queries?
- How many ways can a query be created and run?

Vocabulary: Words to Remember
Introduce ascending, criterion, descending, query, and retrieve to students with a brief explanation and help students associate an image or symbol with each term. You may want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary words. Encourage students to visualize these terms any time they work with a database.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them create database queries. You may want to ask students what questions they have about how to use queries. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students know that queries allow them to retrieve information from databases. Queries can be as simple as retrieving all the records that contain a certain value in a particular field, but they can also be extremely complex, involving long and complicated logical and mathematical operations. Students should understand that the more they know about queries, the more control they have over the information they can retrieve from databases.

Makes sure students know that they can create a query by selecting Design View from the Insert menu or Database toolbar.
In most database applications, creating a query involves five basic steps:

1. **Select tables.** Select the tables that contain the data you want to find.
2. **Select fields.** Select the fields from each table that you want to include in the query.
3. **Show and sort.** Choose which fields to display and how to sort the results.
4. **Set criteria.** Set criteria that will select only the records you want to retrieve.
5. **Save the query.** Save the query from the File menu.

Once the query has been saved, the results can be viewed by selecting the Datasheet View from the View menu or the Query Design toolbar.

Make sure students know that they can create a query by selecting the Query Wizard from the Insert menu or Database toolbar. Students should understand that a Query Wizard helps make sure they remember to set all the properties of a query, but it does not make decisions for them.

**Task: What to Do**

Students demonstrate that they can retrieve information from a database by designing and running queries that select information to help them make their decisions. Monitor progress to make sure students create their queries correctly so that they do not base their decisions on the wrong data.

Make sure students know how to create queries in the database software before they begin the task. If you have a presentation station, you can model effective use of queries in the database application. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to collaborate with the computer teacher to make sure students can create database queries correctly.

Discuss the example of a database query design and a database query with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to create database queries.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

**Database Query Design**
for Data from Survey on Bullying

Here is the information I want to know from the data on my survey on bullying:
- What were the students’ views on the reasons why someone bullies and why victims are bullied?

<table>
<thead>
<tr>
<th><strong>Tables Used</strong></th>
<th><strong>Fields Used</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions</td>
<td>Question Number</td>
</tr>
<tr>
<td></td>
<td>Question Text</td>
</tr>
<tr>
<td>Answers</td>
<td>Answer 1 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 1 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 2 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 2 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 3 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 3 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 4 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 4 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 5 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 5 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 6 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 6 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 7 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 7 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 8 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 8 Response</td>
</tr>
<tr>
<td></td>
<td>Answer 9 Text</td>
</tr>
<tr>
<td></td>
<td>Answer 9 Response</td>
</tr>
</tbody>
</table>

*Criteria Keywords*

- Question Number – 6 OR 7

- What answers did students think up for the Other option in Question 10

<table>
<thead>
<tr>
<th><strong>Tables Used</strong></th>
<th><strong>Fields Used</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions</td>
<td>Question Number</td>
</tr>
<tr>
<td>Answers for Other Option</td>
<td>Other Answer Text</td>
</tr>
<tr>
<td></td>
<td>Question Text</td>
</tr>
</tbody>
</table>
**Task Example**

Name  
Date  

---

**Database Query**

Query to Show Other Responses for Question 10

<table>
<thead>
<tr>
<th>Answers_Question Number</th>
<th>Question Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Why do victims get bullied? (More than one choice allowed)</td>
</tr>
<tr>
<td>10</td>
<td>Why do victims get bullied? (More than one choice allowed)</td>
</tr>
<tr>
<td>10</td>
<td>Why do victims get bullied? (More than one choice allowed)</td>
</tr>
<tr>
<td>10</td>
<td>Why do victims get bullied? (More than one choice allowed)</td>
</tr>
</tbody>
</table>
Make Decisions with Data | Data Analysis
Decision Possibilities

Activity Overview
In this activity, students explore the use of spreadsheet formulas and functions to analyze data. Students learn how to export query results from a database application and import the data into a spreadsheet application. Spreadsheet applications are usually the best tool for analyzing data.

Activity Questions
- How are formulas similar to one another?
- In what order do the parts of a formula have to be written?
- What formulas and functions can students use to analyze their survey data?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key terms such as data analysis, export, import, operator, value, and variable. Encourage students to remember and visualize these terms any time they analyze data.

Make sure students understand the distinctions among equation, formula, and function. You may want to have students use equation, formula, and function in one sentence to make sure they understand the precise definition of each term.

Review key database terms such as criterion, query, and retrieve. Have students recall the images or symbols they associated with these words. You may want to have students work in pairs to quiz each other on new and review words.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them use a spreadsheet application to analyze data. Ask students what they know about formulas and functions and what questions they have about using formulas and functions in spreadsheets.

Encourage students to take notes or draw pictures while they explore Web sites. You may want to pair students with complementary partners or peer tutors to make sure everyone knows how to use formulas and functions to analyze data. You may also want to have students report out to the class, another student, or a small group of students.

Look Ahead
Task: Students summarize their survey data so they can evaluate decision alternatives.

Goal: Students demonstrate that they can use formulas and functions to analyze data.

Preview the example of a data summary and a decision evaluation before introducing the activity to students.

See the examples: Data Summary Decision Analysis
Information: What to Know
Make sure students understand that data analysis involves selecting and using appropriate formulas and functions to answer questions. Remind students that critical thinking skills can help them select and use the most appropriate formulas and functions to analyze their survey data. Students should know how to use the five-step decision making process to help frame queries.

Make sure students know how spreadsheet applications use formulas and functions to calculate data. A formula is an equation you enter into a spreadsheet that can include cell references. A function is a standard formula that is built into a spreadsheet application. The difference is that users create formulas and the application includes functions.

Make sure students understand that they can use formulas and functions to perform hundreds or even thousands of calculations instantly.

Question students to make sure they understand that spreadsheet applications have two main advantages:
- They can perform numerous calculations instantly.
- They can update calculations automatically when data changes.

Make sure students know how to use formulas and functions in spreadsheet software and can discuss their work using correct terminology.

Task: What to Do
Students show that they know how to use formulas and functions to summarize their survey data so they can evaluate decision alternatives. Monitor progress to make sure that each student can correctly use key terms such as data analysis, equation, formula, function, operator, value, and variable to discuss their analysis.

Make sure students know how to use formulas and functions in spreadsheet software before they begin the task. If you have a presentation station, you can model effective use of formulas and functions to analyze data. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to collaborate with the computer teacher to make sure students can use formulas and functions correctly.

Discuss the example of a data summary and a decision evaluation with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to use spreadsheet formulas and functions to perform calculations on data.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Data Summary

Name
Date

**Decision Evaluation of the Bullying Survey Data**

The survey I did on bullying provided information on how my classmates viewed bullying. Knowing more about they felt helped me to better understand what is needed to discourage bullying at our school. The survey data shows that the majority of bullying happens at school and both boys and girls bully other students. The most common forms of bullying selected are name calling and being intimidated into avoiding an activity.

Most of my classmates think that bullies threaten others because they want to be in charge and it makes them feel better than other students. On the other hand, the reasons for victims being bullied are more varied. The reasons selected range from no reason to seemingly provoking behaviors, such as tattling, saying stupid things, or being an outsider.

When bullying happens, most of my classmates seek to take action, but, from my research, these actions are not the best choices for reducing bullying at our school. Only two students think it is important to involve an adult or teacher to intervene in the bullying. Involving responsible adults so they are aware of the bullying is a successful strategy mentioned in all the articles I read about creating safe school environments.

The survey of my classmates proves that more information is needed for them to decrease bullying in our school. It is helpful to know that most of them are willing to take action when they encounter a bullying incident. Because they are receptive to taking action, it will be easier for them to learn the best actions to take. The survey showed that, with additional information, my classmates will learn to choose better strategies to prevent bullying at our school.
Task Example

Decision Analysis

Name
Date

1. **What is your gender?**
   - Girl 10 40%
   - Boy 15 60%
   - Total Responses 25

2. **Do you know any bullies in your school?**
   - Yes 11 44%
   - No 8 32%
   - Not Sure 6 24%
   - Total Responses 25

3. **Do you think bullying is a problem at your school?**
   - No, our school does not have a bullying problem 16 64%
   - Yes, there is a bullying problem at our school 9 36%
   - Yes, there is a severe bullying problem at our school. 0 0%
   - Total Responses 25

4. **Where does most bullying usually take place?**
   - School 12 48%
   - After School 4 16%
   - Other 1 4%
   - Not Sure 5 20%
   - No Opinion 3 12%
   - Total Responses 25

5. **Bullies are usually:**
   - Girls 4 16%
   - Boys 8 32%
   - Both girls and boys 13 52%
6. **What kind of bullying has happened to you?**

<table>
<thead>
<tr>
<th>Type of Bullying</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyber (sent nasty emails or text messages)</td>
<td>5 7%</td>
</tr>
<tr>
<td>Racial or religious</td>
<td>7 10%</td>
</tr>
<tr>
<td>Name calling</td>
<td>13 19%</td>
</tr>
<tr>
<td>Left out of activities</td>
<td>7 10%</td>
</tr>
<tr>
<td>Humiliated because I look different</td>
<td>7 10%</td>
</tr>
<tr>
<td>Physically attacked – kicked, punched or hurt in someway</td>
<td>8 12%</td>
</tr>
<tr>
<td>Asked for money and things</td>
<td>3 4%</td>
</tr>
<tr>
<td>Intimidated from doing something I wanted to do</td>
<td>10 15%</td>
</tr>
<tr>
<td>I have never been bullied</td>
<td>8 12%</td>
</tr>
</tbody>
</table>

Total Responses: 68

7. **What do you do if someone bullies you?**

<table>
<thead>
<tr>
<th>Action</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fight back</td>
<td>5 20%</td>
</tr>
<tr>
<td>Try to talk to the bully</td>
<td>2 8%</td>
</tr>
<tr>
<td>Just walk away and do nothing</td>
<td>7 28%</td>
</tr>
<tr>
<td>Talk to an adult or teacher</td>
<td>3 12%</td>
</tr>
<tr>
<td>I have never been bullied</td>
<td>8 32%</td>
</tr>
</tbody>
</table>

Total Responses: 25

8. **What do you do when you see someone is being bullied?**

<table>
<thead>
<tr>
<th>Action</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just watch or walk away and do nothing</td>
<td>5 20%</td>
</tr>
<tr>
<td>Join in</td>
<td>1 4%</td>
</tr>
<tr>
<td>Say or do something to stop it</td>
<td>10 40%</td>
</tr>
<tr>
<td>Tell an adult or teacher.</td>
<td>2 8%</td>
</tr>
<tr>
<td>I have never seen anyone being bullied</td>
<td>7 28%</td>
</tr>
</tbody>
</table>

Total Responses: 25

9. **Why do you think that kids bully others? (More than one choice allowed)**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other kids are mean to them</td>
<td>8 12%</td>
</tr>
<tr>
<td>They want to be in charge</td>
<td>14 21%</td>
</tr>
<tr>
<td>They are not doing well in school</td>
<td>9 13%</td>
</tr>
</tbody>
</table>
They do not like themselves 8 12%
They think it makes better than the victim 14 21%
They like to be cruel to others. 15 22%
Total Responses 68

**Why do victims get bullied? (More than one choice allowed)**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tattling in front of the bully</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>Being the new kid</td>
<td>11</td>
<td>13%</td>
</tr>
<tr>
<td>Saying stupid things</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>Telling the bully what to do</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td>Being an outsider</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>No reason--bullies just pick on whoever they can</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>I don't know</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>87</td>
<td></td>
</tr>
</tbody>
</table>

Other Answers:

- Because they think they aren't cool
- They look different
- Because someone is cheating on your girlfriend or boyfriend.
- For being short or tall

Total Responses 4 5%
Make Decisions with Data | Data Analysis

Data Visualization

Activity Overview
In this activity, students explore how charts and graphs visually represent relationships among data. Students learn how to use toolbar and wizard features of a spreadsheet application to create charts and graphs.

Activity Questions
- What are the main parts of a chart and how does each part help students understand and visualize the data?
- What are the most common types of charts and what type of data does each type of chart help students visualize?
- What features do spreadsheet applications provide to help students create charts?

Vocabulary: Words to Remember
Introduce bar chart, line graph, and pie chart to students with a brief explanation of each term. Help students associate an image or symbol with each type of chart or graph. Encourage students to remember and visualize bar, line, and pie any time they see a chart or graph.

Help students associate an image or symbol with key terms such as chart, graph, grid, legend, x-axis, and y-axis. You may want to have students use each word in a sentence, act out each word, or quiz each other on the terms. Explain to students why the ability to use correct terminology to discuss visual representations of data is an essential literacy skill for the 21st century.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them understand different types of charts. You may want to ask students what questions they have about how charts can help visualize information. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that certain kinds of data require particular types of charts and graphs to represent them.

Question students to make sure they know the most common types of charts and graphs:
- A bar chart compares similarities and differences in a set of data.
- A line graph shows how a set of data changes over time.
- A pie chart compares parts of a set of data with each other and to the whole set.
Make sure students understand that they must be able to recognize the main parts of a chart or graph in order to interpret the meaning of a visual representation of data. Question students to make sure they know the main parts of a chart:

- **The title** of a chart should quickly tell you what the chart is about.
- **The x-axis** should have a title that tells you what type of data is shown horizontally in the graph.
- **The y-axis** should have a title that tells you what type of data is shown vertically in the graph.
- **The legend** describes how data is represented in the chart.

Make sure students understand how wizards and toolbars simplify common tasks, and remind students that technology tools such as charts and wizards do not substitute for good judgment.

Question students to make sure they know the four basic steps for creating a chart with a wizard:

1. **Chart Type.** Select a chart type from the list.
2. **Chart Source Data.** Indicate whether the data you want to represent is stored in rows or columns.
3. **Chart Options.** Give a descriptive title to the chart, the x-axis, and the y-axis.
4. **Chart Location.** Place the chart on a new worksheet or an existing worksheet in the same workbook.

**Task: What to Do**

Students illustrate their survey data with charts and graphs so they can illustrate their data to help them make their decisions. Students should demonstrate that they know how to use charts and graphs to represent their survey data accurately and appropriately.

Discuss the example of *data visualization* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Make sure students know how to use the chart wizard and toolbar in the spreadsheet software before they begin the task. If you have a presentation station, you may want to model effective use of the wizard and toolbar to create charts and graphs.

Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this is an excellent opportunity to collaborate with the computer teacher.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with common types of charts and graphs, and understand the advantages and limitations of a chart wizard.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
### Task Example

#### Questions on Actions in Bullying Situations

<table>
<thead>
<tr>
<th>What Do You Do If Someone Bullies You?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ignoring the situation</td>
</tr>
<tr>
<td>• Try to talk to the bully</td>
</tr>
<tr>
<td>• Encourage others to not join in</td>
</tr>
<tr>
<td>• Talk to an adult or teacher</td>
</tr>
<tr>
<td><em>Have never been bullied</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What Do You Do When You See Someone Is Being Bullied?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Join in</td>
</tr>
<tr>
<td>• Help or do something to stop it</td>
</tr>
<tr>
<td>• Talk to an adult or teacher</td>
</tr>
<tr>
<td><em>Have never seen bullying</em></td>
</tr>
</tbody>
</table>
### Questions on Reasons for Bullying

#### Why Do You Think That Kids Bully Others? (Multiple Responses Allowed)

- They like to be mean to others
- They think it makes them better than the victim
- They do not like themselves
- They are not doing well in school
- They want to be in charge
- Other kids make fun of them

<table>
<thead>
<tr>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

### Why Do Victims Get Bullied?

- Talking in front of bullies
- Being the target
- Being easy to pick on
- Other kids make fun of them
- Being an outlier

<table>
<thead>
<tr>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>15</td>
</tr>
</tbody>
</table>
Make Decisions with Data | Data Analysis

Decision Choice

Activity Overview
In this activity, students make their decisions and explain their decisions to peers. Students learn how to format their worksheets so that others can easily see the data they collected and what data they used to evaluate decision alternatives.

Activity Questions

- How can students make sure their charts and data are easy to read and interpret?
- Which decision alternative is best supported by each student’s visualization?

Vocabulary: Words to Remember
Introduce alignment, font, and type to students with a brief explanation of each term. Make sure students understand the distinction between font and type. You may want to have students use each word in a sentence or act out each word. You may also want to have students work in pairs or small groups to quiz each other or draw an image or symbol that represents each word. If necessary, pair students with complementary partners or peer tutors to make sure everyone acquires the new vocabulary words.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them format their worksheets. Encourage students to take notes or draw pictures while they explore Web sites. Remind students that it is important for everyone to use correct terminology when discussing spreadsheets and data.

Information: What to Know
Make sure students understand that formatting their worksheets is just as important as formatting their word processing documents. Remind students that the graphical user interface for formatting a spreadsheet is very similar to the GUI in a word processing application. Make sure students are familiar with the Format menu and toolbar in the spreadsheet software.

Make sure students understand how formatting and sharing data with peers can help them improve their data analysis and make the best decisions. Decision makers often print worksheets and data visualizations to share with peers. Sometimes, they create posters that explain their choices and how they made their decisions. Students should understand how to use feedback to help them evaluate all alternatives with reason and fairness and make the best decision.

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.
*Other names and brands may be claimed as the property of others.
**Task: What to Do**
Students format their survey data and visualizations so they are easy for peers to read, interpret, and understand. Students should demonstrate that they know how to format data and charts to help them make and explain decisions.

Discuss the example of a *decision choice* with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Make sure students know how to use the Format menu and toolbar in spreadsheet software before they begin the task. If you have a presentation station, you may want to model effective use of the menu and toolbar to format data and charts.

Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this is an excellent opportunity to collaborate with the computer teacher.

**Quiz: Check Your Understanding**
Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with basic spreadsheet application features for formatting data and charts.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Decision Choice

Name
Date

**Decision for Action on Bullying**

The survey on bullying provided many answers on student views on the topic. After surveying my classmates, I discovered that most of them want to reduce bullying and want to make our school a safe environment for all students. My classmates are open to taking action when they encounter a bullying situation, but they lack the information they need to select the best actions to take.

My classmates’ views on the reasons why others bully and why victims are bullied lacked a full perspective of all the factors that come into play in bullying situations. My classmates thought that walking away or fighting back were the ways to handle bullying. In the research that I did, I found out that involving a responsible adult is the best strategy to reduce bullying.

Students can learn better strategies with the help of their teachers and Web sites designed to combat bullying. Role-playing and rehearsing ways to tell adults are good ways for students to learn how to handle bullying. Some of the Web sites suggest forming clubs to help others deal with bullying and to understand why students bully others. My goal is to share the data and research I discovered with my teacher and use the information to make positive changes in our school.
Task Example

Decision Explanation

Name
Date

1. What is your gender?
   - Girl 10 40%
   - Boy 15 60%
   - Total Responses 25

2. Do you know any bullies in your school?
   - Yes 11 44%
   - No 8 32%
   - Not Sure 6 24%
   - Total Responses 25

3. Do you think bullying is a problem at your school?
   - No, our school does not have a bullying problem 16 64%
   - Yes, there is a bullying problem at our school 9 36%
   - Yes, there is a severe bullying problem at our school 0 0%
   - Total Responses 25

4. Where does most bullying usually take place?
   - School 12 48%
   - After School 4 16%
   - Other 1 4%
   - Not Sure 5 20%
   - No Opinion 3 12%
   - Total Responses 25

5. Bullies are usually:
   - Girls 4 16%
   - Boys 8 32%
   - Both girls and boys 13 52%
6. **What kind of bullying has happened to you?**

<table>
<thead>
<tr>
<th>Type of Bullying</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyber (sent nasty emails or text messages)</td>
<td>5 7%</td>
</tr>
<tr>
<td>Racial or religious</td>
<td>7 10%</td>
</tr>
<tr>
<td>Name calling</td>
<td>13 19%</td>
</tr>
<tr>
<td>Left out of activities</td>
<td>7 10%</td>
</tr>
<tr>
<td>Humiliated because I look different</td>
<td>7 10%</td>
</tr>
<tr>
<td>Physically attacked – kicked, punched or hurt in someway</td>
<td>8 12%</td>
</tr>
<tr>
<td>Asked for money and things</td>
<td>3 4%</td>
</tr>
<tr>
<td>Intimidated from doing something I wanted to do</td>
<td>10 15%</td>
</tr>
<tr>
<td>I have never been bullied</td>
<td>8 12%</td>
</tr>
<tr>
<td><strong>Total Responses</strong></td>
<td>68</td>
</tr>
</tbody>
</table>

7. **What do you do if someone bullies you?**

<table>
<thead>
<tr>
<th>Action</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fight back</td>
<td>5 20%</td>
</tr>
<tr>
<td>Try to talk to the bully</td>
<td>2 8%</td>
</tr>
<tr>
<td>Just walk away and do nothing</td>
<td>7 28%</td>
</tr>
<tr>
<td>Talk to an adult or teacher</td>
<td>3 12%</td>
</tr>
<tr>
<td>I have never been bullied</td>
<td>8 32%</td>
</tr>
<tr>
<td><strong>Total Responses</strong></td>
<td>25</td>
</tr>
</tbody>
</table>

8. **What do you do when you see someone is being bullied?**

<table>
<thead>
<tr>
<th>Action</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just watch or walk away and do nothing</td>
<td>5 20%</td>
</tr>
<tr>
<td>Join in</td>
<td>1 4%</td>
</tr>
<tr>
<td>Say or do something to stop it</td>
<td>10 40%</td>
</tr>
<tr>
<td>Tell an adult or teacher</td>
<td>2 8%</td>
</tr>
<tr>
<td>I have never seen anyone being bullied</td>
<td>7 28%</td>
</tr>
<tr>
<td><strong>Total Responses</strong></td>
<td>25</td>
</tr>
</tbody>
</table>

9. **Why do you think that kids bully others? (More than one choice allowed)**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other kids are mean to them</td>
<td>8 12%</td>
</tr>
<tr>
<td>They want to be in charge</td>
<td>14 21%</td>
</tr>
<tr>
<td>They are not doing well in school</td>
<td>9 13%</td>
</tr>
<tr>
<td>They do not like themselves</td>
<td>8 12%</td>
</tr>
<tr>
<td>They think it makes better than the victim</td>
<td>14 21%</td>
</tr>
</tbody>
</table>
They like to be cruel to others. | 15 | 22%
---|---|---
Total Responses | 68 |  

**10. Why do victims get bullied? (More than one choice allowed)**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tattling in front of the bully</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>Being the new kid</td>
<td>11</td>
<td>13%</td>
</tr>
<tr>
<td>Saying stupid things</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>Telling the bully what to do</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td>Being an outsider</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>No reason—bullies just pick on whoever they can</td>
<td>13</td>
<td>15%</td>
</tr>
<tr>
<td>I don't know</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td>Responses for Provided Answers</td>
<td>83</td>
<td></td>
</tr>
</tbody>
</table>

**Other Answers:**

- Because they think they aren't cool
- They look different
- Because someone is cheating on your girlfriend or boyfriend.
- For being short or tall

Responses Provided by Students | 4 | 5%
---|---|---
Total Responses | 87 |  

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. *Other names and brands may be claimed as the property of others.
Thinking about Learning
In this module, students created forms to enter survey data into databases, created queries to retrieve information from the survey databases, analyzed the survey data to help them make decisions, and created charts and graphs to help them evaluate alternatives and make choices.

Students have learned:

- How to create forms for entering data into their survey databases
- How to create queries to retrieve survey data that informs their decisions
- How to analyze their survey data with formulas and functions
- How to read and interpret charts
- How to create charts to help them illustrate their evaluations and choices

Checklist for Data Analysis
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to publish the results of their data analyses.

Rubric for Data Analysis
Help students use the rubric to self-assess their forms and queries, decision possibilities, data visualizations, and decision choices. Remind students of the importance of paying attention to writing mechanics and technical mechanics. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their decision choices.

Reflection on Data Analysis
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their forms and queries, decision possibilities, data illustrations, and decision choices with each other. Students can share their reflections with the whole class, in small groups, or in pairs.

Encourage students to discuss the following points:

- What they learned about creating queries and forms in a database application
- How they analyzed their data and evaluated alternative choices for their decisions
- What they learned about reading and interpreting charts
- What they learned when they shared their evaluations and choices with others

Encourage students to take or e-mail data illustrations and decision choices home to share with parents, guardians, or other trusted family members.
Teacher Guide

Make Decisions with Data
Expository Presentation

Module Overview
In this module, students learn how to use the expository style of writing to explain their decisions to a live audience. Students should know what technology tools can be used to create and deliver a presentation and be able to use them effectively. You can help students understand how to use multimedia to give an audience visual information that helps explain their decisions. Students should understand how to create and deliver presentations that are entertaining as well as interesting and informative.

Module Questions

- Why is the expository style of writing often used in presentations?
- How does outlining a presentation help make it interesting and informative?
- Why do graphic design principles make presentations more effective?
- How can students legally and ethically use multimedia to help explain their decisions?
- How can students deliver interesting, informative, and entertaining presentations?

Activity 1: Expository Nonfiction
Students explore the use of expository writing in presentations. Students analyze the use of expository writing in presentations on subjects that interest them.

Activity 2: Presentation Outline
Students explore the characteristics that make presentations interesting and informative. Students outline expository presentations to explain their decisions.

Activity 3: Presentation Design
Students explore how visual representations of information can make a strong impression on people. Students design visually appealing presentations based on their outlines.

Activity 4: Multimedia Management
Students explore the legal and ethical use of multimedia to enhance presentations. Students find images, audio, or video on the Internet to help explain their decisions.

Look Ahead
Review the checklist and rubric before introducing the module to students. When you introduce the module, discuss the checklist and rubric with the whole class or have students review the checklist and rubric individually or in small groups.

See the checklist: Expository Presentation Checklist
See the rubric: Expository Presentation Rubric

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.
*Other names and brands may be claimed as the property of others.
Activity 5: Presentation Delivery
Students explore strategies for delivering interesting, informative, and entertaining presentations to live audiences. Students prepare, practice, and deliver their expository presentations.

Look Back
Students reflect on their learning in this module. Make sure students are confident in creating, preparing, and delivering presentations. You may want to use the checklist to make sure students completed their tasks, and you may want to use the rubric to assess students’ expository presentations.
Make Decisions with Data | Expository Presentation
Expository Nonfiction

Activity Overview
In this activity, students learn how to organize information and data graphically. Students learn how to use graphic organizers to arrange many different pieces of information into a few logical ideas or concepts. An effective graphic organizer shows how these ideas or concepts are supported by reliable information and objective data.

Activity Questions

- What are some different kinds of information students could organize?
- What are the strengths and weaknesses of different types of graphic organizers?
- Which graphic organizer is most appropriate for the information students have collected on their topics?

Vocabulary: Words to Remember
Introduce graphics and organize to students and discuss why concept maps and other tools are called graphic organizers. Help students associate an image or symbol with both terms. Review key critical thinking terms such as accurate, logical, objective, precise, and relevant. Ask students to recall the images or symbols they associated with these words.

Exploration: Learning from the Web
Make sure students review the guiding questions for this activity before they explore Web sites about graphic organizers. Explain how the guiding questions help focus their Web reading. You may want to have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that graphic organizers support critical thinking by combining many pieces of information into a few logical concepts or ideas. Make sure students know that an effective graphic organizer is a visual representation of knowledge. You may want to discuss the difference between information and knowledge with students.

Pose questions and lead a short class discussion to make sure students know how to choose the types of graphic organizers that will best help them accomplish their goals:

- The fishbone is a popular graphic organizer for showing cause-and-effect relationships.
A Venn diagram is a popular graphic organizer for comparing and contrasting two or more concepts or ideas.

A clustering diagram, also called a concept map, is an effective way to sort and group information into categories.

Some graphic organizers, such as interaction outlines and problem-solution, represent special processes.

**Task: What to Do**

Students organize the information and data they collected and demonstrate that they can use graphic organizers to represent knowledge. Make sure students know how to create graphic organizers in the word processing or diagramming software before they begin the task.

If you have a presentation station, you may want to create a graphic organizer with the whole class or groups of students. If you are a classroom teacher, you may want to check with the computer teacher to find out what tools are available for students to use. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task.

Discuss the example of a graphic organizer with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Makes sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some different types of graphic organizers. You may want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Expository Analysis of Effective Presentations

From:  http://www.easternct.edu/depts/edu/553/powerpoint/presentations.ppt

The presentation on Effective Presentations provided instructions on how to give a presentation that informs your audience and keeps them interested in the topic being presented. Several types of expository writing are used in the presentation:

- **Classify and Divide**
  In the beginning, the presentation uses short bullet points to categorize the topics first and then more detail on each topic is given later in the presentation.

- **Compare and Contrast**
  The purposes of presentations are compared and contrasted to show how presentations can differ.

- **Process**
  Ways to be effective in the delivery of a presentation are described and step-by-step instructions are given for capturing the audience's attention, managing time, speaking correctly, and preparing to deliver the presentation.

This presentation was useful for me because it gave me tips and techniques I can use in the presentation I will deliver soon on what I learned from my research on bullying. I learned several methods I can practice so my presentation is as effective as this one!
Make Decisions with Data | Expository Presentation

Presentation Outline

Activity Overview
In this activity, students explore the characteristics that make a presentation interesting and informative. Students learn to create presentations that use few words to convey the most important ideas and concepts by outlining the main concepts and supporting comments.

Activity Questions

- How can students use a word processing application to create outlines?
- How can students distinguish main points from supporting points?
- What ideas and concepts were most important in each student’s decision making?

Vocabulary: Words to Remember
Make sure students understand how outline and structure are related, and ask them to use both terms in a sentence. Review key terms such as cause, effect, classify, divide, compare, and contrast and have students recall the images or symbols they associated with these words. Encourage students to visualize these terms as they outline their presentations.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them outline effective expository presentations. You may want to ask students what they know about outlines and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that an outline helps them create a more effective presentation by planning the structure of the presentation before they create the slides. Students should know that the structure of an expository presentation consists of two basic elements—the main points they need to explain their topics and the supporting points that explain the main points.

Look Ahead

Task: Students create outlines of their expository presentations.

Goal: Students demonstrate that they can craft effective structures for interesting and informative presentations.

See the example: Expository Presentation Outline

Copyright © Intel Corporation. All rights reserved. Adapted with permission. Intel, the Intel logo and the Intel Education Initiative are trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries.

*Other names and brands may be claimed as the property of others.
Students can use the following steps to create outlines:

1. Identify main points needed to make a decision.
2. Determine the most logical order of main points.
3. Give each main point a short, descriptive label.
4. Identify the supporting points needed to explain each main point.
5. Determine the most logical order of supporting points for each main point.
6. Give each supporting point a short, descriptive label.

**Task: What to Do**

Students outline their expository presentations to demonstrate that they can craft effective structures for interesting and informative presentations. Make sure students know how to create outlines in word processing or note-taking software before they begin the task.

If you have a presentation station, you may want to create an outline with the whole class or groups of students. Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, you may want to check with the computer teacher to find out what tools are available for students to use.

Discuss the example of an *expository presentation* outline with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with the main purposes and characteristics of effective outlines.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example

Name
Date

Outline for Presentation on Bullying

I. Introduction
   A. Types of Bullying
   B. Perceptions of Bullies and Victims
   C. Appropriate Actions to Reduce Bullying

II. Types of Bullying
   A. Name calling
   B. Cyberbullying
   C. Intimidated from doing something
   D. Physical challenges

III. Perceptions of Bullies and Victims
   A. Bullies as cruel, better than victims, and in charge
   B. Victims as tattlers, outsiders, and deficient
   C. What research says about bullies and victims

IV. Appropriate Actions to Reduce Bullying
   A. Involve responsible adults
   B. Stay in groups
   C. Become involved

V. Conclusion
Activity Overview
In this activity, students explore how visual representations of information can make a strong impression on most people. Students learn that graphic design is the art of creating publications and presentations that capture and hold the attention of readers and viewers.

Activity Questions
- What are the main parts of a presentation?
- How does a presentation application help create these main parts?
- What are the most important points to remember about graphic design?

Vocabulary: Words to Remember
Introduce the new and review vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key graphic design terms such as alignment, balance, contrast, proximity, repetition, and white space. You may want to have students work in small groups to draw an image or symbol to represent each term. Encourage students to remember and visualize these terms as they design their expository presentations.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them make their presentations more visually appealing. You may want to ask students what they know about graphic design and have students write guiding questions of their own. Encourage students to take notes or draw pictures while they explore Web sites. You may also want to have students report out to the class, another student, or a small group of students.

Information: What to Know
Explain that a quality presentation looks good, is easy to read from a distance, and communicates a message. Students should know the basic “dos and don’ts” for designing a quality presentation. The overarching theme is to use design elements creatively but correctly and sparingly so that their designs are visually appealing and easy to read or view.

Make sure students can identify and explain each of the six basic design principles. Make sure students understand that these principles are guidelines, not rules.
Question students to make sure they understand these principles:

- **Alignment** makes a publication easy to read.
- **Balance** sets the tone for a publication.
- **Contrast** directs a reader’s attention to a specific place or idea.
- **Proximity** uses space to show how type and graphics are related.
- **Repetition** helps a reader navigate through a publication.
- **White space** gives a reader’s eyes a rest.

**Task: What to Do**

Students demonstrate that they can use principles of graphic design to create visually appealing presentations based on their outlines. Remind students to consider purpose and audience when designing their presentations. Question students before, during, and after this task to make sure they can explain how to create presentations using correct terminology.

Make sure students know how to import outlines from word processing software into presentation software before they begin the task. If you have a presentation station, you may want to model effective use of presentation software.

Make sure students know how to use the Intel® Education Help Guide to get just-in-time assistance with technology skills as they work through the task. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a presentation with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students know how to use a presentation application and apply graphic design principles to create effective presentations.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
Task Example
Make Decisions with Data | Expository Presentation
Multimedia Management

Activity Overview
In this activity, students explore how to use multimedia to create presentations that are entertaining as well as interesting and informative. Students learn about copyright laws and fair use as they find multimedia to enhance their expository presentations.

Activity Questions
- What kinds of multimedia can enhance students’ presentations?
- When does fair use allow students to use copyrighted images, audio, or video?
- When should students get permission to use copyrighted images, audio, or video?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation of each term. Help students associate an image or symbol with key technology terms such as compress, download, extension, and format. Encourage students to remember and visualize these terms any time they download multimedia from the Internet.

Introduce copyright, fair use, and public domain to students and help students associate an image or symbol with these terms. You may want to have students use copyright, fair use, and public domain in one sentence to make sure they understand how these terms are related.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them find and legally use multimedia to enhance their presentations. You may want to ask students what questions they have about copyright, fair use, or multimedia.

You may want to ask students if they have ever used images, songs, or movies without permission. You may also want to have students take notes or report out to the class, another student, or a small group of students.

Information: What to Know
Make sure students understand that computer files are stored in particular file formats that correspond with particular file extensions. All formats are good for some purposes but not for others.
Images can be saved in many formats. Most of the images you find on the Web are GIF or JPEG (or JPG) files.

Audio, like images, can be saved in many formats. One audio format that almost everyone is familiar with is MP3.

Video also can be saved in many formats. MPEG is a video format from the same organization that developed the MP3 audio format. Unlike image and audio formats, no video format appears to be the most popular format on the Internet.

Make sure students know that copyright laws protect the works of authors, artists, and others by preventing people from changing creative works without permission and claiming the works as their own. Copyright laws also prevent people from profiting from other people’s work without permission. Make sure students understand that they must assume that a work is copyrighted even when it is not marked with a copyright symbol ©.

Make sure students know that fair use of copyrighted works for educational purposes applies only under certain conditions and limitations. Students should understand that no exact rules for fair use exist in all cases, but students can follow some accepted guidelines for school projects. Make sure students understand that they should always give credit to the creators of images just as they cite the authors of text.

Task: What to Do
Students demonstrate that they can find some images, audio, or video on the Internet and use the multimedia legally and ethically to enhance their presentations and help explain their decisions. Students may use the Web sites listed in the task or other multimedia sources on the Internet. Students may also have sources of multimedia available through the school network.

Make sure students know how to find and download multimedia files before they begin the task. If you have a presentation station, you may want to model effective search strategies and file management techniques. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Monitor progress to make sure that students correctly identify the copyright status of the multimedia they find and determine if they can use the media without permission or if they need to obtain permission from the copyright holders.

Discuss the example of media citations with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Quiz: Check Your Understanding
Remind students that the quiz is not scored and answers are not recorded. Encourage students to read the feedback they get when they answer each question. The quiz makes sure students are aware of multimedia formats and familiar with the basic principles of copyright and fair use.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group, or the whole class.
### Task Example

**Multimedia Management**

This is the media that I will use in my presentation:

<table>
<thead>
<tr>
<th>Media/Source</th>
<th>Reason Selected</th>
<th>Copyright Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="http://www.sxc.hu/photo/240049" alt="Image" /></td>
<td>This graphic shows cooperation and what can be accomplished when everyone works together in a humorous way. This graphic will add the right touch for the conclusion of the presentation.</td>
<td>This picture does not need copyright permission.</td>
</tr>
<tr>
<td>bully_audio.mp3 <img src="http://www.stopbullyingnow.hrsa.gov" alt="Image" /></td>
<td>This short song will echo the overall theme of my presentation—that students need to “take a stand and lend a hand” to stop bullying.</td>
<td>This site is part of the US Department of Health and Human Services. Because government site are not copyrighted, the resources provided on this site can be used. The mp3 file should be sited in the presentation.</td>
</tr>
<tr>
<td><img src="http://www.sxc.hu/photo/383193" alt="Image" /></td>
<td>This graphic shows one of the effects of bullying— isolation. It is important to remember the scars that the victims of bullying carry and this graphic shows the hurt well.</td>
<td>I wanted to use a different picture, but couldn’t get copyright permissions. This site picture has no copyright.</td>
</tr>
<tr>
<td>Media/Source</td>
<td>Reason Selected</td>
<td>Copyright Status</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td><img src="http://www.sxc.hu/photo/691745" alt="Image" /></td>
<td>This graphic shows girls teaming up against another girl and perhaps name-calling, a form of bullying listed in my survey data.</td>
<td>I wanted to use a different graphic <a href="http://pbskids.org/itsmylife/friends/bullies/index.html">http://pbskids.org/itsmylife/friends/bullies/index.html</a> to show name calling, but I couldn’t get permission). This graphic is not copyrighted.</td>
</tr>
<tr>
<td><img src="http://www.sxc.hu/photo/240049" alt="Image" /></td>
<td>As the data from my survey showed, girls are likely to bully as boys are. This graphic depicts that fact.</td>
<td>This graphic is copyrighted. It may be used in a presentation delivered in a school and the source of the graphic must be cited in the presentation. Permission granted by request.</td>
</tr>
<tr>
<td><img src="http://www.sxc.hu/photo/240049" alt="Image" /></td>
<td>This graphic illustrates one of the strategies to avoid being bullied. Most bullies prefer to pick on a single person and stay away from groups of people.</td>
<td>This graphic is not copyrighted.</td>
</tr>
</tbody>
</table>
Make Decisions with Data | Expository Presentation
Presentation Delivery

Activity Overview
In this activity, students explore strategies for delivering interesting, informative, and entertaining presentations to live audiences. Students learn how to prepare and practice their presentations and speak to their audiences in a professional but conversational tone.

Activity Questions
- How can students prepare to deliver successful presentations?
- What should students try to accomplish during their presentations?
- What should students try to avoid during their presentations?
- What is a peripheral and what do all peripherals have in common?

Vocabulary: Words to Remember
Introduce the vocabulary words to students with a brief explanation. Help students associate an image or symbol with key hardware terms such as input, output, and peripheral. You may want to have students use each word in a sentence or act out the word. Remind students that a good technical vocabulary helps them use technology more productively.

Exploration: Learning from the Web
Make sure students understand how to use the guiding questions for this activity to focus their exploration of Web sites on information that helps them deliver an interesting, informative, and entertaining presentation.

What to Know
Make sure students understand that a projection device is one example of a peripheral, a hardware device that can provide input to a computer or accept output from a computer.
A projection device needs two main features to work:

- **Projection.** The most common type of presentation projection device is the LCD (liquid crystal display) projector. Other types include DLP (digital light processing) and RGB (red, green, and blue) projectors. You can also use television monitors to display presentations to a smaller audiences.

- **Universal Serial Bus (USB).** Projectors and other peripherals must be connected to a computer to provide input or accept output. In the past, peripherals used various types of connections, such as parallel ports, serial ports, and S-Video ports. Today, USB technology provides a single, high-speed port for any kind of peripheral.

Make sure students know how to do the following **before** delivering their presentations:

- Review the presentation with Slide Sorter on the View menu
- Run the presentation from either the View or Slide Show menu
- Practice delivering the presentations in front of a mirror, friend, or trusted adult
- Connect and use the projector

Make sure students know how to do the following **during** their presentations:

- Speak to the audience in a professional yet conversational tone
- Summarize the main points on slides instead of reading from them or reciting them from memory
- Watch the audience to make sure they are understanding the presentation
- Watch the time and try to stay on schedule

**Task: What to Do**

Students demonstrate that they can explain their decisions by delivering interesting, informative, and entertaining multimedia presentations. Make sure students know how to use the projection device before they deliver their presentations. If you are a classroom teacher, this activity is an excellent time to collaborate with the computer teacher.

Discuss the example of a **final presentation** with the whole class or small groups before students begin the task. Review the checklist and discuss whether the example is complete. You may want to review the rubric and discuss what criteria could be used to assess the example.

Be sure to provide ample time for students to discuss their presentations with others. Question students who provide general feedback without specifying not only what they liked or did not like but why. Encourage students to offer constructive suggestions for improvement.

**Quiz: Check Your Understanding**

Remind students that the quiz is not scored and answers are not recorded. Make sure students read the feedback they get when they answer each question. The quiz makes sure students are familiar with some basic guidelines for preparing and delivering presentations.

You may want students to take the quiz as a class if you have a presentation station. You can have students vote on each answer and then discuss why each answer is correct or incorrect. You may also want to have students write their own quiz questions and share them with a peer, a small group.
Task Example
Make Decisions with Data | Expository Presentation

Look Back

Thinking about Learning
In this module, students explored the expository style of writing and how it can be used in presentations before outlining and designing visually attractive presentations. Students found and used multimedia legally and ethically to enhance their presentations. Finally, students delivered their expository presentations to live audiences.

Students have learned:

- How to use expository nonfiction in presentations
- How to outline interesting and informative presentations
- How to create attractive and easy-to-read presentation from outlines
- How to enhance presentations by adding multimedia legally and ethically
- How to deliver interesting, informative, and entertaining presentations

Checklist for Expository Presentation
Help students use the checklist to make sure they have completed all the tasks in this activity. Completing all tasks ensures that students are ready to share their expository presentations with an audience.

Rubric for Expository Presentation
Help students use the rubric to self-assess their outlines, content, design, multimedia, and delivery of their expository presentations. Explain to students the importance of paying attention to both technical mechanics and writing mechanics. Make sure students’ self-assessments are accurate. Encourage students to use their self-assessments to improve their expository presentations.

Reflection on Expository Presentation
Ask individual students questions that encourage reflection any time you find an opportunity. If possible, give students time to share their expository presentations with each other. Students can share their reflections with the whole class, in small groups, or in pairs.
Encourage students to discuss the following points:

- Why most presentations are examples of expository nonfiction
- What they learned about presentation tools and graphic design
- What they learned about managing multimedia legally and ethically
- How they prepared to deliver their expository presentations

Encourage students to take or e-mail their expository presentations home to share with parents, guardians, or other trusted family members.