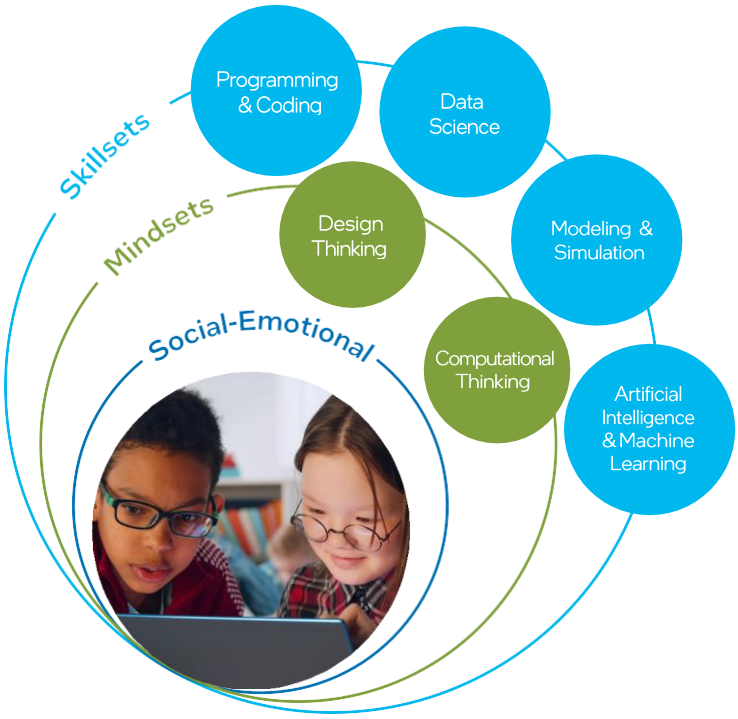
Intel® Skills for Innovation

Starter Pack Lessons Overview

"The Starter Pack lessons can lead to some really powerful learning, especially in regard to connecting content with purposeful digital projects. Technology can be a strong tool and with an ever-growing and developing world, digital skills are essential for students to have."

Kerry H.
Teacher, The Ovington School, Brooklyn, New York

Intel® Skills for Innovation Framework



Targeted Mindsets & Skillsets

The Intel® Skills for Innovation (Intel® SFI) Framework envisions a world in which students possess the skills necessary to meet the shifting landscape of the Fourth Industrial Revolution. Students are empowered to be innovators as they prepare for, imagine and create the jobs of the future.

The framework provides directions for decision makers and educators to integrate technology activities into the existing curriculum to build essential mindsets and skillsets.

Path to Adopting Intel Skills for Innovation

1 Plan

Understand new skill requirements in the post-pandemic environment. Rethink technology's role in education system to foster skill building.

Intel® SFI Planning Toolkit
For Decision Makers
Modular workshops and planning workbook

2 Experience

Experience technology used for skill building in the actual learning environment and verify viability.

Intel® SFI Starter Pack Lessons
For Educators and Learners
100+ activities with more than 200+ hours of class time

3 Learn

Develop educators' competencies to facilitate higher-order skills development in their students.

Intel® SFI Professional Development
For Educators
100+ hours of professional development for all levels

4 Deploy

Adopt technology-supported, skills-based learning models across the entire education system.

Engage with Intel® Partner Ecosystem
For Education Institutions
SFI-trained service and technology providers

Introduction to Intel® SFI Starter Pack Lessons

The Intel SFI Starter Pack lessons provide educators with ready-to-use, technology-infused learning experiences that develop skills of the future for learners. Using hands-on activities based on real-world scenarios, educators can effectively integrate innovation skills supported by digital technologies into their existing curriculum. Activities are designed for in-person, remote, or virtual learning and work well for flipped classrooms. The Intel SFI Starter Pack is hosted on the Intel SFI Platform.

With a growing library of

100+ activities spanning **200+** hours of content across various subjects for K-12 schools.

The Intel SFI Starter Pack lessons map innovation skills under the Intel SFI Framework to existing curriculum, integrating technology into engaging, grade-level-appropriate activities and projects. Using technology tools in real-world scenarios helps students build skills of the future.

Technology Usage Examples

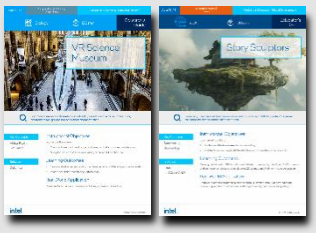
- Cloud-based software for 3D modeling, simulation, and data analysis
- Programming software, including Scratch and Python
- Digital fabrication tools such as 3D printing and laser cutting

Developing Skills for the Future

- Ability to create, evaluate, and analyze (higher-order cognitive skills)
- Innovation mindset
- Improved readiness for the demands of the Fourth Industrial Revolution

Exploring an Intel SFI Starter Pack Lessons Activity

Each Intel SFI Starter Pack lesson is a complete resource for educators, designed to provide support in different curriculum subjects. It includes an educator's guide, teaching deck and working files. The estimated duration of each activity is two hours.



Educator's Guide

- Learning objectives
- Lesson overview
- Activity guide
- Troubleshooting tips
- Assessment & rubrics

Teaching Deck

- Introduction to topic
- Hands-on activities
- Guided learning
- Discussion topics
- Reflection

Working Files

- Worksheets
- Installation guides
- Applications
- Source files or codes
- Data sets

All activities can be conducted on Windows or Chromebook* platform.

*Refer to the Intel SFI Starter Pack lessons glossary for the list of activities that can be conducted on a Chromebook

What is Included in the Intel® SFI Starter Pack Lessons

The Educator's Guide provides educators with detailed information about what to expect when they carry out the activity in the classroom.

Mindset

Age

Skillset

Each Starter Pack lesson focuses on at least one mindset and skillset under the 7 innovation skills. All 100+ activities are designed to develop social-emotional skills in learners.

Subject

Duration

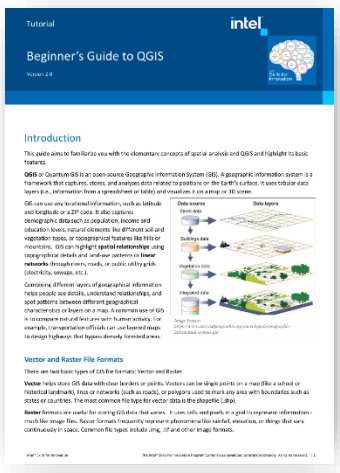
Key concept covered in each activity is highlighted.

Technology used – A variety of technology ranging from programming to cloud-based software has been selected for the 100+ activities.

This section integrates both the learning objectives of the topic in the subject as well as the outcome of a tech-infused lesson. An example of a real-world application is also included to show the relevance of this activity beyond the classroom.

New to the Technology?

Beginner's guides have also been created for educators who are interested in finding out more about how to use and apply the software or technology introduced in the Intel® SFI Starter Pack lessons. As a supplementary resource, the guides provide additional support to educators in using technology with greater confidence.



Intel® SFI Starter Pack Lessons for K-12 Schools

Grade-level-appropriate Intel® SFI Starter Pack lessons are categorized into various subject areas, making it easy for educators to select activities that match their areas of specialization.

Categorization of Intel SFI Starter Pack Lessons

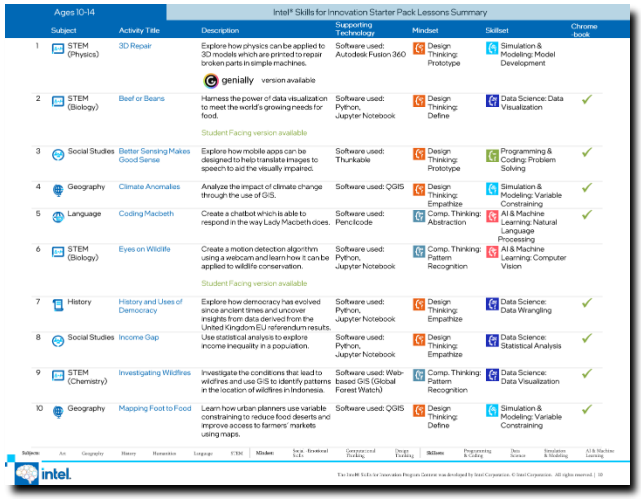
	Languages	STEM	Humanities
Ages 5-10 (22 Lessons)	• English • Literature	• Mathematics • Biology • Chemistry • Physics	• Geography • History • Social Studies
Ages 10-14 (37 Lessons)	• English • Literature • Language Arts		• Geography • History • Social Studies
Ages 14-19 (52 Lessons)	• English • Literature • Language Arts		• Economics • Geography • History • Social Studies

Curriculum Integration

Each Intel® SFI Starter Pack Lesson has been designed for seamless integration into the local curriculum.

The SFI Starter Pack Lessons are currently aligned to several sets of U.S. based standards, including Common Core, NGSS and ISTE.

The Starter Pack Lessons are also aligned to the National Curriculum of both Singapore and the United Kingdom.


Ages 10-14 — Intel® Skills for Innovation Starter Pack Lessons Summary

	Subject	Activity Title	Description	Supporting Technology	Mindset	Skillset	Chrome book
1	STEM (Physics)	3D Repair	Explore how physics can be applied to 3D models which are printed to repair broken parts in simple machines. genially version available	Software used: Autodesk Fusion 360	Design Thinking: Prototype	Simulation & Modeling: Model Development	
2	STEM (Biology)	Beef or Beans	Harness the power of data visualization to meet the world's growing needs for food. Student Facing version available	Software used: Python, Jupyter Notebook	Design Thinking: Define	Data Science: Data Visualization	✓
3	Social Studies	Better Sensing Makes Good Sense	Explore how mobile apps can be designed to help translate images to speech to aid the visually impaired.	Software used: Thunkable	Design Thinking: Prototype	Programming & Coding: Problem Solving	✓
4	Geography	Climate Anomalies	Analyze the impact of climate change through the use of GIS.	Software used: QGIS	Design Thinking: Empathize	Simulation & Modeling: Variable Constraining	✓
5	Language	Coding Macbeth	Create a chatbot which is able to respond in the way Lady Macbeth does.	Software used: Pencilcode	Comp. Thinking: Abstraction	AI & Machine Learning: Natural Language Processing	✓
6	STEM (Biology)	Eyes on Wildlife	Create a motion detection algorithm using a webcam and learn how it can be applied to wildlife conservation. Student Facing version available	Software used: Python, Jupyter Notebook	Comp. Thinking: Pattern Recognition	AI & Machine Learning: Computer Vision	
7	History	History and Uses of Democracy	Explore how democracy has evolved since ancient times and uncover insights from data derived from the United Kingdom EU referendum results.	Software used: Python, Jupyter Notebook	Design Thinking: Empathize	Data Science: Data Wrangling	✓
8	Social Studies	Income Gap	Use statistical analysis to explore income inequality in a population.	Software used: Python, Jupyter Notebook	Design Thinking: Empathize	Data Science: Statistical Analysis	✓
9	STEM (Chemistry)	Investigating Wildfires	Investigate the conditions that lead to wildfires and use GIS to identify patterns in the location of wildfires in Indonesia.	Software used: Web-based GIS (Global Forest Watch)	Comp. Thinking: Pattern Recognition	Data Science: Data Visualization	✓
10	Geography	Mapping Food to Food	Learn how urban planners use variable constraining to reduce food deserts and improve access to farmers' markets using maps.	Software used: QGIS	Design Thinking: Define	Simulation & Modeling: Variable Constraining	✓

List of Intel SFI Starter Pack Lessons

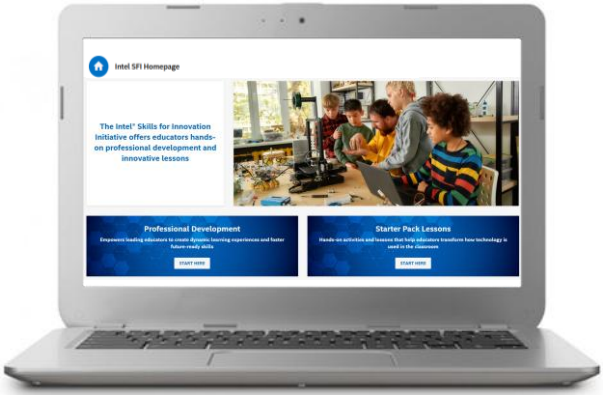
For detailed information including learning objectives, platform compatibility, technology used, and innovation skills covered in each Intel SFI Starter Pack Lesson, refer to the Starter Pack Lessons Catalog.

Intel® SFI Learning Platform

The Intel® SFI Learning Platform provides educators and administrators with access to a rich, interactive social learning environment to learn, share, collaborate and connect with a global population of educators. With system-wide reporting and analytics, administrators can access powerful insights to track and support the progress of their staff on behalf of their entire organization.

Learning
Interactive learning & completion certificates

Resource Library
Lesson plans, PDFs, videos, beginner's guides, presentations, and much more



Live Discussions
Grouped by cohort, topic, subject, and thread

Insight Surveys
Capture trends of the innovative approaches to learning and student development

Community-Generated Content
Shared lesson plans, best practices, and an opportunity to connect with other professionals through the community

Intelligent Search
Search categories and filters aligned to educators' interests

Ready to Get Started?

The Intel® SFI Starter Pack Lesson is designed to meet the evolving pedagogical needs of educators and prepare learners to excel as part of tomorrow's workforce. This program is available under license from Intel.

For more information about how to deploy Intel® SFI Starter Pack Lessons in your education environment, please contact your Intel Technology Provider.

To continue building educators' capacity to create technology-infused learning experiences, see Intel® SFI Professional Development Syllabus, another key component of the Intel® Skills for Innovation Framework.

For more information, visit
skillsforinnovation.intel.com