Lights, Camera, Reaction!

Materials and Resources

Printed Materials


Supplies

- Microscale well plates
- Goggles
- Lab aprons
- Chemicals for microscale labs (appropriate for high school classrooms)
- Microscale thermometers
- Candles
- Appropriate chemical waste containers (do not put down the drain)
- Deionized or distilled water

Internet Resources

Websites

- Lycée Faidherbe LILLE
  www.faidherbe.org/site/cours/dupuis/oscil.htm*
  Animation of oscillating reactions and other links and graphic explanations

- University of Nebraska—Lincoln
  http://dwb.unl.edu/Chemistry/MicroScale/MScale00.html*
  Series of links to microscale chemistry demonstrations

- Chemistry Based
  www.shsu.edu/~chm_tgc/sounds/sound.html*
  Library of instructional QuickTime videos

- Chem4Kids: Chemical Reactions
  www.chem4kids.com/files/react_intro.html*
  Virtual tour of chemical reactions with diagrams

- Vision Learning
  www.visionlearning.com/library/module_viewer.php?mid=54*
  High-level information about chemical reactions

- Nova
  www.pbs.org/wgbh/nova/kaboom*
  Visually stimulating site about the chemical reactions taking place in fireworks

- SciLinks
  www.chem.vt.edu/RVGS/ACT/notes/Types_of_Equations.html*
  Simple-to-understand site about balancing equations

- Chemistry ThinkQuest
  http://library.thinkquest.org/10429/text/balequa/balequa.htm*
Easy-to-use site about balancing equations

- Dr. R. Rinehart  
  www.mpcfaculty.net/ron_rinehart/1B/oscillat.htm*  
  Explanation of how to conduct an oscillating clock reaction demonstration

- TrackStar  
  http://trackstar.4teachers.org/trackstar/ts/viewTrack.do?number=191665*  
  Tutorial about chemical reactions and a self-assessment; just one of 51 resources made by teachers from TrackStar on the topic of chemical reactions

**Simulations**

- Amrita University: Chemical Reactions  
  http://amrita.olabs.co.in/?sub=73&brch=2&sim=77&cnt=1*  
  Carry out a number of different reactions and classify them as chemical or physical changes

- Amrita University: Single Displacement Reaction  
  http://amrita.olabs.co.in/index.php?sub=73&brch=3&sim=81&cnt=1*  
  Perform a single displacement reaction with the help of iron nails and copper sulphate solution

- Amrita University: Combination Reaction  
  http://amrita.olabs.co.in/index.php?sub=73&brch=3&sim=79&cnt=1*  
  Perform chemical reactions in which two or more substances combine to form a single substance

- Amrita University: Decomposition Reaction  
  http://amrita.olabs.co.in/index.php?sub=73&brch=3&sim=80&cnt=1*  
  Perform chemical reactions in which a single compound splits into two or more simple substances

- Amrita University: Double Displacement Reaction  
  http://amrita.olabs.co.in/index.php?sub=73&brch=3&sim=82&cnt=1*  
  Perform a double displacement reaction using sodium sulphate and barium chloride solutions

- PhET: Reactions and Rates  
  http://phet.colorado.edu/en/simulation/reactions-and-rates*  
  Explore what makes a reaction happen by colliding atoms and molecules. Design experiments with different reactions, concentrations, and temperatures. Investigate reversible reactions and reaction rates

- PhET: Reversible Reactions  
  http://phet.colorado.edu/en/simulation/reversible-reactions*  
  Watch a reaction proceed over time to determine how total energy affects a reaction rate. Vary temperature, barrier height, and potential energies to change the reaction

- PhET: Reactants Products and Leftovers  
  http://phet.colorado.edu/en/simulation/reactants-products-and-leftovers*  
  See how many products you can make with different amounts of reactants

- PhET: Balancing Chemical Equations  
  http://phet.colorado.edu/en/simulation/balancing-chemical-equations*  
  Experiment with making changes to balance chemical equations

**Technology—Hardware**
• Digital camera(s) to take pictures during experiments on reaction types included in presentations
• CD/DVD burner and player for final education instructional video for mock cable channel
• Computers with an Internet connection
• Printer to print documents so they can be proofread and communicated to group members
• Projection system for instructional use during lessons that require discussing certain Web sites
• Scanner to scan documents and experiment information for group presentation
• Video camera for taping experiments and demonstrations to link to presentation on reaction type

Technology—Software

• Camera or video image manipulation to process images for presentation
• Desktop publishing to create documents for presentations explaining experiments and demonstrations
• Image processing to download videos and images from the Internet and/or presentations
• Internet Web browser to access the Internet for teacher lessons and for student research
• Multimedia for production of presentations and final DVD for mock cable company
• Web page editor as an option for students to use instead of multimedia slideshows
• Word processing to create documents for presentations