
Use science practices.

Give students opportunities to discover new content knowledge through investigation and to use their new knowledge both in problem-solving exercises and as evidence to support reasoning. Students learn what science and engineering practices are by engaging in those same practices as they learn.

Make frequent connections.

Use a combination of demonstrations and reading materials, rich with examples, to help students recognize how the science concepts they are learning apply in their everyday lives. Prompt students to relate lesson content to their own experiences, to relate the new and unfamiliar to the familiar, and to connect ideas and examples across disciplines.

Monitor student progress.

Use verbal questioning, student work, and the Check for Understanding assessments at the end of each lesson to monitor progress during each lesson and to measure understanding at the conclusion of the unit. Many lessons provide tips to help you support students who need further explanations or clarifications.

Effective and Safe Classroom Activities

Online Resources

Conducting safe classroom demonstrations and activities is essential to successful elementary science education. The following resources provide Core Knowledge's recommendations for developing effective science classroom activities.

These resources, included at the back of the Teacher Guide on pages 64–68, consist of the following:

- Classroom Safety for Activities and Demonstrations
- Strategies for Acquiring Materials
- Advance Preparation for Activities and Demonstrations
- What to Do When Activities Don't Give Expected Results

These resources may also be accessed within the CKSci Online Resources Guide for this unit, available at

www.coreknowledge.org/cksci-online-resources

MATERIALS AND EQUIPMENT

The unit requires a large variety of materials to support various ways of learning (including doing, discussing, listening, watching, reading, and writing). Prepare in advance by collecting the materials and equipment needed for all the demonstrations and hands-on investigations.

- Roll paper, poster board, or a bulletin board should be dedicated at the beginning of the unit to serve as a question board to cumulatively document and return to student questions. The question board is referred to in the materials for lessons in which it is used but is not repeated in the materials listed here.
- Internet access and the means to project images/videos for whole-class viewing are also required in many lessons but are not repeated below.

Lesson 1 Rest and Run

- clock or stopwatch
- poster paper
- markers
- sticky notes

Lesson 2 Respiration

- utility knife (teacher use)
- clear plastic drink bottles, 12–20-ounce size (1 per pair)
- party balloons (2 per pair)
- drinking straws (1 per pair)
- elastic bands (1 per pair)
- scissors (1 per pair)
- modeling clay or dough (a walnut-sized piece per pair)

Lesson 3 A Closer Look at Lungs and Breathing

- white paper plates (4)
- petroleum jelly
- duct tape, 12-inch lengths (4)
- wood blocks or bricks (4)
- camera
- markers

Lesson 4 Circulation

- balloons, identical (2)

Lesson 5 A Closer Look at the Heart

- poster paper
- markers

- scissors (1 per pair)
- unlined sheets of paper (1 per student)
- glue (1 per pair)
- colored pencils (1 set per pair)

For Differentiation:

- plastic water bottles (3)
- bendable drinking straws (4)
- water bottle cap, with two holes straws can fit through
- water bottle cap, with one hole a straw can fit through and another smaller hole
- masking tape
- modeling clay or dough
- pitcher with three cups of water

Lesson 6 A Closer Look at Blood

no materials needed

Lesson 7 Wellness of the Heart and Lungs

- permanent marker
- bricks or wood blocks (4)
- white paper plates
- duct tape loops (4)
- petroleum jelly

Lesson 8 Helpful Technology

- surgical masks (1 per student)