

Happy Arteries, Happy Heart

Lesson Three: Students will learn about arteries and how important they are to a healthy body.

MATERIALS FOR EACH PAIR OF STUDENTS:

1. Cardboard toilet tissue tube
2. Cup of small plastic beads or dried peas
3. Small container of modeling compound
4. Bowl
5. Napkin

SETUP:

Show students the heart model. Ask a student volunteer to identify on the model an artery, which is a blood vessel that carries oxygen-rich blood from the heart to the rest of the body (numbered parts 7–8, 10–11, 13, 16–18, 22, 31, and 33). Repeat with other students until several of the model's arteries have been identified. Then share with students information about arteries given in the box on this page.

After this discussion, distribute the materials listed to pairs of students. Then have them follow the steps below to create a model of a clogged artery. Discuss students' observations. Next have students suggest habits that can help keep their hearts healthy, such as eating a variety of fruits and veggies, moving more, and never vaping or using tobacco. The small circle beside the part's name on the printable. (Note: The septum is not numbered on the model, but can be easily located.)

STEPS:

1. Fold the napkin and place it in the bottom of the bowl.
2. Hold the cardboard tube (an artery) at an angle over the bowl. Pour the cup of beads (blood) through the tube into the bowl. Note how quickly the bowl fills. This step simulates how blood flows easily through a healthy artery.
3. Remove the beads from the bowl and put them back in the cup.
4. Carefully mold the modeling compound in the tube so the tube is at about halfway blocked. The tube now represents a clogged artery.
5. Repeat Step 2. What do you observe about the blood flow in the partially clogged artery? How might this affect a person's health?

FACTS ABOUT YOUR HARDWORKING ARTERIES

- Arteries carry oxygen-rich blood from your heart to the rest of the body.
- Arteries are found all over the body, from the brain to the toes. Healthy arteries are smooth on the inside so blood can flow easily through them.
- Sometimes arteries get clogged by a substance called plaque. Plaque is created from different substances that can be in the blood, such as fat and cholesterol. It can build up on the walls of arteries. It reduces the flow of blood and can even block an artery.
- A person with clogged arteries has a greater chance of having a heart attack or a stroke. Both of these health events can cause death.
- Healthy habits—such as eating healthy foods, getting regular physical activity, and avoiding cigarettes and vaping—can help keep arteries healthy.



EXTEND WITH STEM

- Explain to students that biomedical engineers work to develop devices that can clean out the fatty build-up on the walls of arteries. Divide the class into groups. Provide groups with various materials such as craft sticks, pipe cleaners, cardboard, chopsticks, tape, etc. Challenge each group to use the materials to create and test a tool that can clean out the modeling compound inside their toilet tissue tubes (see previous activity). Require groups to use at least five different materials in their designs. Provide time for each group to share its most successful design with the rest of the class.
- Have each student label a sticky note with the healthy heart habit he or she thinks is most important for good heart health. Have students place their notes on the whiteboard. Use the notes to form groups of students with similar interests. Direct each team to come up with a plan for how to inform other students in your school about the importance of each healthy heart habit.