



## Make Your Own Stethoscope

### Background:

This lesson will help students learn about heartbeats and blood circulation. Students should be aware that stethoscopes are used not only to listen to heartbeats, but are used to listen to the lungs and blood flowing in blood vessels.

### Materials:

- Paper towel tube
- Plastic funnel
- Duct tape
- Scissors
- Stopwatch or clock/watch that can count seconds



### Procedure:

1. An organ plays an essential part in the body. Can your students name any organs?
2. Ask students if they know what function the heart plays (Allows blood to flow throughout our body). How does one measure heart beats?
3. Introduce to students that they will be making their own stethoscopes. A stethoscope picks up noises made inside the body. A round disk picks up these sounds and carries them through an air-filled tube to the ears of the listener.
4. To build the stethoscope, place the narrow end of the funnel into an end of the paper towel tube. Put duct tape around the funnel to secure it.
5. To listen to a heartbeat, have a student place the flat end of the funnel on another student's chest, roughly where the heart is. The paper towel tube is to go against the ear of the student listening.
6. Have students measure heart rates of other students. This should be done after students are sitting calmly for about 5 minutes. Ask students to make a hypothesis about their heart rate. To determine the heart rate, students should count how many beats the heart makes in 15 seconds. Use this equation to determine the heart rate:  $Heart\ rate = (number\ of\ heartbeats\ in\ 15\ seconds) \times 4$ . Have students record this number.
7. Next, have students measure their heart rate after doing 30 seconds of exercise (jumping jacks or high knees). Make sure they measure their heart rate immediately after exercising. Use the equation above and have students record the number.
8. Create a bar graph showing the differences in the students' heart rates.
9. Ask students how their heart rate changed between the two tests.
10. If time allows, do the same test with the pulse (use the same equation as above).



## **Make Your Own Stethoscope**

### **Next Generation Science Standards Used:**

4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.