

# Engineering: Build Your Own Stethoscope!

**Ages: Pre-School to Grade One**

Hello to all the big and little engineers out there. This is Bill from the Okanagan Regional Library System. Welcome to the fun and inventive world of making your own engineering projects in your own home. Every Wednesday, I will share a fun and interesting project that you can make using materials commonly found in your own home

Even though we can't be together right now, we can still learn how to make exciting projects each week!



This week's project is building your own stethoscope.

## Stethoscopes

A stethoscope is a medical instrument used by doctors and nurses to listening to the action of your heart or your breathing. The disc and the tube of the **stethoscope** amplify small sounds such as the sound of your lungs and heart, making them sound louder. The amplified sounds travel up the **stethoscope's** tube to the earpiece that the doctor or nurse listens through.

## DIY Stethoscope

While this project is very simple to make, there is lots of room for exploring and learning! Young children will love this project that teaches them about heartbeats.

## Materials Needed:

- Plastic tubing
- 2 – PVC Pipe 90° elbows
- Duct Tape
- Stop Watch or Stop Watch App on your Smart Phone



## Steps:

1. Cut just enough tube to reach from your heart to your ear.
2. Use the duct tape to attach the one end of tubing to one end of a pipe elbow. Make sure that the tape completely seals any openings or it will be harder to hear your heartbeat. Repeat with the second elbow and the other end of the tubing.



3. Place one pipe piece against your ear and the other against your heart to hear your heart beating.

## Heartbeat Stethoscope Challenge

1. Ask your kids if they think their heartbeats will change after they ran in place for 30 seconds.
2. First, have them listen to their heartbeats at rest. The heartbeats should slow and faint. Count how many heartbeats they can hear in one minute.
3. Next, have the kids run in place for 30 seconds. After the activity, their heartbeats will faster and louder! Again, count how many heartbeats they can hear in one minute.
4. Talk about how activity raises your heart rate and helps your heart stay healthy.

## STEAM

This activity includes everything you need for a comprehensive STEAM project.

**Science:** Used the scientific method to answer the question: will a heartbeat change after physical activity.

**Technology:** Used a stopwatch to time the difference in heartbeats before and after the physical activity.

**Engineering and Art:** Design and built your own stethoscope.

**Math:** Time the heart rates before and after the physical activity and compare the different rates.