

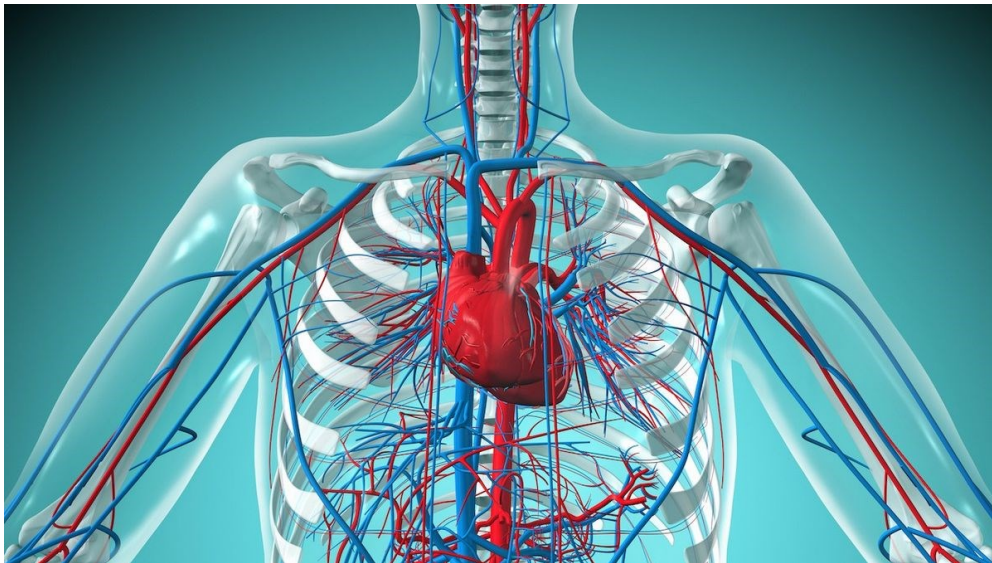
Science: A Working Heart Model

Ages: School Aged

Hello everyone. This is Bill from the Okanagan Regional Library System. Welcome to the fun and inventive world of making STEAM projects in your own home. Each month, I will share a fun and interesting project that you can make using materials commonly found in your own home.

This month's project: A Working Heart Model

A Working Heart Model



February is Heart Month, which makes it the perfect time to examine how a heart works. In this activity we will build a functioning and unique heart model out of items that we have around the house. It is a great biology lesson that is tied to learning how the heart functions and about heart health in general.

The heart is an organ that helps pump blood through the different parts of our body. The heart works like an engine for our body pumping blood constantly to keep our organs functioning.

Materials Needed:

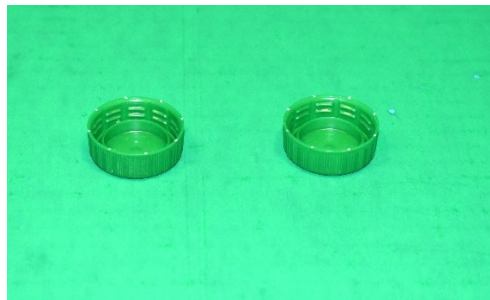
- 3 plastic water bottles with caps
- 4 Bendy Straws
- 3 cups of water
- Food Colouring
- Modeling clay or play dough
- Xacto knife to make holes in the bottle caps



Time: Approximately 30 minutes

Steps:

1. You will need two bottle caps for this experiment. Keep the third one as a back up.



2. In the first bottle cap drill two holes that are the same size. You want the holes just big enough for the straws to slide through snugly.



3. In the second cap drill one hole that is straw sized. The second hole should be smaller. If you drill the second hole too large, you can use some modeling clay to make the second hole a little smaller.



4. Take two straws and stretch and bend them to create a 90-degree angle. Slide one straw into the other (pinch one to make it smaller so it slides in). Then tape up the area where they are joined. Repeat with the second set of straws.



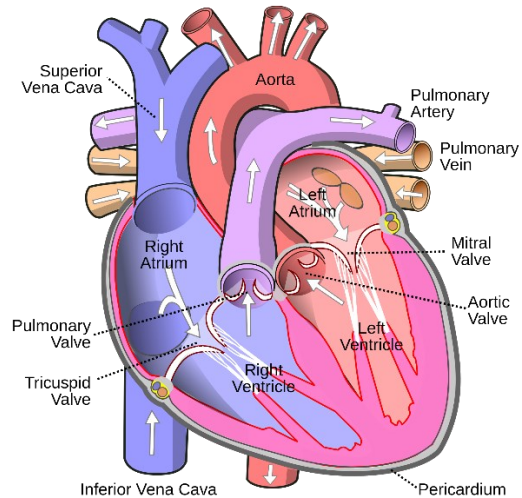
5. Place the three bottles on the table. Fill the first two with coloured water to about 80% full. Leave the third bottle empty and with out a cap.



6. Carefully slide the straws through the two bottle caps. Place clay or play dough around the straw bases on the middle bottle to make an airtight seal with the bottle cap.



Making Your Heart Model Work



In this simple model the first bottle is the atrium of the heart, the second bottle is the ventricle, and the third bottle represents either the lungs or the body. Your fingers will function as the valves of the heart.

To make your human heart model work, squeeze the middle bottle only. Start by pinching the straw between the first bottle (the atrium) and the second bottle (the ventricle). Squeeze the middle bottle and watch your “blood” squirt out into the third bottle (the body).



Keeping the middle bottle “squeezed” move your fingers and pinch the straw between the ventricle and the body. Now let go of the middle body and watch your blood move from the atrium into the ventricle.

Repeat, repeat, repeat to pump blood from the atrium into the ventricle and then into the body.

Once your blood in the atrium gets too low, you can take blood from the “body” and add it back into the atrium. Then you can start over again.