



Related Standards:

4-LS1-1

Biology Cardiovascular System: *Building a Functioning Heart*

BLOOD FLOW

Deoxygenated blood travels into the right atrium then goes to the right ventricle then it travels to the lungs to get oxygen and goes back to the heart into the left atrium then to the left ventricle then out to the body.

Count it!

Your heart rate is how fast your heart beats. We measure this as beats per minute. The easiest way to do this is to count how many times your heart beats in ten seconds, then multiply the number by 6 (60 seconds in a minute) to get your heart rate.

Materials:

- Food colouring
- Tape
- Modeling clay or play dough
- 3 x Pop bottles (710 mL) with caps, labels removed
- 4 x Bendy straws
- 3 Cups of water

Instructions:

1. In the first cap poke 2 holes that are the same size. You want the holes to be just big enough for the straws to slide through.
2. In the second cap drill one hole that is straw sized. If you poke the hole too big, you can use some modeling clay to make the second hole a little smaller.
3. Pour 3 cups of water into a cup/bowl/pitcher and add red food coloring.
4. Take two straws, stretch and bend them to create a 90 degree angle. Slide one straw into the other straw (pinch one to make it smaller so it slides in), then tape up the join. Repeat with the second set of straws.
5. Place your three bottles on the table. Fill the first two with your water to about 80% full. Leave the third one empty.
6. On the first bottle place the cap with one straw hole and one small hole. On the middle bottle place the cap with two straw holes. Leave the third bottle without a cap.
7. Carefully slide the straws through the bottle caps. Place clay or playdough around the straw bases on the middle bottle to make an airtight seal with the bottle cap.
8. You are now ready to put your heart model to work!

What's the science behind it?

Your heart has 4 chambers and blood only flows in one direction from the atrium to the ventricle. In your heart model, the two outside bottles represent the atrium and ventricle. When you squeeze the middle bottle that resembles the heart beating to pump the blood through the heart and to the body. The straws resemble the valves which are like small doors in your heart that open to let blood go to the next chamber.