Pumping Heart Investigation

Elementary - Middle School

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Overview

Our heart is a very critical organ in our body because it circulates our blood. Chambers and valves are crucial to keep blood flowing in the correct direction. Both the right and left side of the heart have an atrium (entry chamber) and a ventricle (exit chamber). These pump in a specific way to push blood through the heart. Valves guarantee that blood does not flow in the wrong direction.

Today, we will be using a simple experiment to showcase this incredible process!

Materials Needed

- A transparent jar
- 1 balloon
- Water
- Red food coloring
- 2 plastic straws
- Tape
- Scissors
- Tray

Steps

1. Place your jar on the tray
2. Fill your jar halfway with water and add a few drops of red food coloring
3. Cut the neck off your balloon. Stretch the balloon over the opening of the jar
4. Using your scissors, poke two holes, that are smaller than the straws (to ensure a tight fit), in the jar
5. Push your straws through the holes you made in the balloon
6. Place the neck of the balloon (which was cut in step 3) over one straw and attach tape in place. This symbolizes the valve.
7. Press down on the balloon and watch what occurs. Water is pushed out of the unsealed straw. The valve (balloon neck) stops water from moving in the wrong direction.
8. Pushing down on the balloon symbolizes your heart contracting and squeezing the chambers, which pushes blood out to the arteries.

Terminology Associated with Lesson

Heart - a hollow muscular organ that pumps the blood through the circulatory system

Atria/Atrium - each of the two upper cavities of the heart from which blood is passed to the ventricles

Ventricle - a hollow part or cavity in an organ

Valve -a membranous fold in a hollow organ or tubular structure that maintains the flow of the contents in one direction by closing in response to any pressure from reverse flow.

Notes To Instructor

We hope you enjoyed learning about how the heart pumps blood throughout our bodies! Feel free to research more about the heart through the worksheets on our website!