**Make a Heart: Class set**

*Objective: You will explore the working of a heart by making comparisons with actions of a pump. You will be using critical thinking and communication to work with your table groups.*

Key Question: What happens during the pumping action of the heart?

Materials:

* Plastic Solo cup (1)
* Balloon (1)
* skewer (1)
* two flexible straws (2)
* scissors –there are a few floating around please share ☺
* tub (1)
* sponge to clean up water spills to share with the class

Instructions:

1. Fill the jar half full of water. Cut the neck off of the balloon and stretch the balloon over the mouth of the jar so it fits tightly. Save the neck of the balloon for use instep three, below. With the skewer, poke two small holes into the stretched balloon, about 2 cm apart.

2. Carefully insert a straw through each hole in the balloon. The straws should fit snugly. If there are gaps between the straws an the balloon, start over with a new balloon –there are limited resources, PLEASE try to get it right the first time ☺

3. Use the neck from the balloon to make a valve. The valve goes on the end of one straw as a flap. Secure lightly with tape. Bend down the straw with the balloon valve (see diagram). Place the jar in a tub or pail.

4. Push and release the balloon stretched over the jar several times. Can you get water to move through the straws? In what direction does the water move?

**Follow-up Questions:**

1. Study illustrations of the heart. What are the similarities between the heart an the pump you assembled?

2. Remove the balloon flap (valve) from the apparatus. What happened?

3. Does the valve affect how well the water flows?

4. Can you think of other examples of valves and pumps?