



Curiosity Guide #505

Circulatory System

Accompanies Curious Crew, Season 5, Episode 5 (#505)

Pumping Heart

Investigation #4

Description

How fast does your heart pump blood?

Materials

- 2 clear wide-mouthed containers that hold at least 5 liters of water.
- Measuring cup
- Water
- 3-ounce cup, or about 60 to 90 milliliters
- Timer

Procedure

- 1) Measure and fill one of the clear containers with 5 liters of water.
- 2) Challenge a friend to transfer the water from one container to the other, using the small cup.
- 3) Time your friend.
- 4) Did transferring the water take a long time?
- 5) Can you do it in only one minute? Set the timer for one minute and try.
- 6) Did you get tired?
- 7) Can you figure out how much blood is pumped around the body in one day?

Note: This activity should be shown to others in fast motion.

My Results

Explanation

In an average adult, the heart pumps about 5 to 7 liters of blood every minute, which is how much time you gave yourself to move 5 liters of water in the second trial. That means your heart will move about 2,000 gallons of blood throughout the body every day! The size of the small cup is similar to the amount of blood each pump of the heart pushes out into the body. It is amazing that the heart can move so much blood so quickly every day.

Let's go a little further. It's hard to imagine that an adult's heart will pump about 5 liters of blood every minute. At that rate, the heart would move 2,000 gallons of blood in just one day, but what about over a lifetime? If we could measure all of that blood that flows around the body over a lifetime, on average there would be enough blood to fill one million barrels! That many barrels would be enough to fill three supertanker ships and still have blood left over. Amazing!

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