

What's in your Blood?



The blood in your body is very important! It carries oxygen and nutrients to the rest of your body. Your heart pumps to move blood through blood vessels and your bones work to make blood cells. Let's explore four important parts of blood by making a model.

Materials:

- Red water beads
- Ping pong balls
- Foam sheet, cut into small pieces
- Water
- Bowl or ziplock bags
- Teaspoon scoop



Preparation:

- It can take several hours for water beads to reach their full size. Pre-soak some beads in water to create an example or a supply of needs for participants to use.
- This activity can be facilitated in several different ways to best meet your needs – as a sensory play bin, as a make-and-take activity, or as a table activity.

Try This:

1. Add a scoop of red water beads to your container.
2. Add 2-3 ping pong balls to your container.
3. Add 5-10 pieces of foam to your container.
4. Fill your container with water.
5. Make a hypothesis about what each part of your model represents.



Want to Know More?

The water beads represent red blood cells. Red blood cells are like the mail carrier, except instead of carrying mail, they carry oxygen to the rest of your body. They contain a protein called hemoglobin, which gives blood its red color. In just a drop of blood there are millions of red blood cells. The ping pong balls represent white blood cells in your blood. Their job is to fight germs and disease to keep you from getting sick. White blood cells are much larger than red blood cells. If you do get sick, your body will create more white blood cells to help you get better. The foam pieces represent platelets in your blood. Platelets are your body's natural bandage. They help you to stop bleeding by clotting the blood and making scabs if you get a cut. They also keep you healthy by preventing germs from entering through cuts and scrapes. The water represents the plasma in your blood. Plasma is the liquid part of your blood. It contains nutrients and helps to carry cells and proteins throughout your body. It also removes unwanted waste.

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Facilitator Guide



Learning Objectives:

- Blood is made of several important components, each with a specific role.
- Blood is necessary for humans to live. Most animals have blood as well.
- Models can help scientists understand things that are too small, large, or dangerous to see without special tools.

Leading Questions:

- What do you think would happen if one part of your blood wasn't there?
- How does your blood travel throughout your body?
- What are other ways we can keep our body safe from infection?

Hospital Accommodations:

- In a hospital setting, where infection control is paramount, you may opt for a make-and-take variation, where participants can take their model back to their room and there are few-to-no shared materials.
- For especially young visitors in a museum setting, making a large batch to use as a sensory play activity and conversation starter works well.
- Consider asking young children guiding questions to relate the model to their lived experience. Some children may recall experiences of fear and pain when thinking about blood. Reassuring children that minor cuts and scrapes are a normal part of life and that your body's natural defense system works to keep you healthy can be helpful.

Key Words:

Red Blood Cells – healthy red blood cells are round and indented in the center, similar to a donut. They make up 40-45% of your blood. Red blood cells are made in bone marrow and survive for approximately 120 days.

White Blood Cells – these cells are also called leukocytes. They only make up about 1% of your blood. White blood cells are part of your immune system and help to fight infection by targeting bacteria, viruses, and other foreign materials.

Platelets – platelets are fragments of cells that gather at the site of an injury and form a clot that stops blood from leaking out of a wound.

Plasma – Plasma is the liquid part of blood. Its main job is to carry blood cells, nutrients, proteins, hormones, antibodies, and waste products throughout your body. It is made mostly of water and makes up about 55% of your blood.