

Floating Sculptures

Create your own floating sculpture and test it out!

Big Idea

Experiment with force and motion as you build and test a floating sculpture. Explore the buoyancy, shape and texture and how these elements move within water.

Standards

LS 12.C Explore the physical properties of objects.	Children will be able to describe their sculptures, if they float, and how they move.
11.A.ECb Develop and use models to represent their ideas, observations, and explanations through approaches such as drawing, building, or modeling with clay.	Children will create a floating model and test how it floats and moves.
13.B.ECa Use nonstandard and standard scientific tools for investigation.	Children will use recycled materials to explore buoyancy, force, and motion.
25.B.EC Describe or respond to their own creative work or the creative work of others	Children will be able to describe their sculptures.
LS 25.A Investigate, begin to appreciate, and participate in the arts	Children will investigate and participate in making sculptures.
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties	Children will investigate with different materials for their sculptures and how they float and move depending force.

Materials

For brainstorming:

- Clipboard
- Markers/pencil
- Paper

Variety of materials to be used for creating objects that move in water. Materials may include, but not limited to the following:

- Cardboard/foam/or other recycled material for base
- Small foam/plastic colored shapes/ plastic Legos/ plastic lids
- Pipe cleaners or wire
- Turkey baster or plastic bottle
- Scissors/cutting tool

Setup

This activity can be done in the bathtub, bathroom sink, or with a container of water. Adult assistance may be needed for cutting various materials with a sharp cutting tool.

Directions

1. Discuss various items that you can find at home that will allow sculpture to float, or add buoyancy to a sculpture. Draw a picture of the item or write a list of items on your clipboard.
2. Gather the items that you think you will need to create a Floating Sculpture. This can include cardboard, foam, pipe cleaners, wire, plastic lids etc.
3. Next, create a sculpture that will float out of the materials that you found. Provide plenty of time to create a Floating Sculpture.
4. Test out your Floating Sculpture and see if any modifications need to be made for it to remain buoyant in the water.
5. After making the Floating Sculptures, experiment working with moving water around the object. Try making a little wave with your hand. Then try moving water with a turkey baster or plastic bottle. Notice the power of force and motion working in nature. Newton's 3rd Law of Motion- Whenever one object exerts a force on a second object, the second object exerts an equal and opposite force on the first object. Example- a canoe a paddle pushes back water and the canoe moves forward.
6. Encourage everyone to share a picture or a story of their unique creation.

Investigation Questions:

- *What do you notice?*
- *What makes the sculpture float?*
- *What shapes do you see in your sculpture?*
- *How can you change your sculpture?*
- *What other things can be moved by water?*
- *What happened when you moved the water around your sculpture?*
- *How else can you move your sculpture?*

Vocabulary

Sculpture: The creation of a three-dimensional work of art.

Liquid: A substance in a condition in which it flows, that is a fluid at room temperature and atmospheric pressure, and whose shape but not volume can be changed

Newton 3rd Law of Motion- Whenever one object exerts a force on a second object, the second object exerts an equal and opposite force on the first object. Example- a canoe a paddle pushes back water and the canoe moves forward.

Buoyancy: The tendency of an object to float.

Force: is a push or pull on an object and can cause an object to accelerate, slow down, remain in place, or change shape.

Motion: a change in position compared to a place or an object that is not moving.