

CURIOSITY AT HOME

SINK OR FLOAT



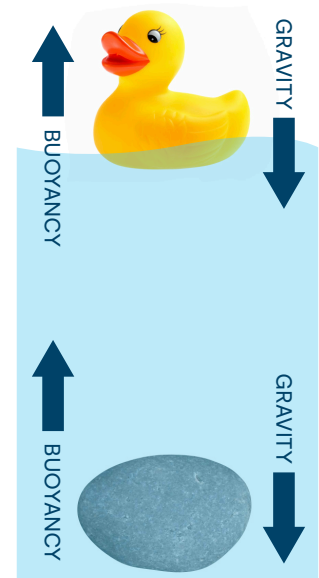
Explore buoyancy by playing Sink or Float.

Buoyancy is the upward force of a fluid (liquid or gas) on an object that is fully or partially submerged in the fluid.

Gravity is the downward force of a body or planet (Earth) has that pulls objects towards its center.

MATERIALS

- Tub or pan of water
- Objects that are safe to be placed in water



Experiment continued on next page...



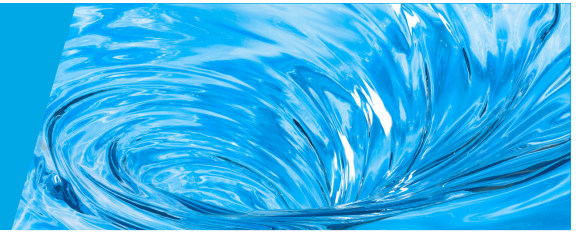
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K–2 GRADE EXPLORATION

Find random objects that are safe to place into water.

Make a prediction using a thumb up (float) or thumb down (sink).

Place the object in water to see if it sinks or floats.

Here are some questions you can explore together.

- What do the objects that sink have in common?
- What do the objects that float have in common?
- Find two objects made of the same material, one that sinks and one that floats. Why do you think one sinks and the other floats?
- Find two objects that are the same size, one that sinks and one that floats. Why do you think one sinks and the other floats?
- When something sinks, what happens to the water level?
- When something floats, what happens to the water level?



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3–5 GRADE EXPLORATION

Explore how the mass and volume of an object affect if an object will sink, float, or hover in the water.

Find 5–6 objects with the same mass (g) that are safe to be placed in water. (If you don't have a scale, you can download a digital scale app that will weigh objects up to around 100g.)

Objects of the same weight

Mass of objects in grams _____

Object	Prediction	Observations

Find 5–6 cube or cuboid objects that are approximately the same volume (cm³) that are safe to be placed in water. (Volume of a cubes or cuboids = l x w x h)

Objects of the same volume

Mass of objects in cm³ _____

Object	Prediction	Observations

Experiment continued on next page...



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3–5 GRADE EXPLORATION – CONTINUED

Do all objects that weight the same behave the same?

Do all objects with the same volume behave the same?

How do mass and volume relate to each other to determine if something sinks or floats.

Can you find any objects that hovers in the water (neither sinks nor floats)? How do you think the mass and volume of hovering objects relates to the mass and volume of the water?



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6–8 GRADE EXPLORATION

An object's density determines if it will sink, float, or hover.

Find 5 – 6 objects around the house that are safe to be placed in water.

1. Using a scale, find the mass (g) of the objects and record your results in the chart below.

(If you don't have a scale, you can download a digital scale app that will weight objects up to around 100g)

2. Calculate the volume of the objects and record it in the chart below.

Volume of cuboid = $L \times W \times H$

Volume of a cylinder = $\pi r^2 h$

3. Calculate the density and record it in the chart below.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

4. The Density of water is 1.0 g/cm^3

Based on your calculations of density. Which objects do you think will sink, float, or hover in the water? Record your predictions in the chart below?

5. Place each object in the tub of water. Does it sink, float, or hover?

Record your observations in the chart below?

The Density of water is 1.0 g/cm^3

Object	Mass (g)	Volume (cm ³)	Density (g/cm ³)	Prediction (Sink, Float, Hover)	Observation

How do mass and volume relate to each other to determine if something sinks or floats.

If you placed these objects in a fluid with a density of 2.0 g/cm^3 would any objects that float in water, sink?



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