

Buoyancy

Grade 8: Understanding Matter and Energy

1. What is density?

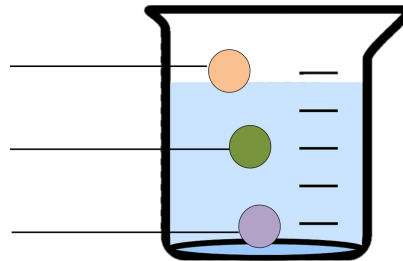
2. Complete the following chart for the objects placed in water:

Density of Object	Where will it settle? (Sink to bottom or middle, float)	Buoyancy (positive, negative, neutral)	Example
More than water	Sink to bottom	Negative	Rock/ Crab
Same as water	Suspended in middle	Neutral	Fish
Less than water	Float to top	Positive	Boat/ duck

3.

- a. Draw positive, negative and neutrally buoyant objects into the beaker. **Positive**
- b. Label the objects as positive, negative and neutrally buoyant. **Neutral**

Negative

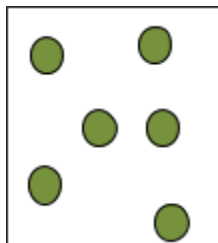


4. Why does the Cartesian Diver sink when the bottle is squeezed?

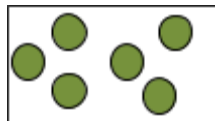
Squeezing the bottle compresses the air inside the straw, allowing water to fill the space previously occupied by the air. Water is denser than air, making the diver sink.

5. Draw in the molecules to show how compressing a gas changes density. Use the word bank to complete the statements about this compression.

Uncompressed



Compressed



Word Bank

Increased Decreased Stayed the same

The volume of the container **decreased**.

The mass of the gas **stayed the same**.

The density of the gas **increased**.