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GRADE

5

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STUDENT EDITION

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Grade 5

Vocabulary Quizzes in Science

Physical Properties of Matter

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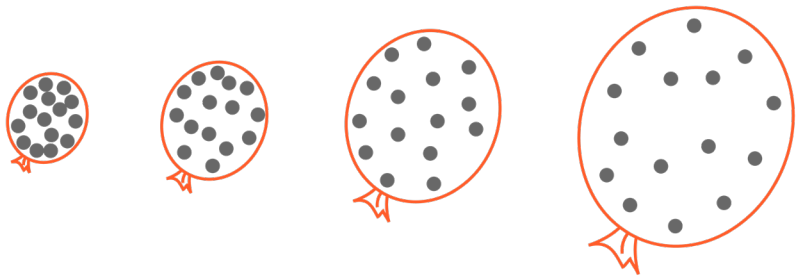
Physical Properties of Matter

What is Matter?

Matter is anything that takes up space and has mass. Imagine your toys, the air you breathe, and even the water in your bottle - all of these are matter. But some things aren't matter. Light, for example, and the power that makes your toys move, are types of energy, not matter. Other things like heat, sound, and the pull of a magnet are also not matter because they don't have mass or take up space.

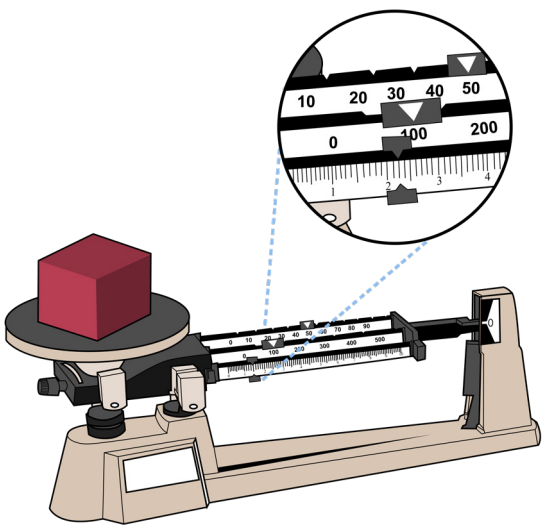


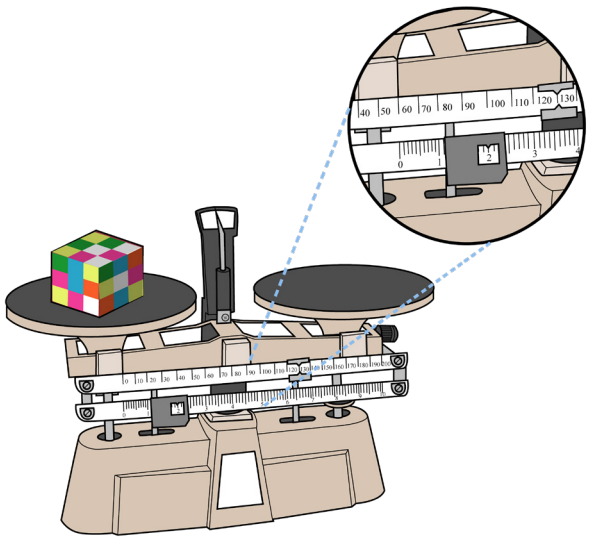
Physical Properties of Matter

Matter has special features called physical properties. These are characteristics we can observe and measure about matter without changing the matter itself. Scientists use these properties to tell different types of matter apart. Some properties are how heavy something is, if it sticks to a magnet, its physical state (like solid, liquid, or gas), if it floats or sinks in water, if it can dissolve in water, and if it allows heat or electricity to pass through easily.

What is Mass?

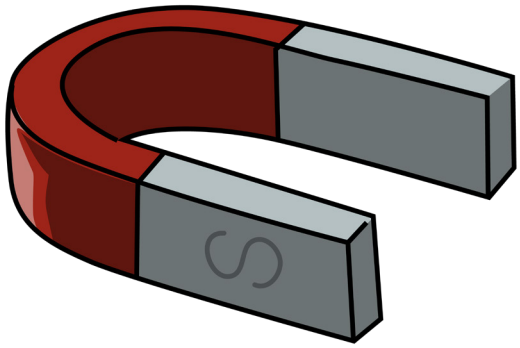
Mass is just a fancy word for how much matter is in something. The more mass an object has, the harder it is for the object to be moved by a force. Scientists measure mass in grams or kilograms. A kilogram is the same as 1,000 grams. They use special scales to find out an object's mass. An object's mass is constant, it does not change even if the object were to be relocated into space or a different planet.





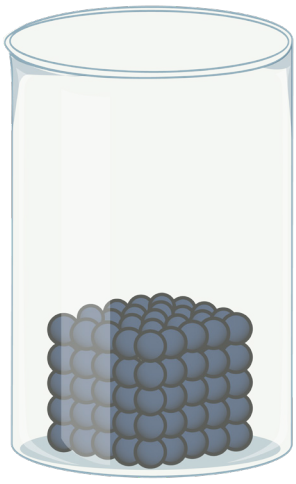
Magnetism

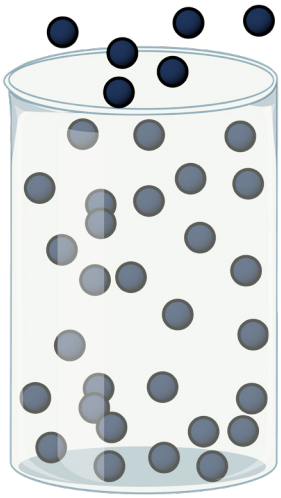
Some types of matter stick to magnets. **Magnets are pieces of metal that can pull certain metals, like nickel, iron, cobalt, and steel towards them.** But not all metals are attracted to magnets. For example, a magnet won't stick to copper or gold. And magnets don't work on non-metals like wood or plastic. We can use magnets to separate things that stick to magnets from those that don't.



Matter's States: Solid, Liquid, Gas

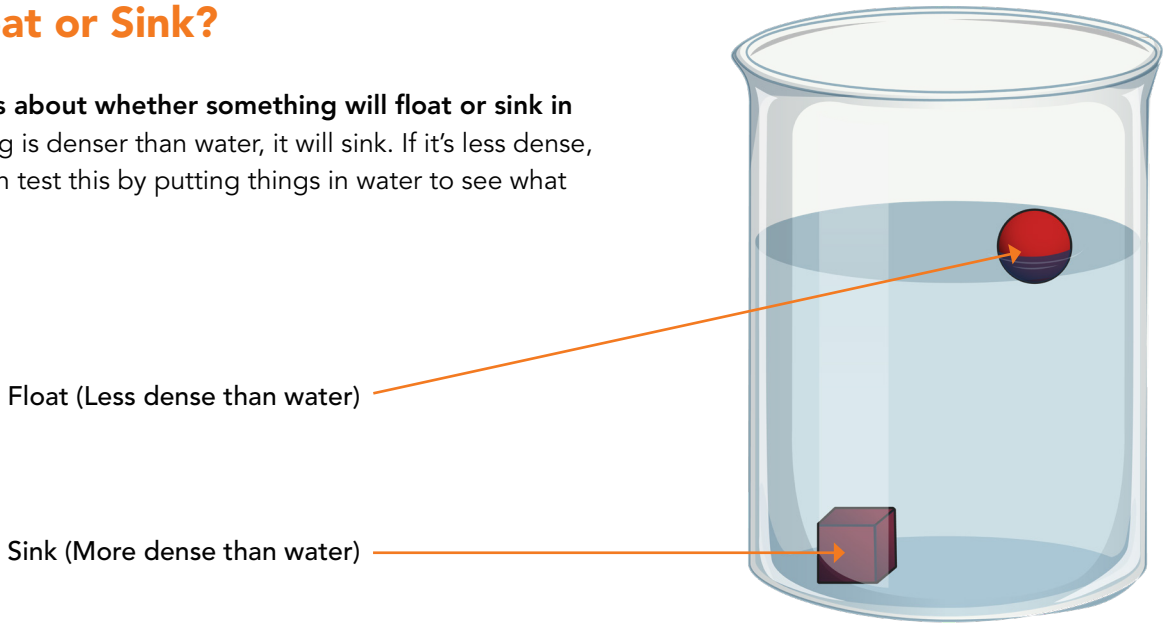
Matter can exist in different states: solid, liquid, or gas. For example, ice is solid, but when it melts, it becomes liquid water. And if you heat water, it turns into steam or water vapor, which is a gas. In solids, tiny particles are packed closely together and don't move much. This is why solids keep their shape. In liquids, the particles are a bit looser, so liquids can change shape to fit their container. In gases, the particles are spread out and move freely, filling up the space they're in.





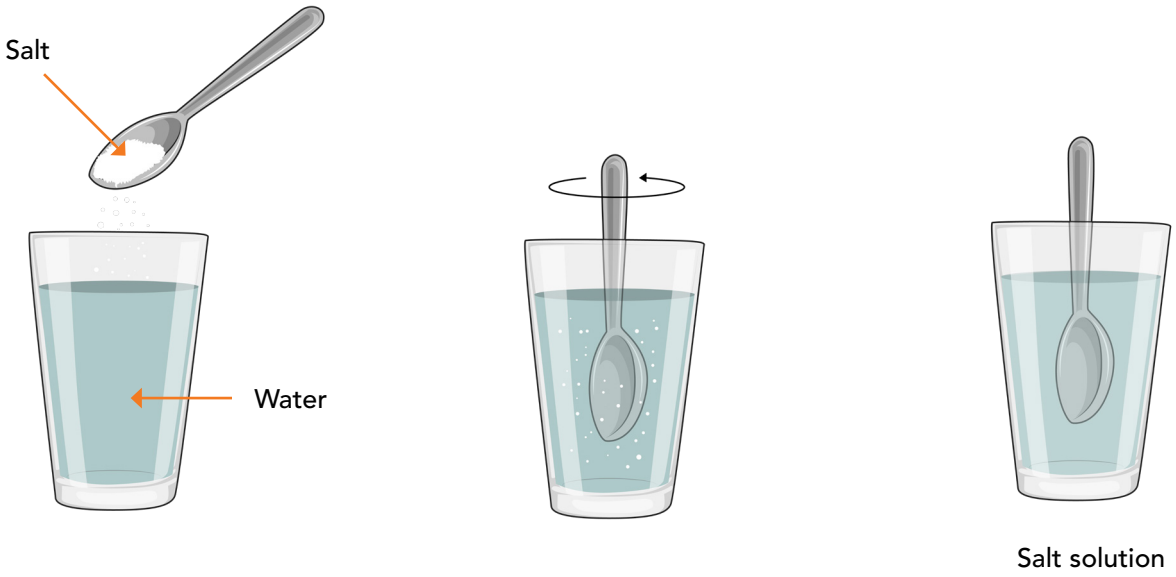
Does It Float or Sink?

Relative density is about whether something will float or sink in water. If something is denser than water, it will sink. If it's less dense, it will float. You can test this by putting things in water to see what happens!



Can It Dissolve?

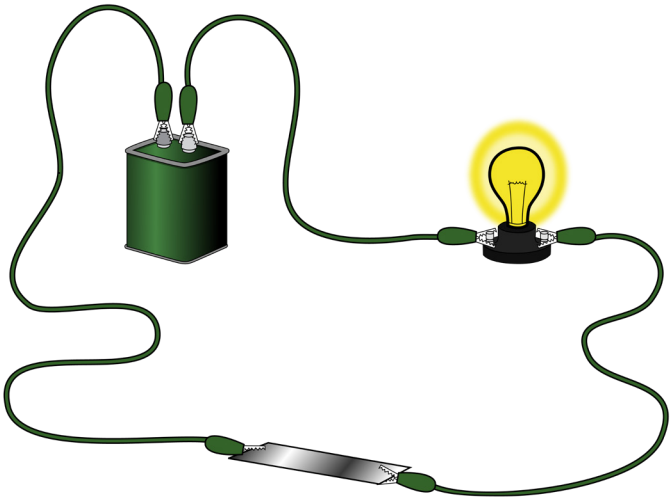
Solubility means whether something can dissolve in another thing. Like when you mix drink powder in water, it dissolves and becomes a solution. When a substance dissolves in water, its particles break apart into smaller pieces and spread evenly within the water. Some things, like sugar, dissolve (are soluble) in water, but others, like sand, don't and are said to be insoluble in water.



Conductors and Insulators

Some materials are good allowing energy to pass through them. These materials are called conductors. Like copper, which is great at conducting electricity. Metals usually conduct heat well too. But some materials, called insulators, don't let energy pass through easily. Rubber, plastic, and styrofoam are all insulators, and are good at stopping the flow of thermal and electrical energy.

Thermal Conductivity



Electrical Conductivity

In Summary

So, matter is all about things that take up space and have mass.

We can tell different kinds of matter apart by looking at their properties like mass, if they stick to magnets, their physical state (solid, liquid, gas), if they float or sink, if they can dissolve, and if they can conduct heat or electricity. Scientists use these properties to identify and classify different types of matter.

Matter

The amount of matter in an object

Physical state

Whether a substance is a liquid, solid or gas

Conductivity

How easily a substance allows thermal and electrical energy to pass through it

Magnetism

A force that causes a magnet to attract or repel objects

Solubility

The ability of a substance to dissolve in water

Relative density

The density of a substance compared to the density of water (sink or float)

Vocabulary Quiz 1

Directions:
Match the vocabulary word with the correct definition.
Mark the letter in the blank in front of the word.

1	**Matter**	A	The amount of space an object takes up
2	**Conductor**	B	The state of matter of an object: solid, liquid or gas
3	**Liquid**	C	A state of matter with a fixed shape and volume
4	**Insulator**	D	A state of matter with a fixed volume but takes the shape of its container.
5	**Physical state**	E	The amount of matter inside an object
6	**Mass**	F	A material that allows heat or electricity to pass through easily
7	**Density**	G	A material that does not allows heat or electricity to pass through easily
8	**Solid**	H	A force that causes a magnet to attract or repel certain objects
9	**Volume**	I	Anything that takes up space and has mass
10	**Magnetism**	J	The amount of matter in a given volume

Vocabulary Quiz 1

- Repel
- Physical property
- Mixture
- Insulator
- Float
- Conductor
- Condensation
- Magnetism
- Dissolve
- Density
- Classify
- Solution
- Sink
- Evaporation
- Attract

Directions:
Choose the best vocabulary word from the word bank to fill in the blank. Each word can only be used <u>once</u>.

11. Lemonade is a _____ that is formed when lemon juice and sugar *dissolve* in water

12. Watermelons are less dense than water, because of that watermelons _____ when placed in water.

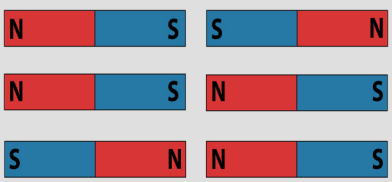
13. If an object takes up more space than another object, it has more _____ than that object.

14. The handles of most pans are made of plastic because plastic is a(n) _____ hat does not allow heat to pass through it easily.

15. Density is a _____ that describes the amount of matter in a given volume

Directions:
Label each picture using the word from the word bank that best describes it.

16.



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Vocabulary Quiz 2

Directions:
Match the vocabulary word with the correct definition.
Mark the letter in the blank in front of the word.

1	**Solubility**	A	The amount of space an object takes up
2	**Conductor**	B	A material that *does not* allow thermal or electrical energy to pass through easily
3	**Evaporation**	C	A state of matter with *no* fixed shape and volume. It takes the shape and volume of its container.
4	**Insulator**	D	The density of one substance compared to the density of another substance
5	**Magnetism**	E	To break apart into tiny particles in a solution
6	**Dissolve**	F	A material that allows heat or electricity to pass through easily
7	**Relative density**	G	The property of an object that can be measured without changing its identity
8	**Gas**	H	A force that causes a magnet to attract or repel certain objects
9	**Volume**	I	The ability of a substance to dissolve in another substance
10	**Physical property**	J	The process by which a liquid changes to a gas when heated

Vocabulary Quiz 2

- Repel
- Physical state
- Less dense
- Insulator
- Classify
- Conductor
- Condensation
- Temperature
- Dissolve
- Density
- Magnetic
- Solution
- More dense
- Evaporation
- Attract

Directions:
Choose the best vocabulary word from the word bank to fill in the blank. Each word can only be used once.

11. Water, orange juice and cooking oil all have the same _____, they have a fixed volume but take their container's shape.

12. The _____ of an object depends on how much thermal energy it has within it.

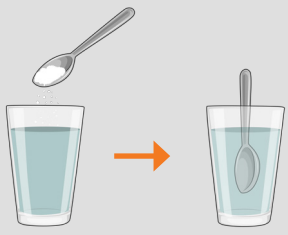
13. Most wires are covered in plastic because plastic is a good _____ of electrical energy

14. When a glass on cold water is left to sit for a while, _____ begins to form on the outside of the glass as the air around it cools.

15. Comparing the *relative density* of oil and water, it can be observed that oil *floats* on water because it is _____ than water.

Directions:
Label each picture using the word from the word bank that best describes it.

16.



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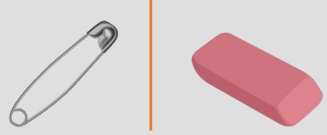

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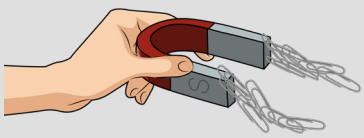

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