Matter Detectives: Spiral Review Check

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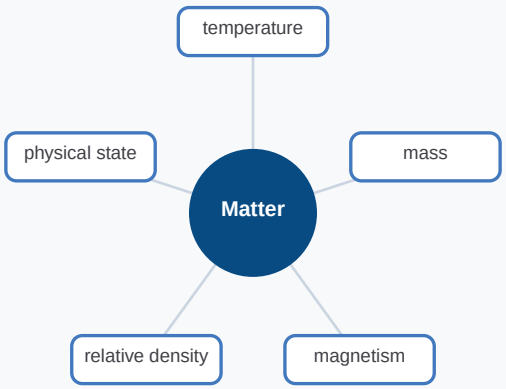
Lesson:

Read the passages and examples below to learn about how matter can be classified by what you observe.

> Matter is anything that has mass and takes up space. We can describe matter by looking at its physical properties, which are features you can observe or measure.

Observable properties of matter



Matter can be described by physical properties you can observe or measure.

> Temperature tells how hot or cold something is. Use a thermometer to measure temperature instead of only touching an object, because touch can be misleading.

> Mass tells how much matter an object has. An object can have more mass and still not sink if it is less dense than water.

> Magnetism describes what a magnet can attract. Magnets attract some metals, such as iron, but they do not attract every kind of metal.

> Relative density tells whether something sinks or floats in water. A heavy object can float if it is spread out in a way that makes it less dense than water.

> Physical state tells whether matter is a solid, liquid, or gas at room temperature. A solid keeps its shape, a liquid flows, and a gas spreads out to fill its container.

Five properties you can observe

	What it tells you	How you check it
temperature	how hot or cold it is	use a thermometer
mass	how much matter is in it	use a balance, in grams
magnetism	whether a magnet pulls it	hold a magnet near it
relative density	whether it floats or sinks	put it in water
physical state	solid, liquid, or gas	look at its shape and flow

Each property has its own test. Match the clue in the question to the right property.

A magnet picks up an iron nail even through a sheet of paper, but it cannot pick up a rubber eraser or a wooden craft stick.

Pumice is a rock filled with tiny air pockets. A large piece of pumice can float, while a much smaller pebble sinks — sinking and floating depend on density, not on how heavy the object is.

Water is a liquid at room temperature, while ice is a solid and steam is a gas.

A cup of warm water may feel hotter than another cup, but a thermometer shows the actual temperature.

A huge log floats down a river while a tiny pebble sinks straight to the bottom — the log has more mass, but it is less dense than water.

Instructions:

Read each question carefully. Choose the best answer for each one.

1. Which property tells how hot or cold something is?

- ◯ A) Mass
- ◯ B) Temperature
- ◯ C) Relative density
- ◯ D) Magnetism

2. A student says, 'This block feels cooler, so it must have a lower temperature.' What is the best correction?

- ◯ A) The student is wrong because a thermometer should be used instead of touch.
- ◯ B) The student is right because cooler-feeling objects always have the same temperature.
- ◯ C) The student is wrong because weight tells temperature.
- ◯ D) The student is right because touch is the best way to measure temperature.

3. Two objects are made of different materials. Object A has more mass than Object B, but both fit in one hand. Which statement best describes the matter in Object A?

- ◯ A) Object A has less matter because it fits in one hand.
- ◯ B) Object A has more matter because it has greater mass.
- ◯ C) Object A and Object B must have the same mass.
- ◯ D) Object A cannot be compared because it is made of a different material.

4. A student thinks the heavier object always sinks. Which case shows that idea is not always true?

- ◯ A) A large piece of wood floats, even if it is heavier than a small coin.
- ◯ B) A metal ball sinks, and a plastic bead floats.
- ◯ C) A small stone sinks, and a large stone also sinks.
- ◯ D) A paper clip floats, and a feather floats.

5. Which material is a gas at room temperature?

- ◯ A) A wooden block
- ◯ B) Ice
- ◯ C) Air
- ◯ D) Water

6. A magnet is brought near four objects. Which object is least likely to be attracted?

- ◯ A) A plastic straw
- ◯ B) A paper clip made of iron
- ◯ C) An iron nail
- ◯ D) A steel spoon

7. Two students measure an object. One says it has more mass, and the other says it weighs more. What is the best idea to remember?

- ◯ A) Mass tells whether an object is a solid or liquid.
- ◯ B) Weight tells how much matter an object has, and mass tells how hot it is.
- ◯ C) Mass tells how much matter an object has, and weight is the pull of gravity.
- ◯ D) Mass and weight always mean the same thing.

8. Which sentence best describes matter using observable physical properties?

- ◯ A) Matter is anything that is always heavy.
- ◯ B) Matter is anything that feels warm to your hand.
- ◯ C) Matter is anything that has mass and takes up space.
- ◯ D) Matter is anything that can be seen only in water.

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(Answer Key)

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1. Which property tells how hot or cold something is?
Hint: This property can be measured with a tool.

Answer: B) Temperature

Explanation: Temperature tells how hot or cold something is, and a thermometer is used to measure it.

2. A student says, 'This block feels cooler, so it must have a lower temperature.' What is the best correction?
Hint: Touch can trick you.

Answer: A) The student is wrong because a thermometer should be used instead of touch.

Explanation: Feeling with your hand can be misleading. A thermometer is needed to measure temperature accurately.

3. Two objects are made of different materials. Object A has more mass than Object B, but both fit in one hand. Which statement best describes the matter in Object A?
Hint: Mass is the amount of matter in an object.

Answer: B) Object A has more matter because it has greater mass.

Explanation: An object with greater mass contains more matter. Even if two objects are similar in size, the one with greater mass has more matter.

4. A student thinks the heavier object always sinks. Which case shows that idea is not always true?
Hint: Think about a heavy object that can still float.

Answer: A) A large piece of wood floats, even if it is heavier than a small coin.

Explanation: A large piece of wood can be heavier than a small coin, yet still float because it may be less dense than water.

5. Which material is a gas at room temperature?
Hint: A gas spreads out to fill its container.

Answer: C) Air

Explanation: Gas is a physical state of matter at room temperature. Air is an example of a gas.

6. A magnet is brought near four objects. Which object is least likely to be attracted?
Hint: Magnets attract some metals.

Answer: A) A plastic straw

Explanation: Magnets attract iron and some other metals, but they do not attract plastic.

7. Two students measure an object. One says it has more mass, and the other says it weighs more. What is the best idea to remember?
Hint: These words are not the same.

Answer: C) Mass tells how much matter an object has, and weight is the pull of gravity.

Explanation: Mass tells how much matter an object has. Weight is the pull of gravity on that object.

8. Which sentence best describes matter using observable physical properties?
Hint: Look for a sentence with a clear property you can observe or measure.

Answer: C) Matter is anything that has mass and takes up space.

Explanation: Matter can be described by physical properties such as mass, magnetism, temperature, relative density, and physical state.