Matter Detectives

Compare physical properties before and after materials are mixed.

5.6 "Matter and energy. The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to: compare and contrast matter based on measurable..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each physical property named in the passage. Circle the words that tell what happens after materials are mixed, so you can compare matter and track its properties.

Maya's Garden Materials Test

1. During a school garden investigation, Maya compared three materials: a steel paper clip, a wooden craft stick, and a cup of water. She measured mass with a balance and volume by finding how much space each sample took up. The clip was magnetic and conducted electricity. The wood was not magnetic and insulated electricity. Water was a liquid, while the clip and stick were solids. The wood also insulated thermal energy.

2. Next, Maya mixed iron filings with dry sand. Both substances stayed solid, and a magnet pulled out the iron filings, showing that the iron kept its magnetism. When she added water to a different cup of sand, the sand settled at the bottom because it was denser than water. The water stayed liquid, so the sand and water could be separated by pouring carefully or filtering.

3. Maya then stirred 10 grams of salt into 100 grams of water. The salt was no longer visible because it dissolved, but the solution still had 110 grams of matter when none was spilled. Before mixing, salt was a solid and water was a liquid. In the solution, the particles were spread through the water. Air also contains tiny particles. They fill and stretch a balloon, even though you cannot see each particle.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which two properties did Maya measure to find how much matter a sample had and how much space it took up?

2. Compare the steel paper clip and the wooden craft stick. How did they differ in magnetism and electric energy?

3. How did the iron filings and dry sand keep their own physical properties after mixing?

4. What evidence shows that matter was conserved in the salt solution? What does the balloon show about air?

3 YOUR TURN

Your own words

Choose two safe classroom objects that can touch water. Test and record each object's physical state, magnetism, and whether it sinks or floats in water.

OBJECT	PHYSICAL STATE	MAGNETIC?	SINKS OR FLOATS IN WATER?

ANSWER KEY # Matter Detectives

GRADE 5 · TEKS 5.6

PART 1 · READ AND MARK

Underline each physical property named in the passage. Circle the words that tell what happens after materials are mixed, so you can compare matter and track its properties. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which two properties did Maya measure to find how much matter a sample had and how much space it took up?	**She measured mass and volume.**
2	Compare the steel paper clip and the wooden craft stick. How did they differ in magnetism and electric energy?	**The steel paper clip was magnetic and conducted electricity. The wooden craft stick was not magnetic and insulated electricity.**
3	How did the iron filings and dry sand keep their own physical properties after mixing?	**Both remained solids, and the iron filings kept their magnetism because a magnet could pull them out of the sand.**
4	What evidence shows that matter was conserved in the salt solution? What does the balloon show about air?	**The 10 grams of salt and 100 grams of water made 110 grams of solution when none was spilled. The balloon shows that air is made of tiny particles that fill and stretch it.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

OBJECT	PHYSICAL STATE	MAGNETIC?	SINKS OR FLOATS IN WATER?
Cork	solid	no	floats
Iron nail	solid	yes	sinks

Accept equivalent wording for physical properties, such as conducts electric energy for conducts electricity. For the open task, accept accurate observations for safe objects and require all three listed properties for each object.