

Matter Detectives

Use evidence to describe materials and changes.

3.6 "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: measure, test..."

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that name a physical property or a test, then circle the sentences that describe a change caused by heating, cooling, or combining materials.

Testing Materials

- ① In the school science room, Maya's team tested materials for a small garden marker. They measured each sample's mass with a balance and temperature with a thermometer. A magnet pulled the iron washer but not the wooden craft stick. In a tub of water, the cork floated, while the glass marble sank. These physical properties helped the team sort and identify the samples.
- ② Next, the team compared matter in different containers. The washer was a solid. It kept its own shape when moved from a cup to a tray. Water was a liquid. It changed shape to fit each container. Air was a gas. It spread out and took the shape of a sealed jar. Solids have definite shapes, but liquids and gases take the shape of their containers.
- ③ The team also watched water change. Ice warmed on a plate and became liquid water. Later, droplets formed on the outside of a cold glass because water vapor in the air cooled and condensed. When liquid water was heated enough, it became water vapor. For a sturdy marker base, the team mixed clay with sand. Clay helped the sand particles stick together, making a stronger brick.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What tool measured mass, and what tool measured temperature? Name one sample the magnet pulled and one sample that floated.

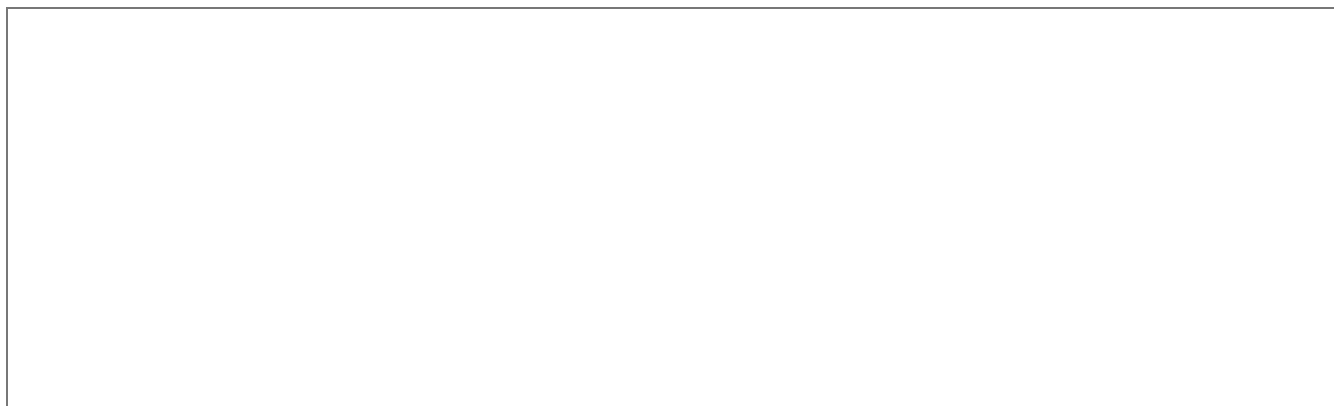
2 Classify the washer, water, and air as a solid, liquid, or gas. What did each one do with its shape?

3 Describe two changes in water that happened because of heating or cooling.

4 Why did the team mix clay with sand for the marker base?

3 YOUR TURN _____ Your own words

Draw a small desk organizer made by combining two materials not named in the reading. Label both materials, then write exactly two sentences, one sentence for each material, telling a physical property and why it helps the organizer.



PART 1 • READ AND MARK

Underline the words that name a physical property or a test, then circle the sentences that describe a change caused by heating, cooling, or combining materials. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What tool measured mass, and what tool measured temperature? Name one sample the magnet pulled and one sample that floated.	A balance measured mass, and a thermometer measured temperature. The magnet pulled the iron washer, and the cork floated.
2	Classify the washer, water, and air as a solid, liquid, or gas. What did each one do with its shape?	The washer is a solid and kept its shape. Water is a liquid and fit its container. Air is a gas and took the shape of the sealed jar.
3	Describe two changes in water that happened because of heating or cooling.	Ice warmed and became liquid water. Water vapor cooled and condensed into droplets. Liquid water heated enough became water vapor.
4	Why did the team mix clay with sand for the marker base?	Clay helped the sand particles stick together, making a stronger brick for the base.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Drawing: A folded cardboard desk organizer held together with rubber bands. Cardboard is a solid that keeps its shape to form the organizer. Rubber bands stretch around the cardboard and hold its parts together.

Accept equivalent descriptions of the stated tests, states, and changes, including condensation as water vapor cooling into liquid droplets. For the open task, accept any reasonable combined object with two labeled materials and accurate property-based reasons.