

Mixing Matters

Track mass as materials mix and change.

4.6.C “demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each statement that tells what changed when materials mixed. Circle each mass measurement or statement that shows the total matter stayed the same.

Maya Tests Mixtures

- ① During a class investigation, Maya placed a dry, empty cup on a balance. She added 60 grams of soil and then 100 grams of water. The soil did not vanish when it got wet. It formed a cloudy mixture, and some pieces later sank. Maya covered the cup before she weighed the cup and its contents. The balance showed 210 grams.
- ② Next, Maya gently swirled the covered cup and weighed it again. It still showed 210 grams. Swirling changed where the soil and water were located, but it did not create or destroy matter. The mass of the cup was included in both measurements. Because nothing spilled, evaporated, or was added, the total mass before and after mixing stayed the same.
- ③ For a second test, Maya poured 40 grams of water and 15 grams of cooking oil into another covered cup. The oil floated in a layer above the water instead of blending with it. Before and after a careful swirl, the cup and contents had the same mass. A mixture can look different, separate into layers, or settle, yet all its matter is still present when none escapes.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What changed when Maya mixed the soil and water?

2 What stayed the same when Maya swirled the soil and water mixture?

3 Why did Maya cover the cup before weighing the mixture?

4 How did the oil and water mixture look different, even though its mass stayed the same?

3 YOUR TURN _____ Your own words

Plan a test with gravel and water. Write three sentences that state your prediction, explain how you will compare mass before and after mixing, and tell what matching masses would show.

PART 1 • READ AND MARK

Underline each statement that tells what changed when materials mixed. Circle each mass measurement or statement that shows the total matter stayed the same. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What changed when Maya mixed the soil and water?	The soil and water formed a cloudy mixture, and some soil pieces later sank.
2	What stayed the same when Maya swirled the soil and water mixture?	The mass of the covered cup and its contents stayed 210 grams.
3	Why did Maya cover the cup before weighing the mixture?	Covering the cup helped keep matter from spilling or escaping, so the total mass could stay the same.
4	How did the oil and water mixture look different, even though its mass stayed the same?	The oil floated in a layer above the water instead of blending with it.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I predict that the mass of a covered container with gravel and water will be the same before and after I stir it. I will weigh the covered container after adding the gravel and water, stir it without opening the lid, and weigh it again. Matching masses show that no matter escaped while the mixture changed.

Accept answers that identify a visible change in a mixture and explain that total mass remains the same when no matter is added or lost. For the open response, accept any safe plan that compares the same container and contents before and after mixing.