

Dots Tell Stories

Use models and observations to show matter in everyday changes.

5-PS1-1 "Develop a model to describe that matter is made of particles too small to be seen. Clarification Statement: Examples of evidence could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each observation that gives evidence about matter, such as a change you can see, feel, or taste. Circle each sentence that tells how a dot model could show that evidence.

Evidence in Everyday Matter

- ① Scientists use models to show ideas about matter that cannot be seen directly. A particle model shows matter as many tiny pieces with spaces between them. The pieces are too small to see, but everyday changes give evidence that they are there. A model can use dots, beads, or simple drawings. It does not show the exact size or shape of the pieces.
- ② Think about a basketball that feels soft. When air is pumped inside, the basketball becomes firmer and larger. The rubber shell stretches because more air is inside it. In a particle model, draw more dots inside the basketball after pumping. This model connects a change you can observe, the larger basketball, to particles that cannot be seen. It also shows that air takes up space.
- ③ Other observations can be modeled too. In a syringe with its tip sealed, pushing the plunger makes the trapped air take up less space. A model can show the same number of dots closer together. When sugar dissolves in water, it seems to disappear, yet the water may taste sweet. Dots for sugar spread through dots for water. After salt water evaporates, salt remains, showing that dissolved matter was still present.

2 ANSWER WITH EVIDENCE Use the passage

1 What observation from the basketball gives evidence that air takes up space?

2 How should a dot model change when trapped air in a sealed syringe takes up less space?

3 What observation shows that sugar is still present after it dissolves in water?

4 What does the salt left after salt water evaporates show?

3 YOUR TURN Your own words

Draw before-and-after models for a drop of food coloring stirred into water. Use two kinds of dots, add labels and a key, then write exactly two sentences that explain how your models connect the color change to matter too small to see.

PART 1 • READ AND MARK

Underline each observation that gives evidence about matter, such as a change you can see, feel, or taste. Circle each sentence that tells how a dot model could show that evidence. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What observation from the basketball gives evidence that air takes up space?	After air is pumped in, the basketball becomes firmer and larger.
2	How should a dot model change when trapped air in a sealed syringe takes up less space?	It should show the same number of dots closer together.
3	What observation shows that sugar is still present after it dissolves in water?	The water may taste sweet even though the sugar seems to disappear.
4	What does the salt left after salt water evaporates show?	It shows that the dissolved salt was still present in the water.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My key labels blue dots as food coloring and clear dots as water; before stirring, the blue dots are in one small area, and after stirring, they are spread throughout the clear dots. The water becomes blue because the food-coloring matter spreads through the water, even though its tiny pieces cannot be seen separately.

Accept models that use a consistent key and show food-coloring dots changing from one concentrated area to being spread among water dots. The two sentences should connect the visible color change to matter that is too small to see separately.