

Build It Strong

Choose and combine materials by their physical properties.

3.6.D “demonstrate that materials can be combined based on their physical properties to create or modify objects such as building a tower or adding clay to sand to make a stronger brick and justify the selection of materials based on their...”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Circle each material named in the passage. Underline words that tell a physical property or explain why a material was chosen or not chosen.

A Wall for the Garden

- ① At the school garden, Maya’s class wanted to make a low wall around a new flower bed. The wall had to stay upright, hold its shape, and stand outside in rain. Students tested dry sand, small stones, clay, and wooden craft sticks. They looked closely and touched each material to notice its physical properties, such as hardness, texture, and how well it kept its shape.
- ② Dry sand felt grainy and slipped apart when the students piled it. Clay was soft and could be pressed into spaces between grains of sand. When the class mixed clay with sand and added a little water, they could press the mixture into a brick shape. After it dried, the clay helped the sand grains stick together, making a stronger brick.
- ③ For the wall’s bottom layer, the class chose small stones because stones are hard and do not easily change shape. The stones made a steady base. They used the dried clay-and-sand bricks above the stones because the bricks held together and could be stacked. The class did not choose dry sand alone for the wall because its loose grains would not stay in a wall shape.

2 ANSWER WITH EVIDENCE Use the passage

1 Which physical property made small stones a good choice for the bottom layer of the wall?

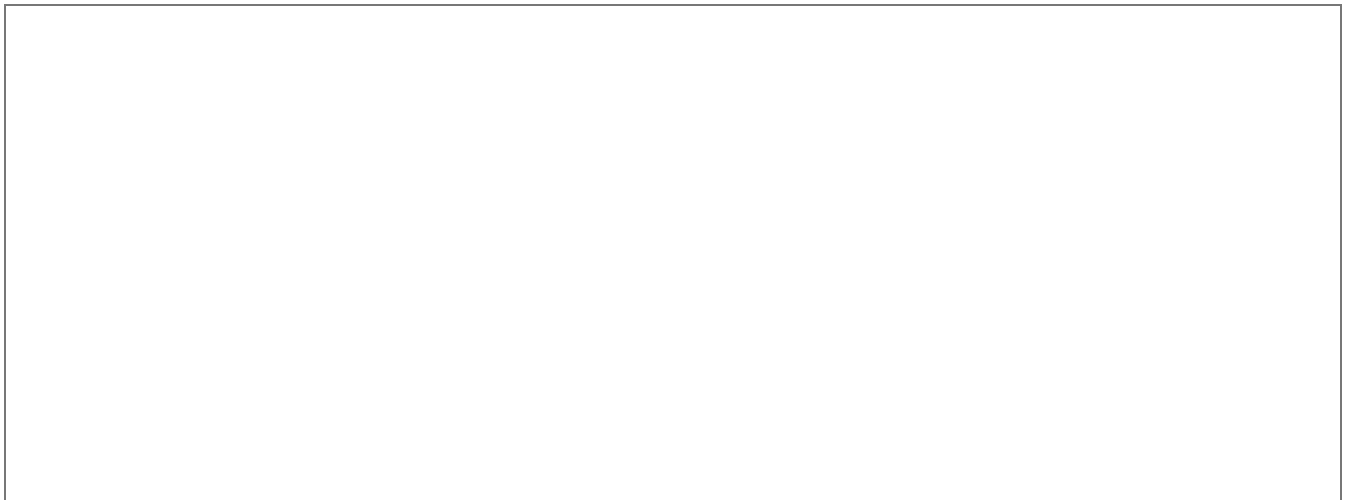
2 How did adding clay help the sand become a stronger brick?

3 Why did the class decide not to use dry sand alone for the wall?

4 What materials did the class use above the stones, and why were those materials useful?

3 YOUR TURN Your own words

Draw a small hanging seed holder for outdoors. Label three materials you would combine, then write two sentences explaining how the materials' physical properties would help the holder work.



PART 1 • READ AND MARK

Circle each material named in the passage. Underline words that tell a physical property or explain why a material was chosen or not chosen. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which physical property made small stones a good choice for the bottom layer of the wall?	Stones are hard and do not easily change shape.
2	How did adding clay help the sand become a stronger brick?	Clay could be pressed between sand grains. When it dried, it helped the grains stick together.
3	Why did the class decide not to use dry sand alone for the wall?	Dry sand has loose, grainy particles that slip apart and would not stay in a wall shape.
4	What materials did the class use above the stones, and why were those materials useful?	They used dried clay-and-sand bricks because the bricks held together and could be stacked.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Labels: plastic cup, metal wire, mesh screen The hard plastic cup keeps its shape, and the strong metal wire holds the feeder up. The mesh screen has small openings that let water drain while keeping seeds in.

Accept reasonable material combinations when the student names physical properties that fit the job. The two sentences should explain how the selected properties help the seed holder hold, hang, or drain.