



What can termites teach us about better building materials?

TEACHER'S KEY
UPPER READING LEVEL

Check your understanding



1 If you were given the choice between traditional clay bricks and bricks containing different amounts of cassava paste, which kind would you choose to use in constructing a building? Why?

Answer Bricks containing 1.5% cassava paste have the highest compressive strength. They are also durable, undergo little shrinkage, and don't absorb much excess water. Plus, compared to traditional clay bricks, bricks with cassava paste are more environmentally friendly and not harmful to human health.

2 Why is it good for bricks used in building construction to have a high compressive strength?

Compressive strength measures the ability of a material to withstand the pressure of forces that push on it. Bricks used in buildings have to support the weight of the building without breaking.

3 What kind of tests would you perform on a brick to determine if it would make a good building material?

Examples: You could measure compressive strength, you could expose it to different elements like wind and rain, or you could immerse it in water to see if it is absorptive.

4 We looked to Nature for inspiration. Can you think of another example when Nature inspired human researchers or designers?

Answer Answers will vary. Examples: Velcro was inspired by sticky plant burrs that cling to fur and fabric. Michael Phelps wore a sharkskin-inspired swimsuit at the 2008 Olympics. Students can learn more about the ways in which animals have inspired humans from the BBC Podcast [Thirty Animals That Made Us Smarter](#).

5 In small groups, research the challenges of using different environmentally-friendly materials and sustainable sources of energy in construction. Design your own building, labeling it clearly and explaining the choices you have made.

Answer Students can produce a building design with appropriate reasoning, either on paper or digitally.

What kind of brick had the highest compressive strength?

Answer The brick containing 1.5% cassava paste.