



Build a Sandcastle That Can Support a Brick

Summary

ACTIVE TIME

10-20 minutes

TOTAL PROJECT TIME

10-20 minutes

KEY CONCEPTS

Weight, forces

CREDITS

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<https://www.youtube.com/watch?v=KlvfgG6m70w>

Introduction

Can you build a sandcastle that can support a brick? Try it out in this fun STEM activity!

This activity is not recommended for use as a science fair project. Good science fair projects have a stronger focus on controlling variables, taking accurate measurements, and analyzing data. To find a science fair project that is just right for you, browse our library of over 1,200 [Science Fair Project Ideas](#) or use the [Topic Selection Wizard](#) to get a personalized project recommendation.

Materials

- Access to damp sand at a beach or in a sandbox
- Bucket
- Grass or seaweed
- Brick or other heavy object

Instructions

1) Make a basic sandcastle. Firmly pack damp sand into a bucket, flip the bucket upside down, then gently tap or shake the bucket and lift it to release the sand.



2) Try gently placing a brick on top of the sandcastle.



What happens?

3) Firmly pack a 1–2 inch layer of sand into the bottom of your bucket.

4) Make a grid with pieces of grass or seaweed on top of the layer of sand.



5) Firmly pack another layer of sand on top of your grass or seaweed. Repeat this process, alternating layers of sand and grass/seaweed, until the bucket is full.



6) Flip the bucket upside down again and gently lift it to release the sand.



What do you think will happen when you put a brick on the sandcastle this time?

7) Gently place the brick on top of your sandcastle.



What happens?



What Happened?

You probably found that your regular sandcastle collapsed under the weight of the brick. However, your sandcastle with layers of grass or seaweed is much stronger and can support the weight of an entire brick! Read the Digging Deeper section to learn more.

Digging Deeper

Sand is made from many tiny individual grains. When sand is dry, these grains can easily slide over each other. That is why you cannot build a good sandcastle out of dry sand. When sand is wet, the water helps the grains stick together. That is why you need damp sand to build a sandcastle. But regular sandcastles are still not very strong. If you step on them or try to place something heavy like a brick on top of them, they will collapse. Your grid of grass or seaweed helps prevent the grains of sand in each layer of the sandcastle from sliding past each other. That makes the sandcastle much stronger, so it can support a heavy weight like a brick!

For Further Exploration

- What happens if you change the spacing in your grid of grass or seaweed? Try placing the pieces farther apart or closer together.
- What happens if you change the spacing of the layers in your sandcastle? Try adding thinner or thicker layers of sand between the grass/seaweed layers.
- Can you build a sandcastle strong enough for a person to stand on?

Related Resources

Project Ideas

How Much Weight Can Your Sandcastle Hold?

Science Fair Project Idea



Do you think a sandcastle can support a brick? How can you change a sandcastle to make it support more weight? Find out in this fun science project! [Read more](#)



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