



# Baking bricks for brunch

A do-at-home civil engineering activity for ages 4-18.

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## Baking Bricks for Brunch

Civil engineers build the world around us, from train stations to tunnels and bridges civil engineers work hard to make our daily lives possible, and one of the things that allow them to do this is a simple brick.

Bricks are thought to have been used from around 7,000 BC so they are nothing new. Although the way we make them today is different, the key parts of the process remain the same.

Bricks are made from taking a base substance like clay or shale, adding water and then moulding into a case. Once molded, the bricks are 'fired' – which just means baked in giant ovens – which hardens the bricks to make them strong enough to build large buildings that can stand up to forces like strong winds.

Your challenge today is to build an oven to bake your own bricks. Your bricks will be tasty snacks however that you can use to build structures, then eat when you are done!

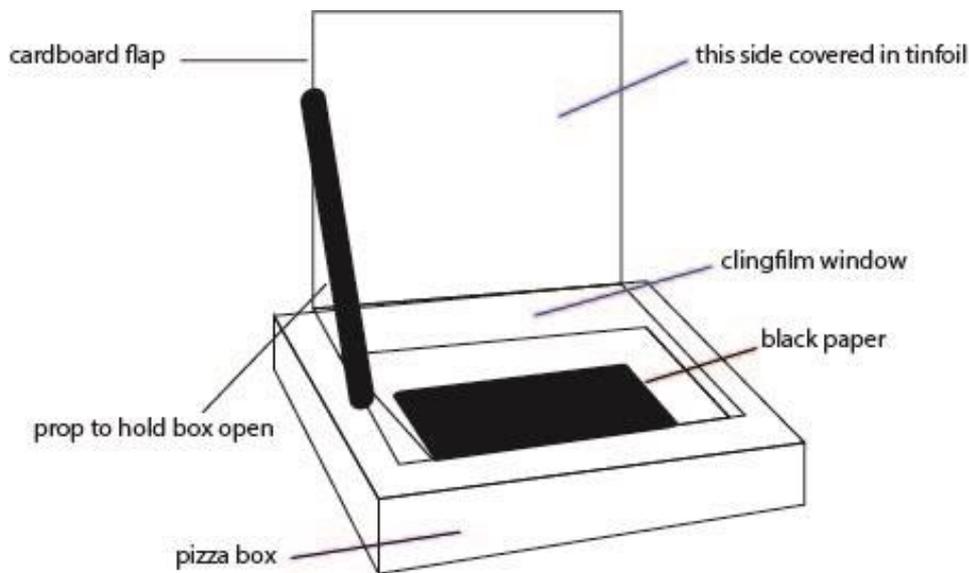
Our brick oven will be solar-powered – using the heat energy of the sun – so the best time to do it is a sunny morning on a warm balcony or garden area.

## What you'll need

- An empty box (a pizza takeout box will work best)
- Tinfoil
- Cellophane
- Marshmallows
- Scissors
- Newspaper
- A sheet of black paper or card (optional)
- A short stick to use as a prop (around 20-30cm depending on the size of your box)
- A very small, preferably rectangular Tupperware box for your brick mould

## Activity instructions

1. Clean any stray bits of cheese, sauce or crumbs out of your pizza box.
2. Using the ruler and pencil, draw a square in the middle of the box lid, about 3cm in from the edges. Use scissors to cut out three of the four sides of the square (get an adult to do this if necessary).
3. Make a crease along the uncut side of the square to create a flap that stands up.
4. Cut a piece of aluminum foil large enough to cover the inner side of the cardboard flap.
5. Wrap the foil tightly, and secure with tape.
6. Cut two pieces of cellophane that are the same size as the top of the pizza box.
7. Create an airtight window by taping the plastic wrap to the inside edges of the square window you cut into the box.
8. Add your sheet of black paper or card to the bottom of the box – this will absorb more heat and help your brick cook. Roll some newspaper pages into tubes to stuff into the sides of the pizza box. Make sure you are still able to close the lid though.



9. Arrange your marshmallows into a brick shape inside your oven. You might want to place them inside a small Tupperware box to mould them. Place your oven in a sunny spot and leave to cook for approximately 1-2 hours, checking at intervals. Remember your brick will need to cool down and harden before you can use it to build anything.

This solar oven will work by reflecting the sun's rays onto the marshmallows which will bake them.

If you want another challenge, try leaving the marshmallows in the oven until they are melted and use them like glue to make a building out of crackers or biscuits. You can also find recipes on the internet for other tasty treats which can be cooked in a solar oven. You can post photos of your structures to our [@ICE\\_schools Twitter account](#) if you're proud of your work too!

### Tell us what you thought!

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Careers and activity resources on our website: [ice.org.uk/educationresources](https://www.ice.org.uk/educationresources)

Civil engineering project case studies: [ice.org.uk/what-is-civil-engineering/what-do-civil-engineers-do](https://www.ice.org.uk/what-is-civil-engineering/what-do-civil-engineers-do)

Civil engineer (people) case studies: [ice.org.uk/what-is-civil-engineering/who-are-civil-engineers](https://www.ice.org.uk/what-is-civil-engineering/who-are-civil-engineers)

Info about all types of engineering careers (not just civil): Tomorrow's Engineers  
[tomorrowengineers.org.uk](https://tomorrowengineers.org.uk)