CARDBOARD BUILDING SHAPES

Create your own building blocks using recycled cardboard and scissors.

Overview

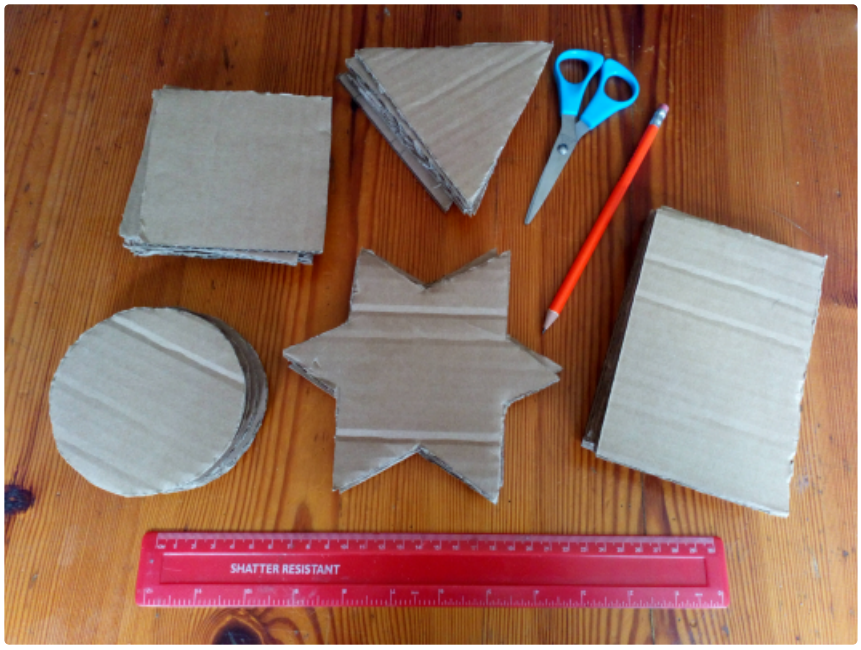
Have you ever made your own toys using recycled materials?

In this activity you'll make building blocks by cutting out shapes from recycled cardboard. You can then slot them together to create structures from your imagination.

If you're looking for a more complicated building challenge, scroll to the bottom of the page for animals and castles.

What to do

Step 1



Find the cardboard that you are going to use; thick cardboard from packaging works well but so does thinner cereal box cardboard. For younger children, the thicker cardboard is better for building, but an adult will need to help them to cut it out. Older children may be able to cut shapes from thinner cardboard on their own.

Choose the shapes you want to use. It's a good idea to start with basic shapes like squares, rectangles, circles and triangles as they are easier to cut. Later, you might want to try more complicated shapes like stars, ovals or hexagons.

Step 2

Use the bottom of a mug or cup to draw your circles.

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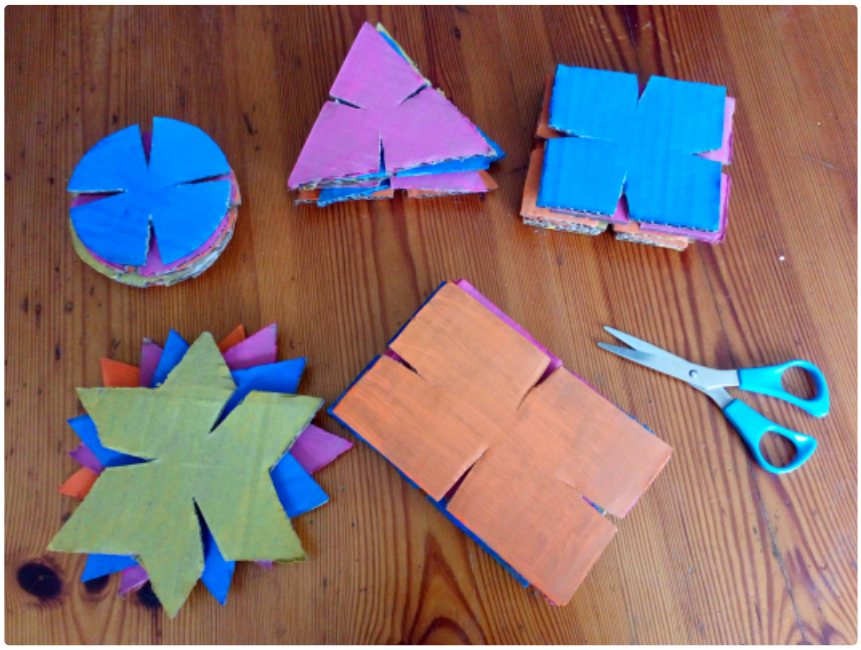
You can then make your squares, triangles and rectangles to be about the same size. Once you've made one of each shape, use it as a template to make more. You'll need about 4 of each shape.

It takes some time to make the shapes, so you could get younger children to colour or paint (if you're feeling messy) the shapes as soon as they are cut out.

If you're painting, you'll need to leave time for the shapes to dry properly before putting them together.

Step 3



Once coloured (and dry) each shape needs short slots cutting into it.

The slots need to be about the width of an adult's finger. The easiest way to make them is by cutting a thin triangle out of the card (like in the picture).

You can choose how many slots you cut in each shape, but a good idea is to count the sides of the shapes and use that as a guide. For example, three slots in a triangle and four in a rectangle. It also means you can talk with your child about shapes and practice counting while you cut.

Step 4

Time to start building.

Choose two shapes and slot them together. Make sure they are pushed all the way into each other.

Now join more shapes onto these shapes.

Can you do these building challenges?

- Make the tallest structure
- Make the widest structure
- Make a structure that looks like a person, or a tree, or a house

You could take photos of all the different things you make.

Things to discuss

Which shapes balance the best? Which make the best bases for building on?

Which shapes slot together easily? Are there any that you can't slot together?

What do you need to do to make a taller structure?

Other things to try

Cardboard animals

What you need:

To make cardboard animals, you need cardboard (a cereal box works well), a pencil or pen, and a pair of scissors. You will need paint, felt tip pens, coloured pencils or crayons if you want to decorate your animals. You can design your own animals, but if you want to try something more complicated there are some good animal templates and sea creature templates to download from the Mr Printables website – scroll halfway down the page to find the download pdf link.

What to do:

1. Draw out the pieces of your animals on the cardboard. Make the legs arch shapes with flat bottoms and the same size at the front and back to help your animals balance.

2. Cut out your pieces and work out where your slots need to go. If you're attaching legs, you will need a slot at the top of the leg piece and a matching, same sized slot underneath the body. Make short cuts into your pieces to start off, then make these longer until they fit together well.
3. When you have cut the slots, you can join all of your pieces together to complete your model, or you can take them apart and paint or decorate your animal by drawing on it.

Build a cardboard castle



What you need:

Cardboard, toilet or kitchen roll inners, scissors, and pens to decorate.

What to do:

1. For the walls cut 4 rectangles of the same size from your cardboard.
2. Make sure that your rectangles are the same way around, and cut a slit about 2cm (2 fingers width) in from each edge, starting at the bottom to just over halfway up the cardboard.
3. Make a slit from the bottom to about about three quarters of the way up all of your toilet roll inners. These will be the turrets.
4. Decorate the pieces of your castle. You could make battlements and doors like in the gallery above.
5. Put your castle together by slotting your walls into a rectangle. Then slot the turrets on the corners.

What else could you build using this slotting technique?

More STEM at Home

What you'll need

- Cardboard such as cereal or tissue boxes, old greetings cards, or empty delivery boxes
- Scissors
- A pencil and ruler if you have them
- Felt tip pens, colouring pencils, crayons or paint if you want to decorate your blocks
- A flat surface to work on

Duration

This is a two step activity and will take about an hour altogether, not including paint drying time.

If you want to paint the shapes, then you will need to create and decorate the shapes first, let the paint dry for an hour or two, and then build with them.

Suitable for…

Age 3 and up. Younger children will require an adult to cut out the shapes and slits for them.

Safety notes

You know your children better than anyone, and you should judge whether they're ready for this activity.

- Scissors – you might want to be in charge of these
- Paints or felt tips – you may need to cover and protect the surface you are working on
- Lids from felt tip pens are a choking hazard

Careers link: Structural Engineers

Structural Engineers build structures that are strong and stable – just like you did in this activity. Structural engineers design buildings, bridges, and tunnels. They have to carefully choose the right materials and right shapes to make sure their buildings stay up.

To find out more, and discover additional building activities that you can do at home, visit our Structural Engineer activities page.

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