



**We're big believers in the power of play — and it's never been more necessary than it is now.**

We're sharing these three activities from our new book, *The Nature of Play*: A handbook of nature-based activities for all seasons, as free printable activities to explore at home. And whether you're remaining indoors or not, they offer a chance to slow down, connect once more with the world outside, and lose yourself in your imagination.

Like all the activities in *The Nature of Play*, they're simple, seasonal, require little more than curiosity, and provide a precious few minutes of calm enjoyment for children (and brief respite for adults!).

Please enjoy, share — and show us your wonderful creations on Instagram (@fannyandalexander).

For a year of making, exploring and wondering, purchase the full book here: <http://fannyandalexander.co.uk/book>

—  
1.5 hours  
All seasons  
Indoors  
Adult assistance required ••

## Build your own marble run

Rig up an obstacle course and balls away!

### GATHER TOGETHER

- . A big cardboard box
- . Cardboard tubes (from inside wrapping paper, kitchen roll, cling film etc)
- . Scrap cardboard (cereal boxes and that kind of thing)
- . Newspaper to roll into tubes
- . Plastic bottles
- . Sticky tape
- . Glue
- . Blu Tack
- . Scissors
- . Paper cup
- . Marbles
- . Any extra 'features' you'd like to add, like funnels, old pinwheel toys, or things to decorate with



WHOSE MARBLE IS FASTEST?  
DO DIFFERENT-SIZED MARBLES  
GO FASTER OR SLOWER?  
CAN YOU MAKE IT EVEN MORE  
COMPLICATED?

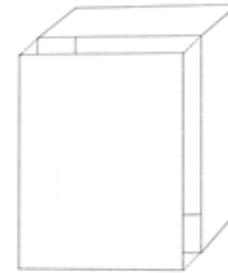


Fig. 1

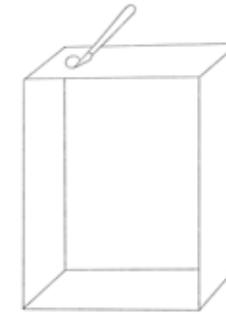


Fig. 2

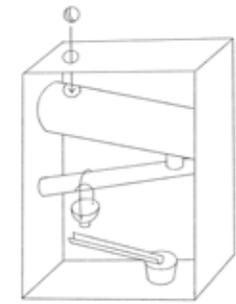


Fig. 3

**LET'S GO!**

**Step 1.** Cut out your frame. Cut one side off the biggest cardboard box you can find (Fig. 1). This will become the frame for your marble run so you want as much room as possible to work with.

**Step 2.** Make an opening. With your box on its end and the open side facing outwards, cut a small hole in the top where you'll drop in your marble (Fig. 2).

**Step 3.** Build your run. Create the course your marble will run along using the items you've plundered from your recycling box. You want it to have as many twists and turns as possible. Generally, you'll use tubes to carry your marble across each level, and holes, funnels or bends to turn corners and drop down to the next level.

Starting below your hole, tape or glue a cardboard tube across your box (angled downwards so that gravity helps your marble along), making sure there's a hole in the tube below your entry point.

At the end of your first tube, create a connection (cut a hole in the bottom at the end of the tube, or tape rolled-up newspaper or curved cardboard to the end of your tube) so the marble can drop down to the tube below (Fig. 3).

**Step 4.** Add extras. Cut the top off a plastic bottle and use it upside down to drop a marble down a level. Cut holes along the bottom of a tube – will the marble drop out at a different point if it's going faster or slower? Experiment and see. Use plenty of tape or glue as you go.

**Step 5.** Keep building until you reach the bottom. Test your run occasionally as you add to it – if you want your marble to go faster, angle the tubes downwards. If you want to slow it down, tilt the tubes up, or add obstacles to your course. Make it as complicated as you like.

**Step 6.** Add a small cup at the very end of your run to catch your marbles in.

**Step 7.** Ready, steady, go! Drop a marble through your hole at the top to send it down your run. Whose marble is fastest? Do different-sized marbles go faster or slower? Can you make it even more complicated? (Advanced marble-runners can create several different tube endings for the marble to go down, with points for which tube it finally comes out of.)

**FROM THE ARCHIVES**

Can you imagine how much fun a mega marble run would be? That's just what a team in Flumserberg, Switzerland created when they built the world's longest marble run, measuring an incredible 2,858.9 metres long! If you train to become a marble run maestro, you might one day snatch that record yourself...

FOR BUDDING ENGINEERS, A  
MARBLE RUN IS THE ULTIMATE  
PLAYGROUND.

---

**DEAR GROWN-UPS**

For budding engineers, a marble run is the ultimate playground. As an open-ended activity it presents plenty of scope for creativity and ingenuity to direct the outcome, and the three-dimensional nature of the task gently develops understandings of gravity, momentum and spatial reasoning. It's not an easy activity, nor one that offers instant gratification, so there's an opportunity to foster patience and problem-solving in tackling this one, too.

—  
Up to 3 hours  
All seasons  
Indoors  
Adult assistance required ••

## Create a scene

Set the stage and who knows what tales might unfold?

### GATHER TOGETHER

- . A sturdy cardboard box (ideally measuring around 30cm x 30cm x 30cm)
- . Sticky tape
- . Craft glue
- . Scissors
- . Coloured paper and cardboard
- . Scraps of fabric, old wallpaper and wrapping paper
- . Washable paints
- . Egg cartons, matches and wooden lollipop sticks
- . Felt-tip pens

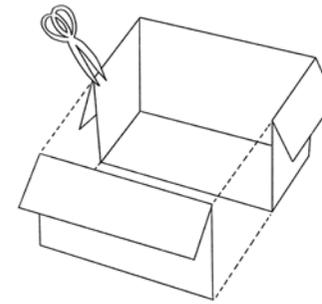


Fig. 1

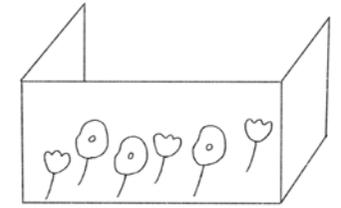


Fig. 2

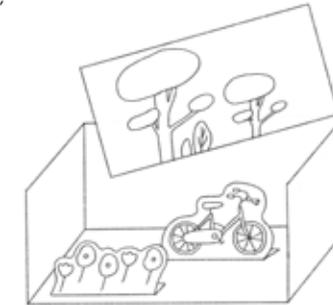


Fig. 3

### LET'S GO!

**Step 1.** Choose your scene. You're going to make a set, like a theatre backdrop, for staging plays of your own creation. So the first thing you need to do is to think about what kind of scene you're inspired by. A forest bathed in moonlight, perhaps? An underwater scene in Atlantis? A Victorian doll's house? Or how about the surface of a never-before-seen planet?

**Step 2.** Get your box ready. Trim off any flaps you don't need (see Fig. 1), reinforce any joins with tape, and decorate the outside of your box in keeping with your theme (see Fig. 2). Note that most marker pen colours will look dark and drab on cardboard, so for brighter colours, glue on coloured paper.

**Step 3.** Decorate the backdrop. Line the box with wallpaper or patterned paper, or paint it. You can glue on other materials for texture, too – maybe moss and twigs for a forest scene, blue cellophane and shells for your underwater backdrop, or tinfoil for a cosmic landscape. Let your imagination run wild!

**Step 4.** Decorate the 'stage'. You can do this two ways: Diorama-style, where you create staggered rows to create a sense of depth. For instance, if you're creating a forest, use a piece of stiff paper to draw and cut out lots of trees and boulders, leaving a small 'foot' (about an inch) at the bottom of each one. Fold the 'foot' and glue it to the bottom of your scene



towards the back, positioning it so that it stands up by itself. Repeat until you have a back row, then glue in a new row of trees a few inches further forward (see Fig.3). It creates a lovely 3D effect. Dollhouse-style : This is where you use your space as a room and furnish it how you like. Making the furniture is the fun part – matchsticks can be glued together to build bed frames, chairs and tables and matchboxes can be stacked to form drawers. Egg cartons can be cut to build sofas and armchairs, and lollipop sticks can be used to make fridges, wardrobes – or anything you like! Sew or glue pieces of fabric to create pillows, blankets and rugs.

#### FROM THE ARCHIVES

Although they're beloved by many children, dollhouses were actually invented for adults. The earliest dollhouses were called 'cabinet houses' and were created as status symbols for wealthy Dutch, German and English aristocracy. Later on, the 'baby house' was created for children. They were perfect, scaled-down replicas of the family homes they lived in, and they were used to teach daughters how to run their future households. Luckily for you, yours is purely for fun!

DOLLHOUSES WEREN'T ALWAYS THE THEATRES FOR CHILDREN'S IMAGINATIONS THAT THEY ARE TODAY...

#### DEAR GROWN-UPS

As you have read, dollhouses weren't always the theatres for children's imaginations that they are today. But that's what makes them such enduringly magical things – they're kingdoms over which children have complete dominion. They can explore alternative realities, inhabit others' points of view, replay real scenarios with different outcomes – using their imaginations to develop the social skills that help them to navigate the real world.

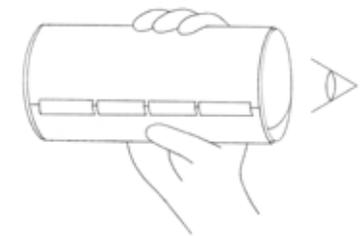
—  
1 hour  
All seasons  
Indoors and outdoors  
•• Adult assistance required

# Make your own pinhole camera

Get a new perspective on the world  
with this simple, satisfying camera.

## GATHER TOGETHER

- . An empty tube of crisps (Pringles or similar)
- . A sharp pencil or marker pen
- . A craft knife (ask an adult to help you with this part)
- . A drawing pin
- . Greaseproof paper
- . Glue
- . Scissors
- . A ruler
- . Masking tape
- . Aluminium foil



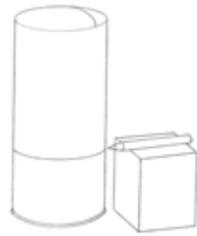


Fig. 1

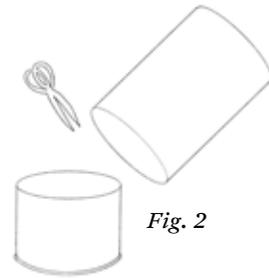


Fig. 2

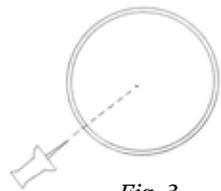


Fig. 3

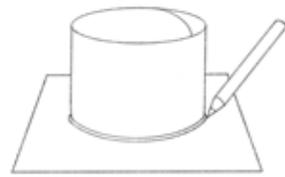


Fig. 4

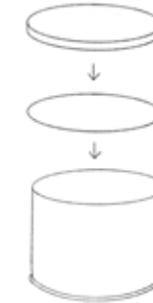


Fig. 5

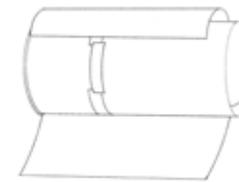


Fig. 7

ON A CAMERA, THE HOLE THAT LIGHT ENTERS THROUGH IS CALLED THE APERTURE.

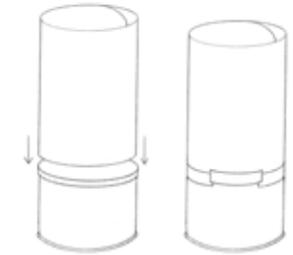


Fig. 6

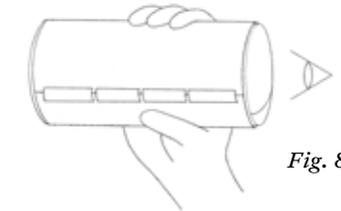


Fig. 8

### LET'S GO!

**Step 1.** Prepare the body of your camera. Give the inside of your tube a thorough clean. Keep the lid as you'll need it in a minute.

**Step 2.** Mark your tube. About 5cm from the bottom of the tube, draw a line all the way around your cylinder. A good way to keep the line even is to find a small cup or box that's about 5cm tall and, putting it next to your tube, lie your marker or pencil across it so that the tip is just touching the outside of the tube. Don't move the pen – just hold it steady with one hand and rotate the tube with the other – you should get a straight line all the way around (Fig. 1).

**Step 3.** Cut your tube. Ask an adult to cut all the way around the tube where

you've marked your line using a sharp craft knife (Fig. 2).

**Step 4.** Create your hole. On a camera, the hole that the light enters is called the aperture (which just means 'opening'). Push your drawing pin into the centre of the metal bottom of your tube to make a small hole (Fig. 3).

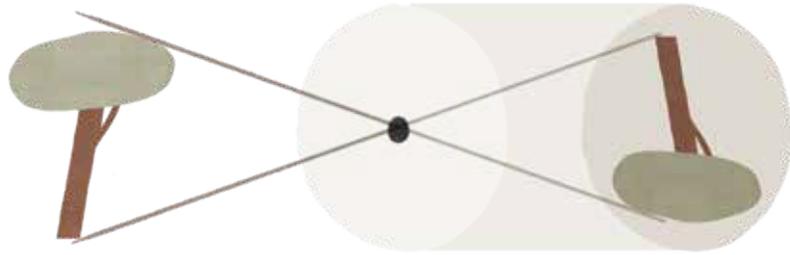
**Step 5.** Make your screen. On a piece of greaseproof paper or baking parchment, trace around the edge of your lid and then carefully cut out the circle shape. Glue the paper circle to the inside of your lid. Put the finished lid on top of the shorter piece of tube (Fig. 4).

Stack the longer piece on top and wrap the join with masking tape (Fig. 5).

**Step 6.** Wrap it well. Take a piece of aluminium foil measuring about 30cm by 20cm, and lie the tube on top so that the bottom lines up with the foil's edge. Roll the foil around the tube slightly and tape down one side. Wrap the whole tube tightly with foil and tape down – you need it to be completely sealed so that no light can enter your tube (Fig. 6). Tuck any overhanging foil into the open end of your tube.

**Step 7.** Take it for a spin. If it's a sunny day, cup your hands around the end of the tube to prevent light from entering, and look through the open end of your camera – you should see upside-down images on the screen inside (Fig. 7)!

Hold your hand in front of the aperture and move it up and down. The image you see will be doing the reverse! If it's a gloomy day, try it inside – turn a light on in a dimly lit room and stand facing it 1.5 metres away. Drape a blanket over your head to exclude any light from entering. You should see your lamp appear the wrong way up!

**FROM THE ARCHIVES**

This is the earliest kind of camera, and it's called a 'camera obscura'. They were used in China more than 2,500 years ago, and in 1,000AD an astronomer, Ibn al-Haytham, realised that they could be used to safely view solar eclipses. Ancient cultures feared solar eclipses, but there's nothing dangerous at all about them – provided you never look directly at the sun, which could seriously damage your vision. But with your camera obscura on hand, you're all set!

**DEAR GROWN-UPS**

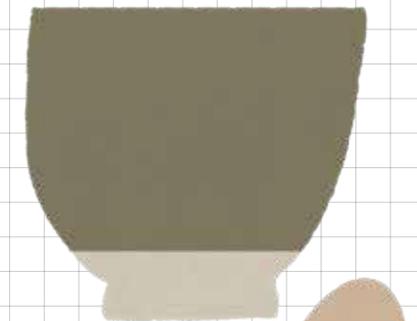
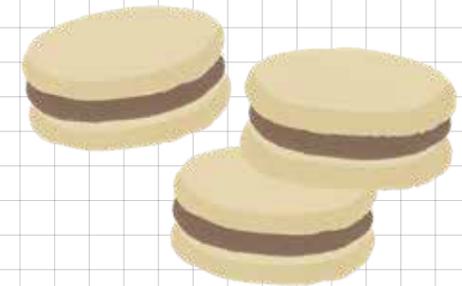
The question this activity invariably provokes is 'But why is the image upside down?' So you're ready with a response, it's because light reflects off the surface of the object you're looking at. But it travels in a straight line, so light from the top of an object will pass downwards through the pinhole and to the bottom of the screen, and light from the bottom of the object will travel upwards through the aperture, making the object appear inverted. Now you know!

## ALFAJORES

These buttery biscuits are traditionally eaten around Christmas-time in Spain and parts of Latin America — but they're absolutely delicious any time of year.

75 MINS  
PREP  
8 TO 10  
MINS  
COOKING

INGREDIENTS  
300g plain flour  
200g butter  
1 egg  
100g sugar  
Dulce de leche



Put the plain flour in a bowl and make a small hole in the centre.  
Add your room-temperature butter, egg and sugar to the bowl in the hole you've made. Use a fork and light mixing movements to gently combine the ingredients into a soft dough.  
Rest dough in the fridge for two hours.  
On a flour-sprinkled table, use a rolling pin dusted with flour to gently roll the dough out as thinly as possible.  
Use a small glass to press out rounds of your dough and place on a baking tray.  
Cook them in an oven at 175°C for 8 minutes or until dark beige.  
Allow to cool and then sandwich two together with dulce de leche.