

# Maker Challenge!

## By designer-maker Ellie Birkhead



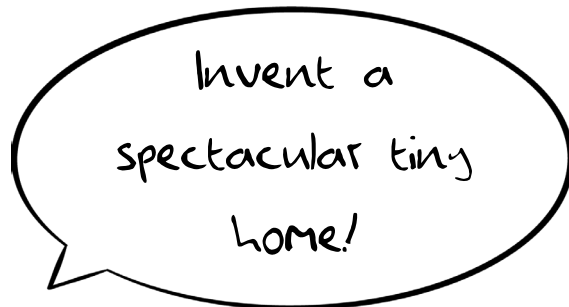
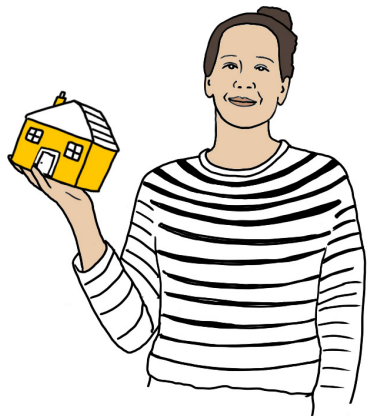
### Calling all Little Inventors!

Take the Maker Challenge set by designer-maker Ellie Birkhead and try five different activities along the way to get your creativity flowing and help you build up to designing an ingenious invention.

Do try this at home, take care with sharp objects and get some adult help. There are **how-to guides** included too to help you with your project - happy making!

### Ellie's invention challenge

Give these five activities a go to help guide you through the challenge!



**1. Explore!** Think of lots of different homes and habitats.

**2. Who is it for?** Think of a small creature and what could be a super fun home for them.

#### INVENTION SHEET

**Drawing time!** Draw your tiny home for your small creature!

**3. Make salt dough bricks** Make your own miniature building blocks using materials all found in your kitchen.

**4. Texture explorer!** Explore hidden patterns all over the house to add features to your house!

**5. Get making!** Build a magnificent miniature home with your homemade building blocks.



Ellie Birkhead is a designer-maker from London, UK.

Ellie works with all kinds of materials from wood to clay. She often uses waste materials, such as plastic washed up on the beach or recycled glass bottles.

She likes to get her hands dirty and try out all kinds of making techniques to help her come up with her designs.

Here are some pictures of her work!



Ellie testing out brick recipes



Brick glaze made from crushed glass bottles



Bricks made with sheared sheep wool!



A brush made from washed up plastic fishing net and driftwood



A tiny brush that fits on the end of your finger!



# Think about a small creature and what house they might want



Now draw four things your character might want to be able to do in its home! Play with friends, hibernate for months, swim...?

Write down information about your character and draw four things they need in their new super cool home.

What kind of creature is it? Does it have a name?



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Who else lives with it (family, pets, friends, things)?

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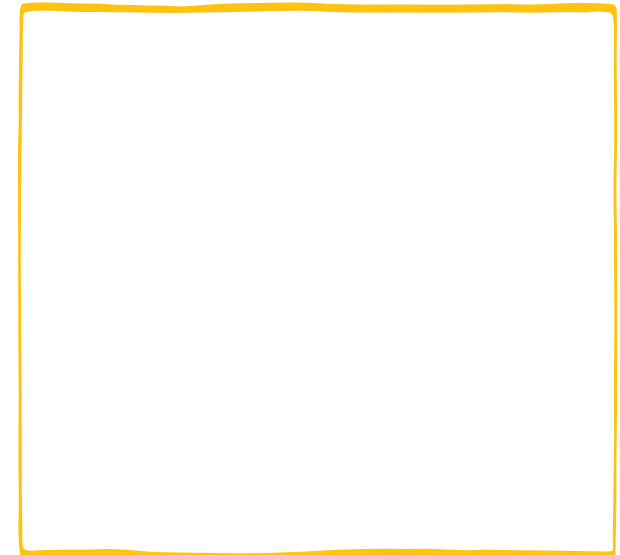
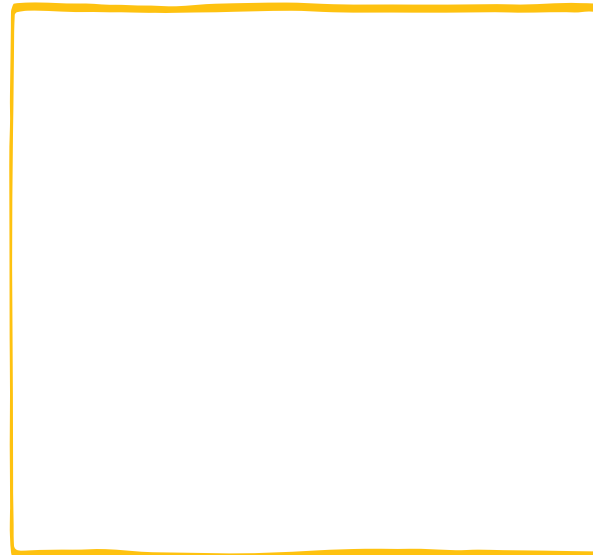
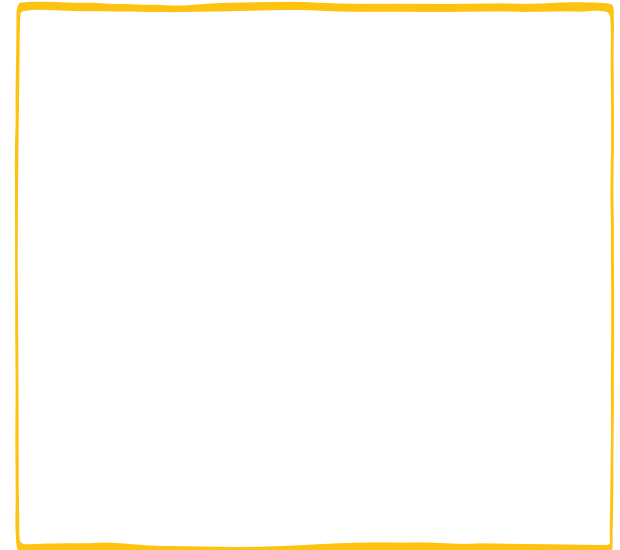
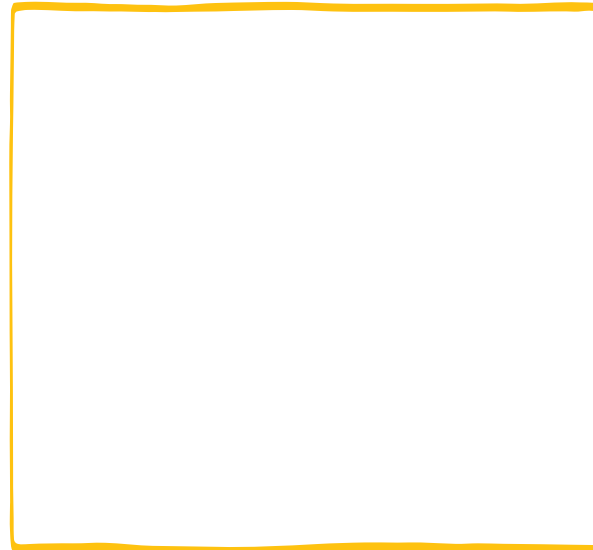
What environment does it live in?



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What would they need? What would they love their home to look like?

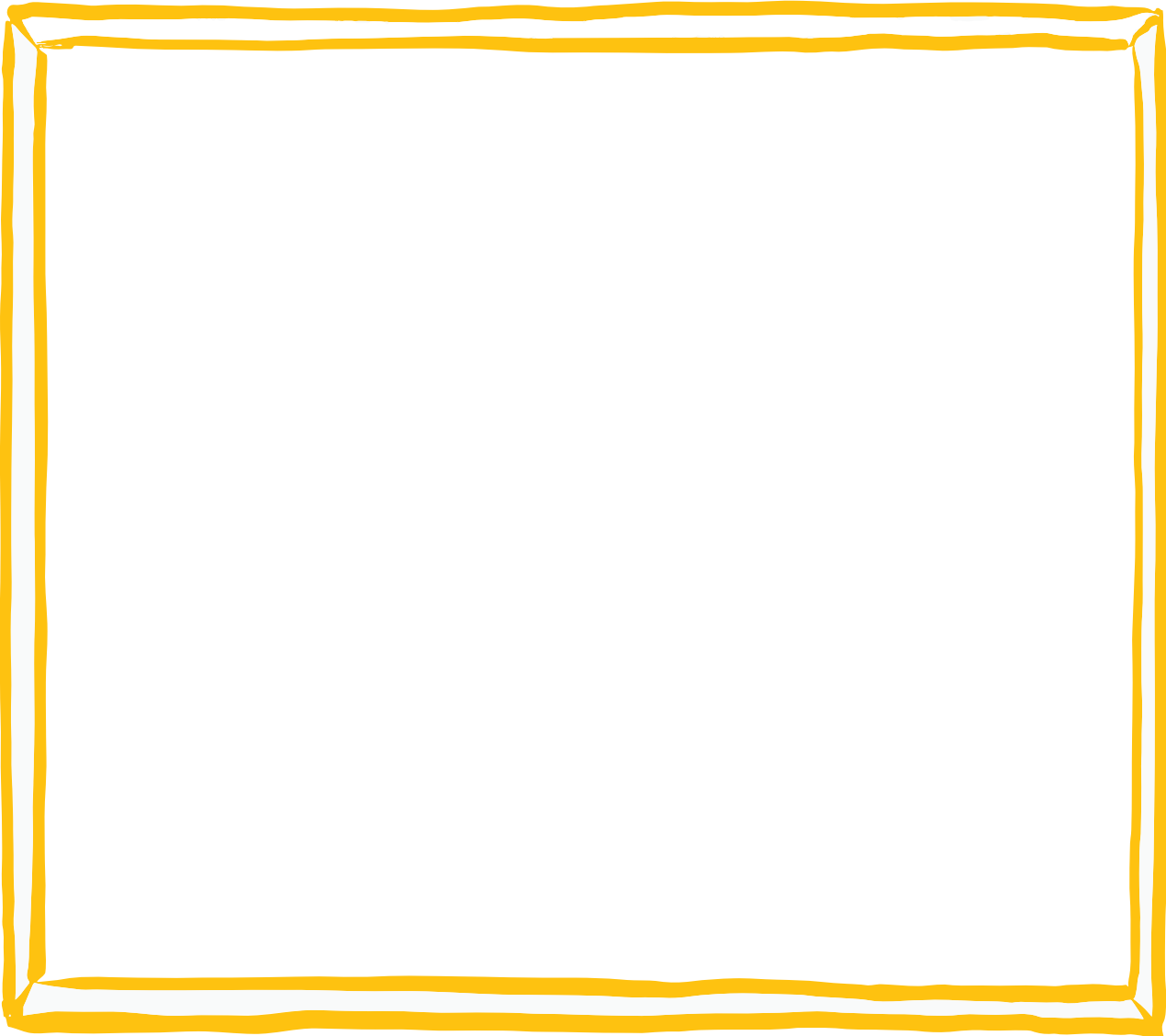
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# My tiny home invention

Name it!  
↙

Draw your invention here! Use a black pen, add colours and labels



.....  
.....

First name .....

Age .....

School .....

Town/city .....

## Tell us more!

(who your invention is for, what it does,  
how it works!)

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Upload your idea at [littleinventors.org](http://littleinventors.org) to get feedback and who knows, it could be chosen to be made real!

# Make your own miniature building blocks using materials all found in your kitchen

A **simple rectangular brick** can make some incredible designs, because when you have a lot of them they can be used in so many different ways.

People have been building with brick for thousands of years and have made homes of all kinds!

But bricks can also come in all shapes and sizes, not only rectangles. The more **bonkers** the shapes, the more bonkers the building!

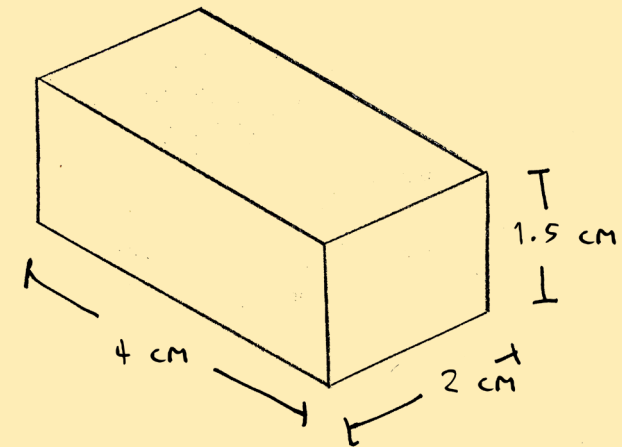
Some are **long and flat**, some are **curved**, some even have **patterns** carved into them. What will your bricks look like?



Follow the How-to guide on the next page to make your mini bricks at home!

You can use these mini brick measurements to get started if you want to be really accurate!

Length 4cm x Width 2cm x Height 1.5cm



Or get inventive and come up with your own!

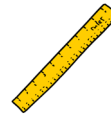
# Salt dough bricks

With a pile of bricks you can build anything, the only limit is your imagination! It can be the starting point for so many amazing creations and inventions. Follow these instructions to create your own miniature bricks in your kitchen made from salt dough.

**Salt dough** is a material that can be made by mixing just salt, flour and water so it's perfect to make at home. It starts off very soft and easy to mould into all sorts of shapes, but once it's dry it goes really hard and can last for years!



## Tools



Rolling pin

Oven (if you can't use an oven don't worry, you can let your bricks air dry over night)

Baking tray

Greaseproof paper or baking parchment

Ruler

Knife

Mixing bowl

Cup for measuring

**An adult to help!**

## Ingredients

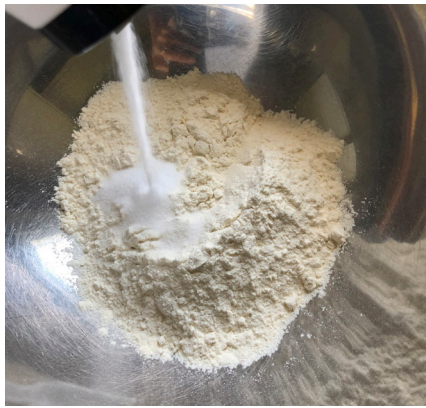
1 cup plain flour

1/2 cup table salt

1/2 cup water

Let's get making!

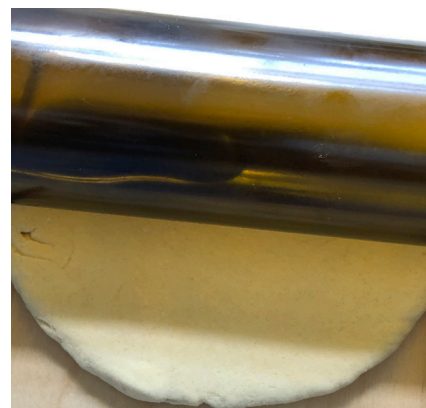




**1.** Start by mixing 1 cup of flour with half a cup of table salt. You can use any cup or mug to measure, just make sure you keep using the same one.



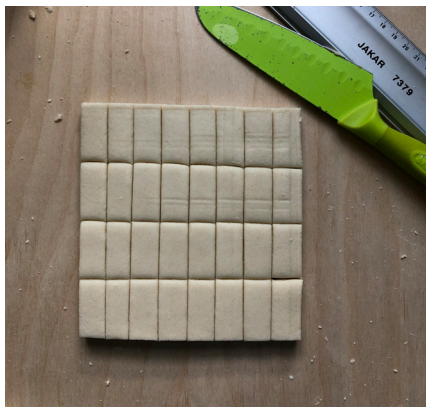
**2.** Slowly add 1/2 cup of water and knead into a smooth dough. Add more flour if it feels too sticky or a little water if it's too dry.



**3.** Roll your dough to the thickness you want your bricks to be. For my bricks I have made them 1.5cm thick. Then cut away the edges to make a rectangle.



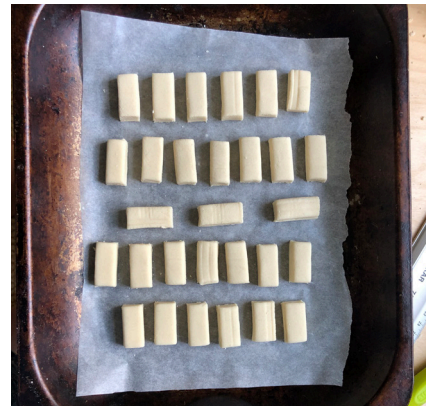
**4.** Using a ruler and a pencil lightly mark out the width and length of your bricks. Try not to press down with the ruler.



**5.** Get an adult to help you cut your dough.



**6.** You can make any shape or size you like, get creative!



**7.** Gently place your dough bricks onto a baking tray on top of greeseproof paper and heat in the oven for 2.5-3 hours at a low temperature (around 130 c).



**8.** Leave to cool fully. Your bricks should now be hard and ready to paint and build!



# Texture explorer!

Houses are made from all kinds of different materials and these vary all over the world, from brick to straw and even ice.

All materials have a different feeling when you touch them, some are **scratchy**, some are **bumpy** and some are **smooth**, these are called **textures**.

Take a piece of paper and a crayon or soft colouring pencil. Place your paper onto any surface and colour over the top with your crayon. You can find some really exciting patterns hidden all over the house or outdoors.

You can try anything, so get exploring and find some lovely textures. You can **stick them on a piece of cardboard and cut them out** to make extra features for your home, like a roof, a door, a pathway, a garden or something else.

## Ideas to get started:

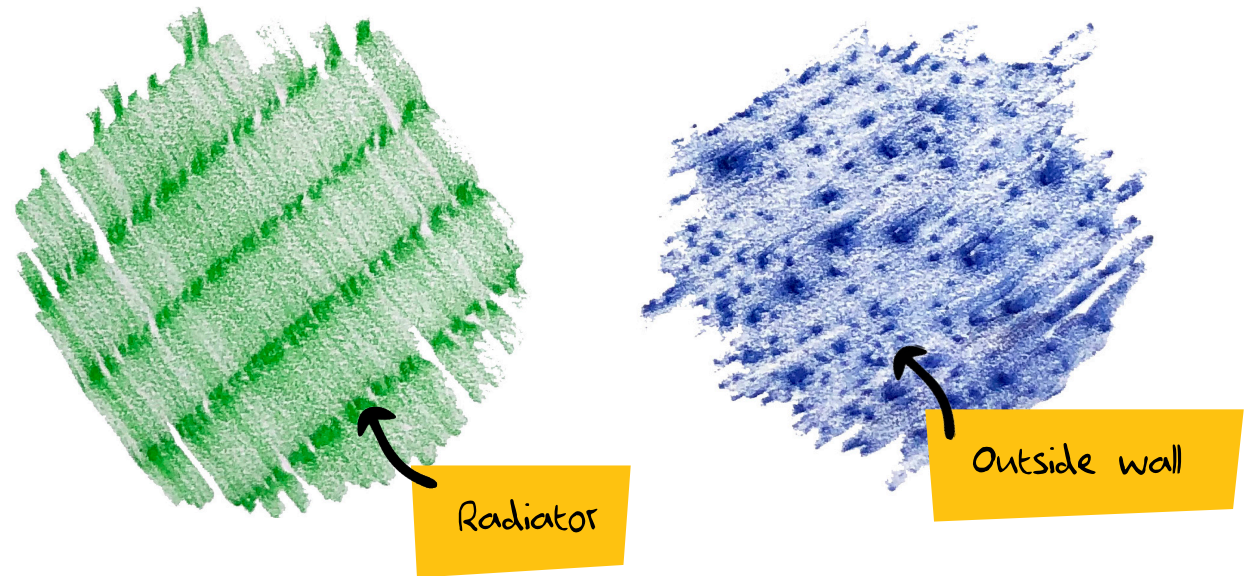
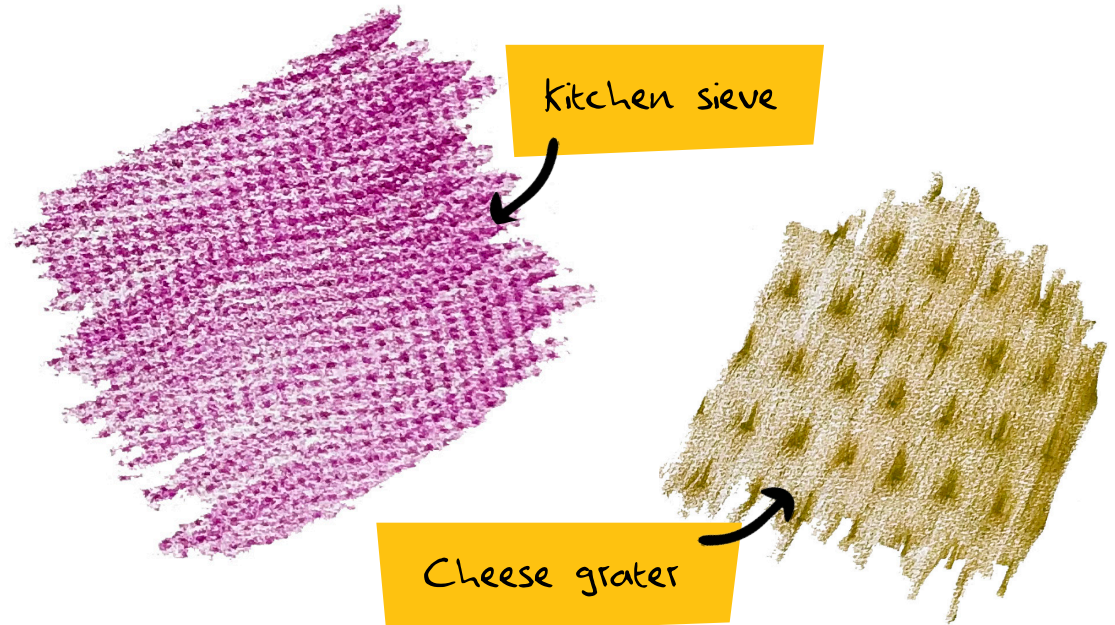
trees

outside wall

radiator

cheese grater

Kitchen sieve



# Design your tiny home and build with your blocks!

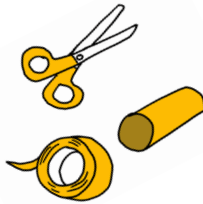
This is the time to bring everything together and get inventive. Let's create something amazing with your new building blocks!

Before you start to stick your bricks together **you can paint them** in whatever colours you like.

You can **glue your bricks together** using regular PVA glue, but if you want to make your building look like a real brick building with 'mortar', or if you don't have any PVA glue at home trying using **this flour glue recipe**.

Check back to **your invention sheet** for inspiration!

Don't forget to **use your textures to add features** to your home!!



## Flour glue recipe

1/2 a cup or mug of flour

1/2 a cup or mug of water

Mix together to make your glue!

You can use a lolly stick as a trowel to help layer on your glue. Make sure you also cover the edges!

