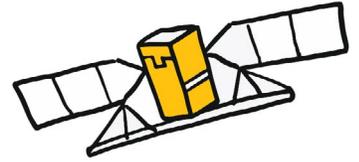


Top tips to get inventing



Follow that thought

Try to stop thinking for a minute. It's pretty much impossible!

Our brains are constantly taking information in and working out how to record it and how it connects with other things we know.

So trust your brain and try to catch a thought and see where it takes you!

So many ideas!

Keep the ideas coming. It doesn't matter if they're not great, but allowing yourself to play with an idea might lead you to another idea, or might just get it out of your brain to make room for more ideas!

Doodle away

You don't always need to know what you're drawing...

In fact, some people like to doodle and then imagine what they can see in their doodle! Have a go on a doodle sheet!

Who needs your help?

Thinking about who your invention is for is a great place to start.

It could be for someone in your family or an animal you spot while you're out and about. Imagine what they like or dislike, what they might find difficult or boring. How can you help them?

No problem too small

It might be how to help a snail go faster, how to water a cactus or how to protect a ladybug from the rain – no problem is too small to capture your inventive imagination!

No limits

And of course, the opposite is also true – there is no problem too big to have a go at either!

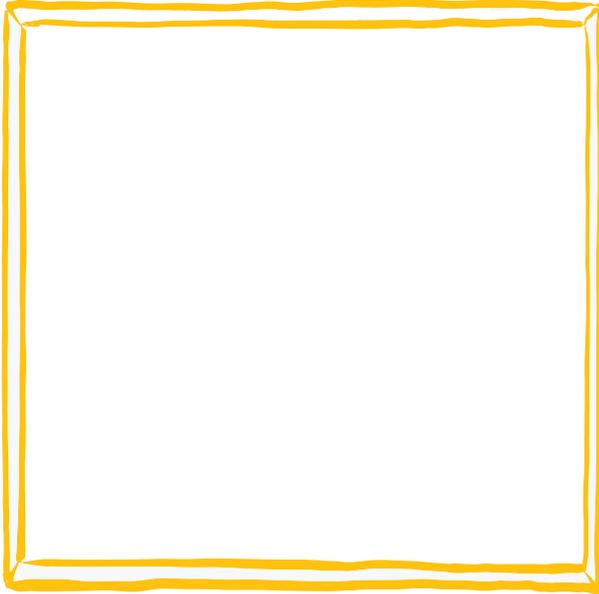
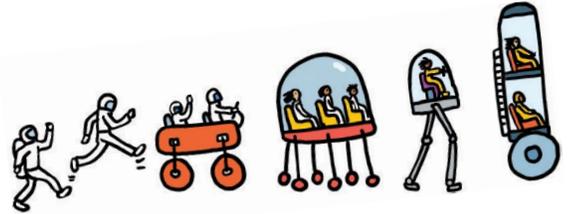
If you worry about how to reduce the pollution in the atmosphere or how to make travel faster, safer and non-polluting, then have a go. We need all kinds of ideas to help our planet stay green!

Break the rules

New inventions happen when we try to think or do things differently – in other words, when we break the rules. So forget how things are supposed to work and make them happen your own way!

What might seem impossible today could well happen in the not-so-distant future.

I'm a space Little Inventor!



Draw a picture of yourself in space!

My name is

I am years old

I live in

My experience of the moon and stars

.....
.....
.....

Five facts I have found out about the moon:

-
-
-
-
-

What I like best about space:

-
-
-

The future I want for space:

-

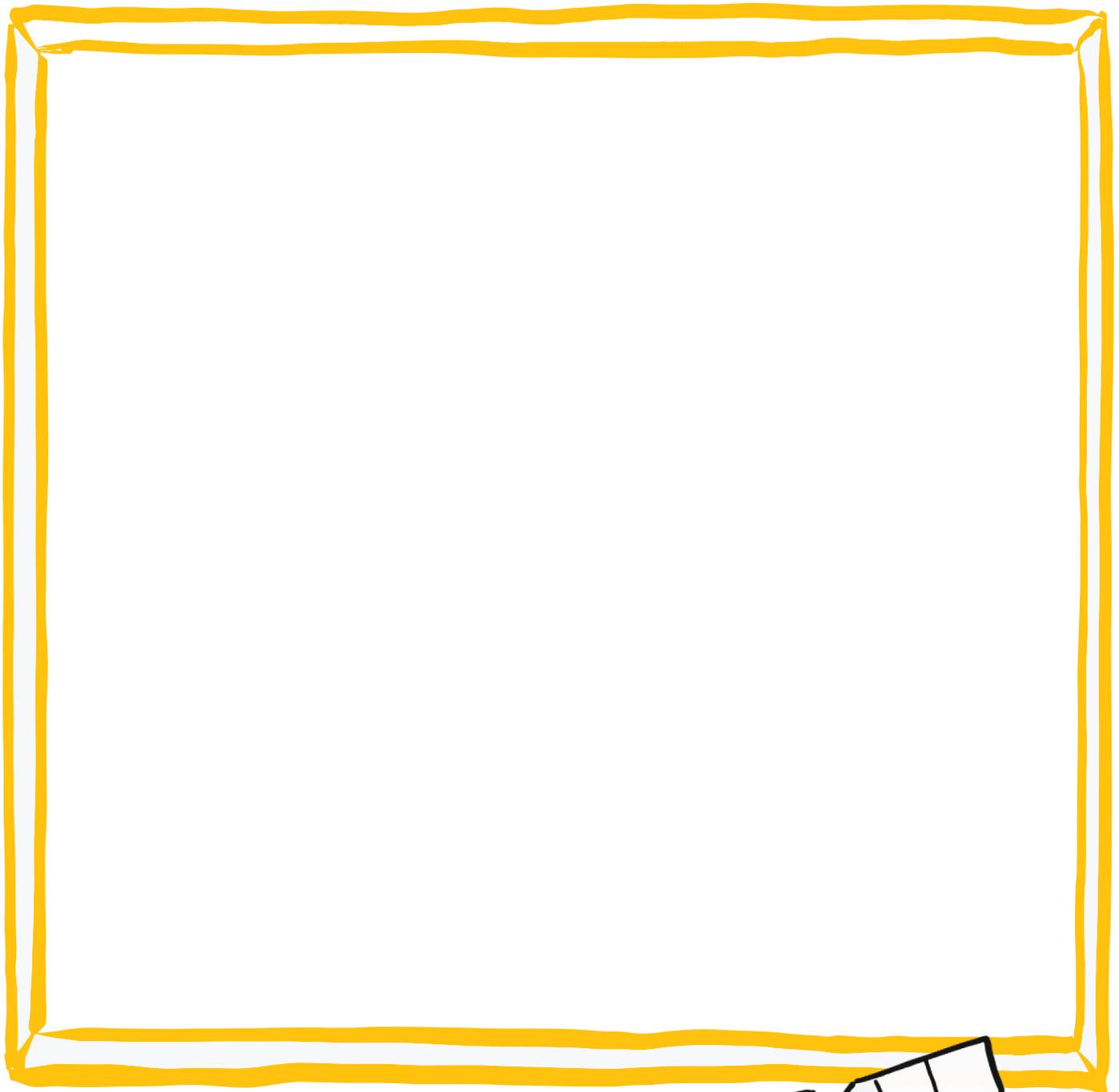
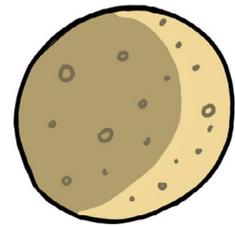
If I could improve ONE thing now to make visiting space easier, it would be:

.....
.....

Now use the activities in the resource pack to get you started and once you have all your thoughts about space and the moon ready, get inventing!

Your moon invention!

(the first of many?)



More about your idea

What inspired your idea?

What problem are you trying to solve?

If you had to add something to it, what would it be?

What if you had to remove something? How would that change your idea?

What do you like best about your idea?



Top tips to take your idea further



Here are some ways to think more about your idea to really bring it to life, first to you and then to the world!

Bring in extra brainpower!

Talk to different people about your idea – it might spark more ideas to make your idea better, or even start you on a new one!

Write a story or comic!

Try writing or drawing a story where someone has a problem, and then they get to use your invention. What happens?

Be an internaut

Go on the Internet to see if anyone has done anything a bit like your idea. How is yours different, or how can you change it to make it unique? Inventing is often about improving something that already exists, so what's your take on it?

Sleep on it

Not literally! But take the time to forget about your idea and come back to it with a fresh pair of eyes. What would you do differently (or not!)?

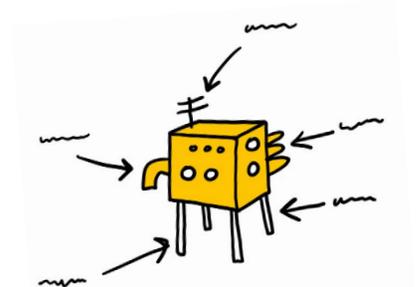
Swap up

Your idea might be for someone or something specific. What if someone or something completely different was trying to use it? What would happen?

Draw it again

When you've had a chance to think some more, have another go at drawing the same idea. What do you want to add or remove?

Make a model!



What's the story?



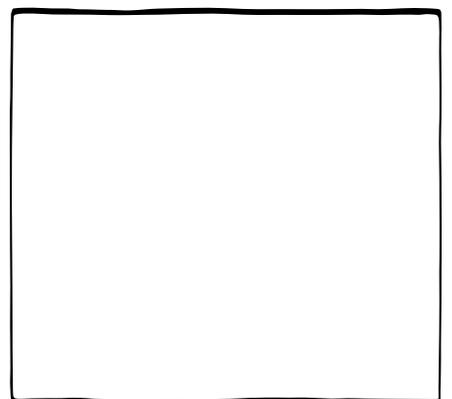
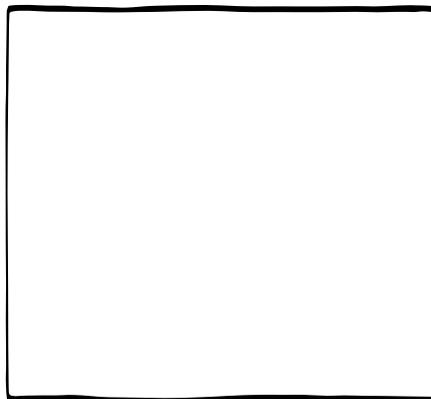
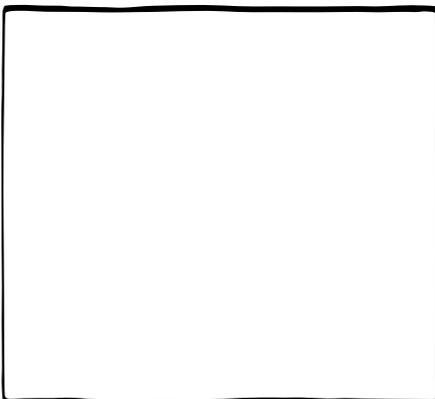
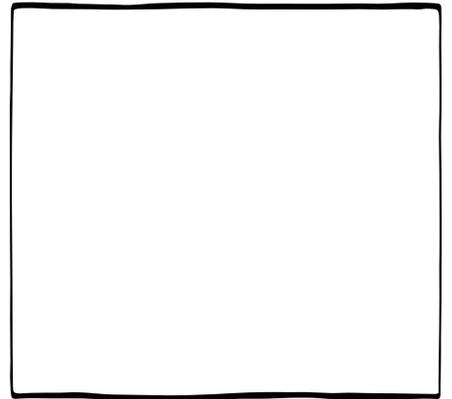
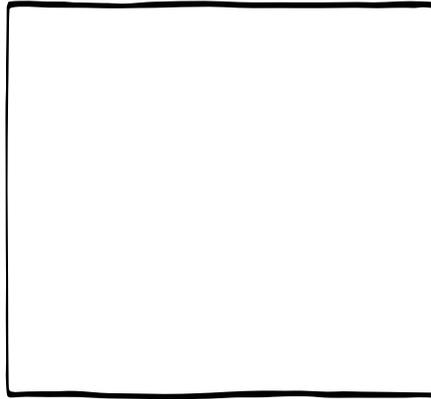
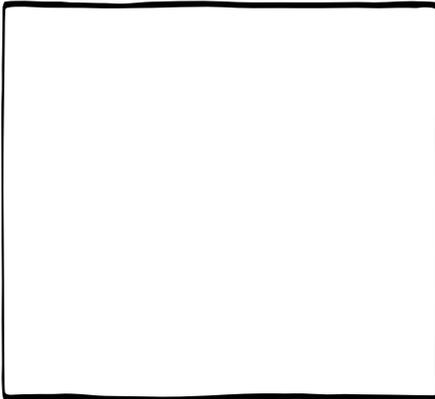
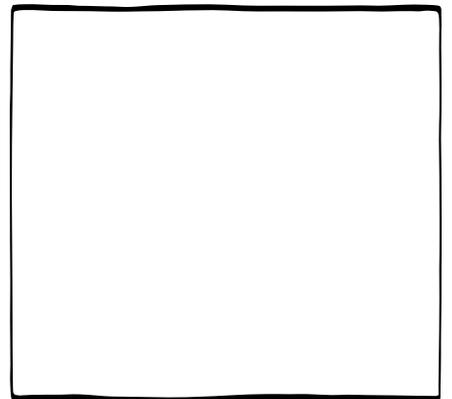
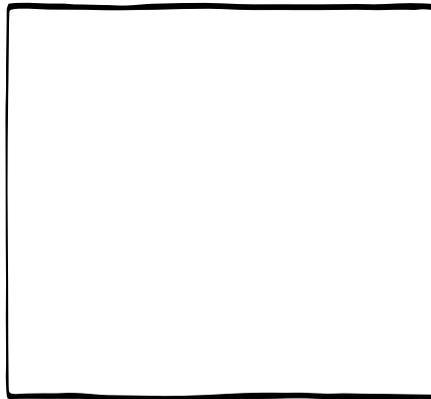
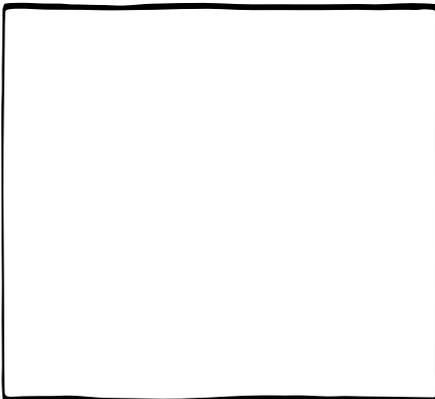
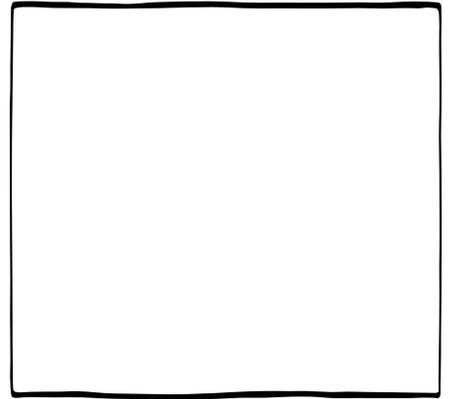
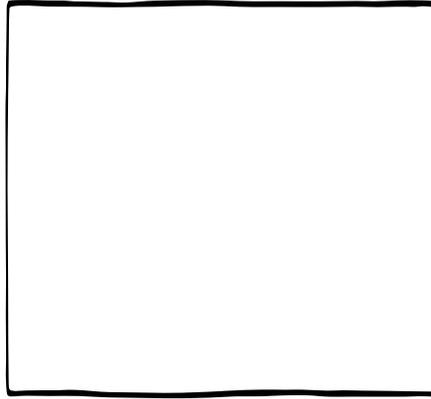
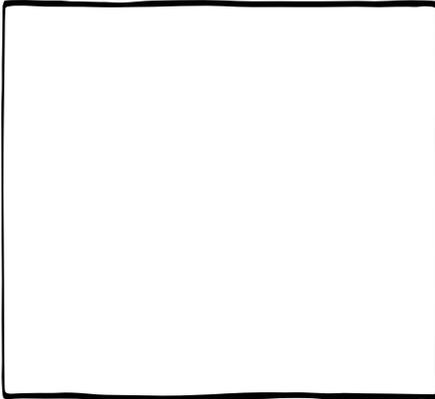
Now that you have come up with your invention, write or draw a short story or comic strip to show the following:

Describe who your invention is for:

What is the problem they face?

What is your invention? How is it used, and how is it helpful?

My invention comic



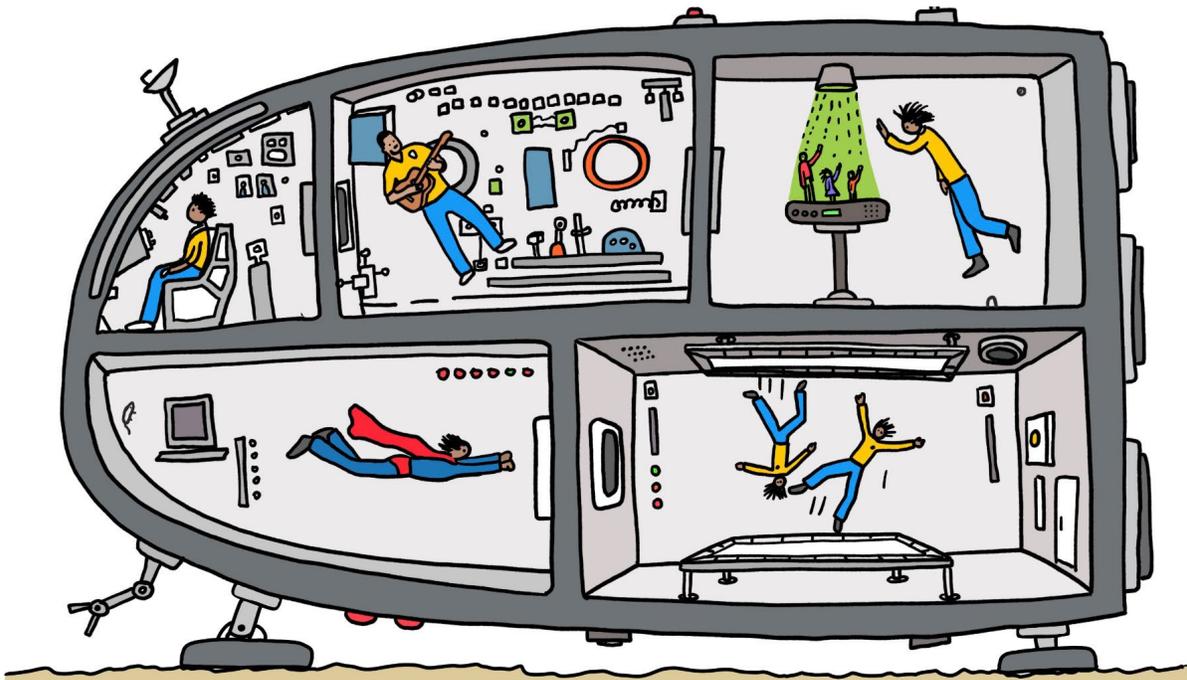
My invention research

My Internet research:

What I would add or remove:

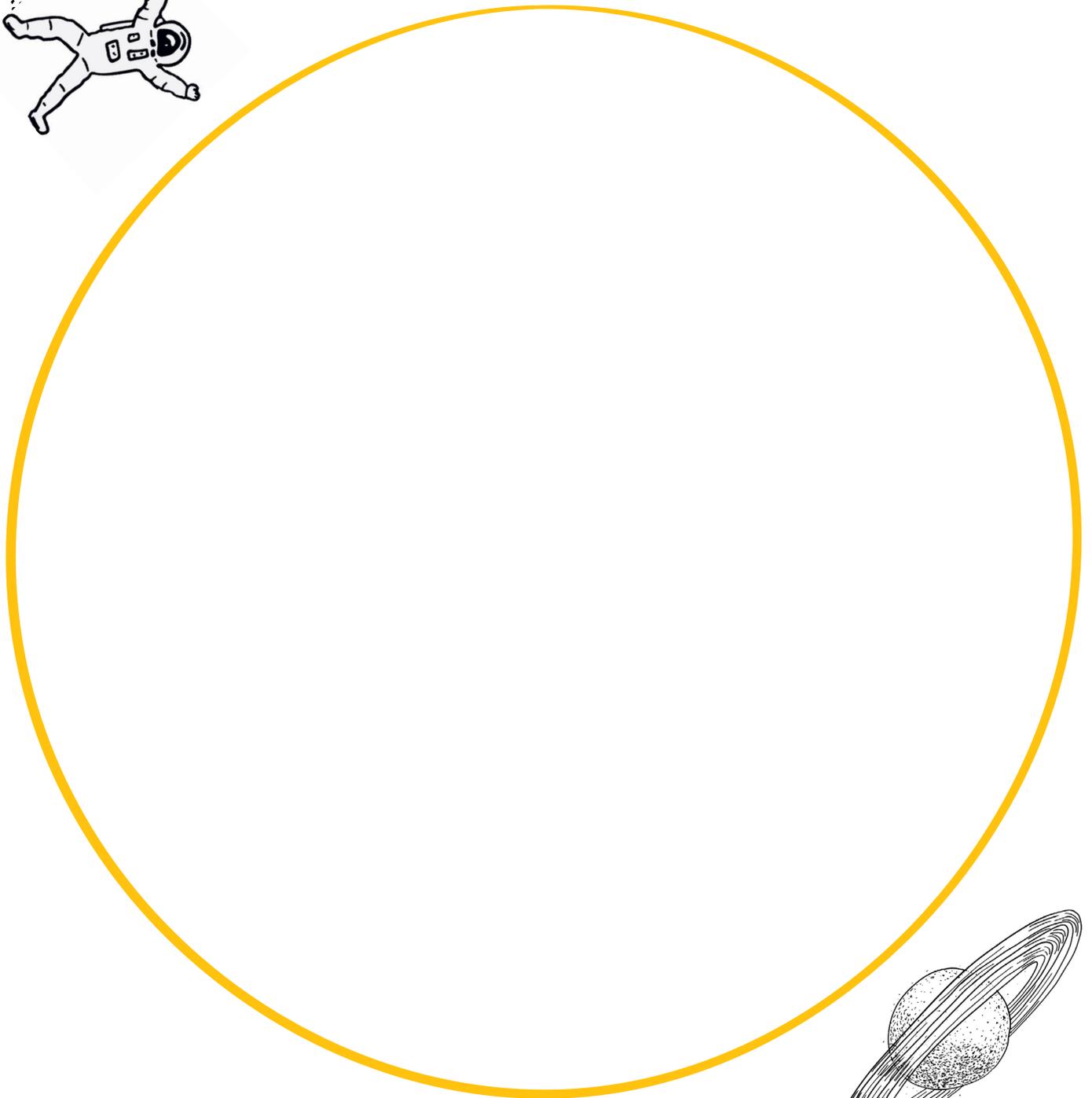
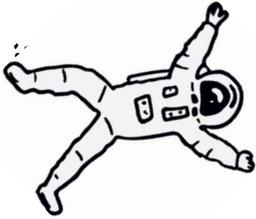
What other people think:

What I like best about my idea:



Design a mission badge for Artemis

Make it colourful, bright and eye catching!



Draw it here!

And when you're ready to think of new ideas....

Use the activities in the resource packs, such as...

Character profiler

Use this profiler to give your astronaut a personality! What do they like, what annoys them? Every astronaut is different.

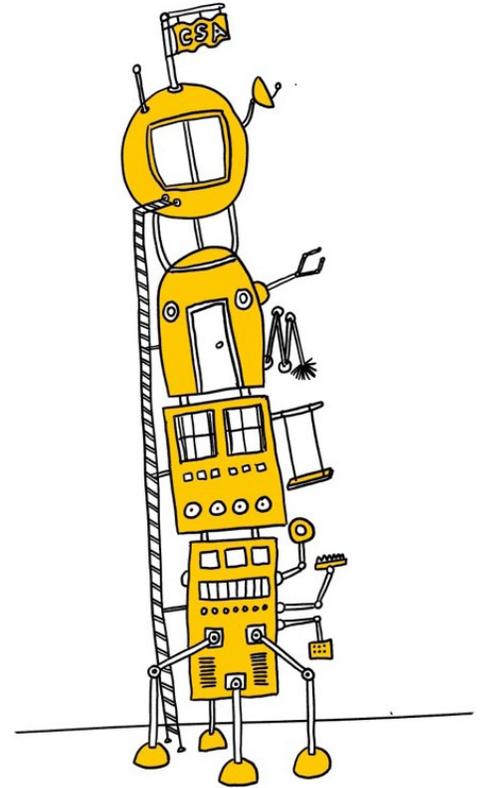
Moon mind map

Use this mind map to think of ideas about how to live on the moon and what problems we might face.

Mission moon

Use this sheet to explore specific ideas or features of the moon.

And plenty more...



Invention ideas log

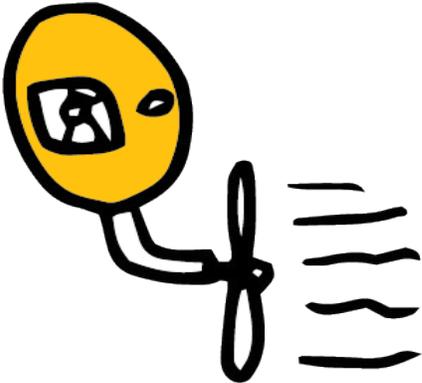
Other inventions I want to draw:

Challenges I want to solve:

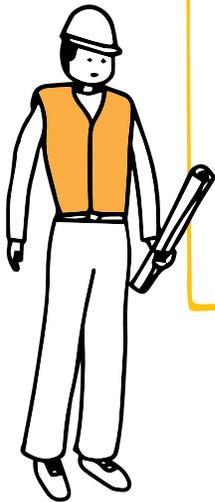
People I want to help:

From 2D to 3D!

Drawing is a fantastic way to capture your ideas when inventing, and it should always be the first step. Now we need to propel your ideas into the next dimension – from the paper into reality – from 2D to 3D!



The first step to a real invention is to make a model of it. This is called prototyping. It doesn't need to actually work, it's really to start seeing how your object could look as a real thing.



Designers, architects and artists all do it. They get messy with materials to feel what their idea is like in their hands before they embark on a project, and they spend quite a long time making models to make sure they get it right.

It's a lot of fun! So let's get making!

What you need

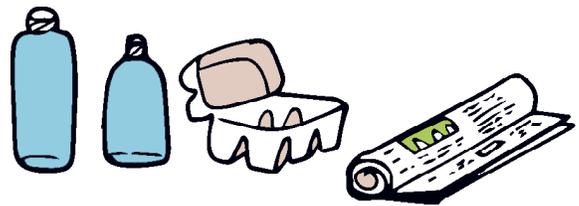
Making prototypes doesn't need special materials or skills.

You can find lots of things around the house that you could use (but make sure it's OK with a grown-up!). For example, cardboard is great. It's everywhere and you can cut it, roll it, squish it and fold it into pretty much anything!



Keep empty cereal boxes, egg cartons and toilet paper and you will have some ready-made shapes to play with. What a fun way to recycle!

You could use cardboard packaging, old shoe boxes, paper plates or paper cups of different textures and thickness.

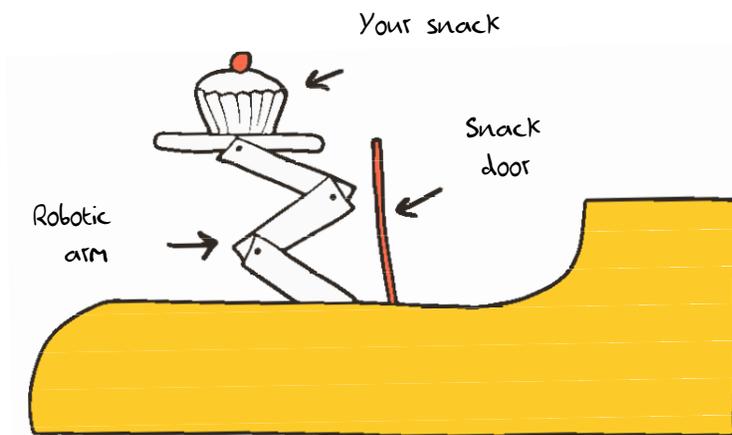


These are just some of the things you could use, but the list doesn't have to stop there. It's another chance for you to use your imagination!

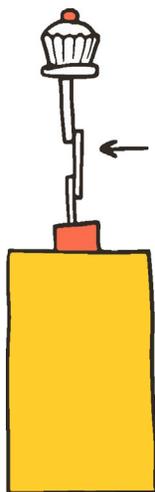
Thinking in 3D...

Once you have your invention drawing, it's a good idea to think about how it will look from different sides. This will help you to start imagining what it will look like as a real object.

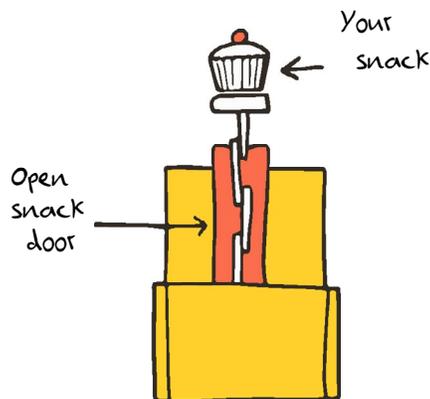
Chief Inventor Dominic invented **the snack shoe!**



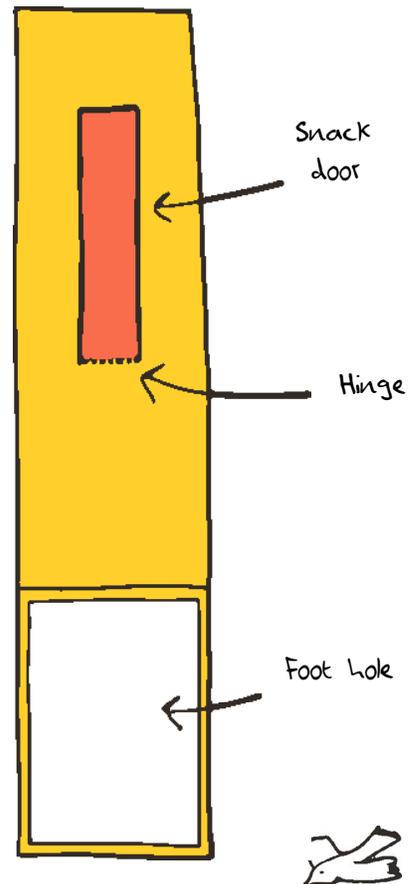
Side view



Back view



Front view



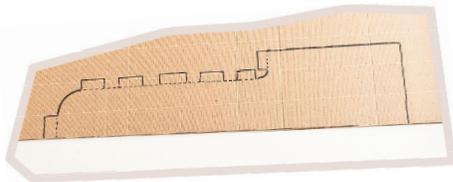
Bird's-eye view

"Sometimes you get hungry but there are no shops around. This way I can always have a quick snack when I need it."

Prototyping the snack shoe!

Before he started, Dominic had to think about how big his invention was going to be. He wanted it to be a life-size version!

1. Draw the outline of the side of the shoe.



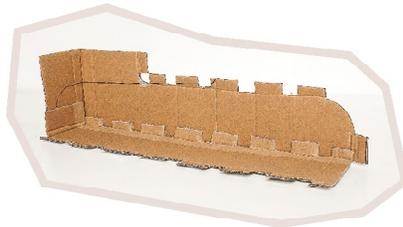
2. Cut it out!



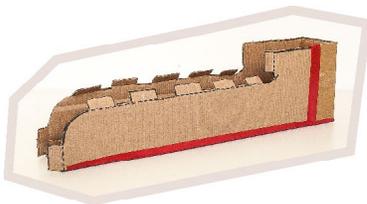
3. Use the first shape as a guide to draw and cut all the parts you need.



4. Glue the parts together.



5. Add tape to secure the parts, and for decoration!



6. Use scissors to make holes and tie all the arm pieces together with string.



7. Tape to the inside of the shoe.



~~~~~  
You're done!  
~~~~~

TOP TIP:

You can see me making the snack shoe at littleinventors.org



Plan your prototype



Before you make a model of your invention, it's a good idea to think about how it will look from different sides:

Front view

Side view

Back view

Bird's eye view

Think about:

- the materials you might use (think recyclables!)
- the size of your prototype
- the shapes and elements
- that make up your invention
- the way they connect together

Now you're ready to get making!

Now get making!

By creating a 3D model of an invention idea we can start to make more decisions about its design.

We can see if it should be bigger or smaller, more angular etc. We can find out if our idea on paper works in reality, or if it needs to be altered to work better.

Then it's really about **getting started and having fun!**

Think about:

- *the size of your prototype*
- *the shapes and elements that make up your invention*
- *the way they connect together*

Some fun techniques you could try:

Layering



Slotting



Bending



Texturing



What have you learned about your invention?

Having a go at making your idea into a 3D object can seem daunting, but it will also help you continue thinking about your idea.

You will figure out what works best and what works less well. And that might make you think about how you can improve on your original idea!



Remember: everything you do is helping you to understand your idea better, so you can take it even further – and who knows, maybe even make it into a real working prototype too!

TOP TIP:

Some people also like to start inventing just by playing with materials!

