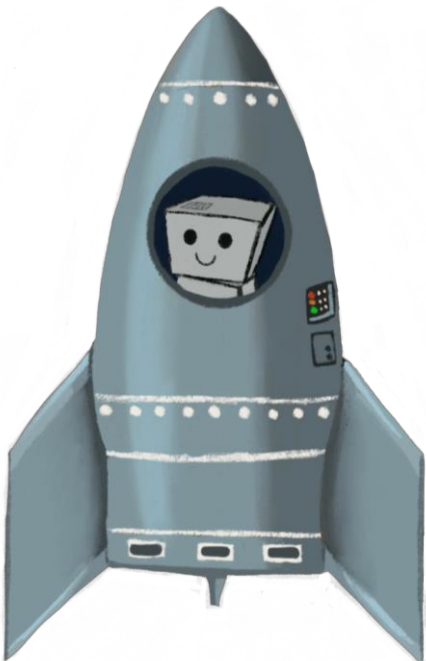


# maths on toast

the family maths charity



Summer Fun 2022

# Introduction

We are Maths on Toast - the family maths charity and we are delighted to be providing these creative family maths resources for use at home, at school or in the community.

## A little bit about us:

### Our Vision

We want everyone to feel #positiveaboutmaths – to feel that it is something they can do, and enjoy.

### Our Mission

To make maths a creative, enjoyable, fun activity for families and communities.

### Our Approach

Our hands-on maths resources and activities combine creation, craft and colouring with games and puzzles to offer maths to explore and discover as a family.

The resources inside this pack are designed for children aged 4 -12 and their families.

By taking part in these maths activities together you will be building positive experiences of maths – improving children's confidence in maths – to see it as something they can do. So, explore the ideas and remember there's not always a 'right' way of doing it!

Children will discover that maths is everywhere and in everything - increasing their interest and enthusiasm for maths.

## Maths on Toast Top Tips:

- Have fun!
- Let the children lead the activity
- It's good to make mistakes – that's how we learn
- Try and do the activities together

For more maths fun visit [www.mathsontost.org.uk](http://www.mathsontost.org.uk)

Don't forget to share your creations and comments on Twitter, Facebook or Instagram tagging @mathsontost using #positiveaboutmaths



# Summer 2022 Activity List

Title	Area of Maths	What you need?
Little Robot	Shape	Glue, scissors, pens
Moon Rock Cakes	Measure/Number	Self-raising flour, margarine, caster sugar, chocolate chips or currants, an egg, water, baking tray
Build a Rocket	Measure/Data	Scissors, pens, tape, straws, ruler or measuring tape
Pocket Solar System	Measure	Strip of paper/ pens
Doodling Stars	Shape	Pens
Phases of the Moon Game	Number	Pens, scissors, glue, counters(optional)

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# Little Robot and The Moon



Night time was a lonely time for Little Robot, the earth fell silent as everyone slept. Until one evening, the moon appeared all alone in the dark night time sky.

“Perhaps space is a lonely place too!” thought Little Robot.

“Hello Moon,” she shouted.

But the moon didn’t reply.

She waved.

But the moon didn’t wave back.

Disappointed, Little Robot started to walk home.

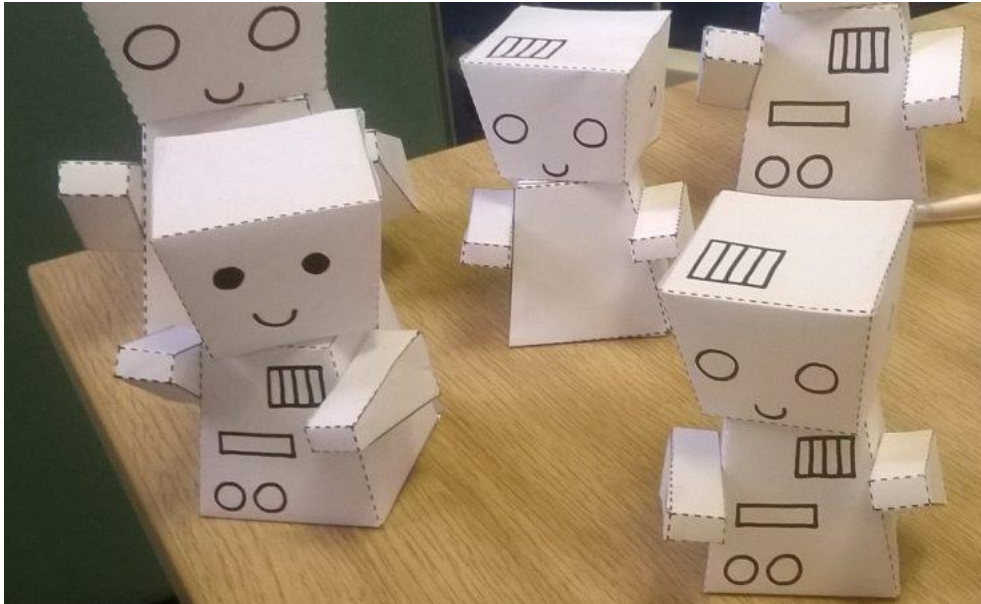
But the moon followed.

In fact, everywhere that Little Robot went, the moon followed behind. Little Robot was no longer alone.

# Little Robot

A polygon is a straight-sided shape. Little Robot is made from 24 polygons (can you count them?)

## Make your own Little Robot



### What to do:

1. Print, trace or copy the template
2. Colour or decorate your robot
3. Cut out all the pieces along the solid lines
4. Score and fold the pieces along the dotted lines
5. Glue the tabs in order: 1, then 2, then 3 and so on
6. Glue the robot's head to its body
7. Glue the arms either side of the body

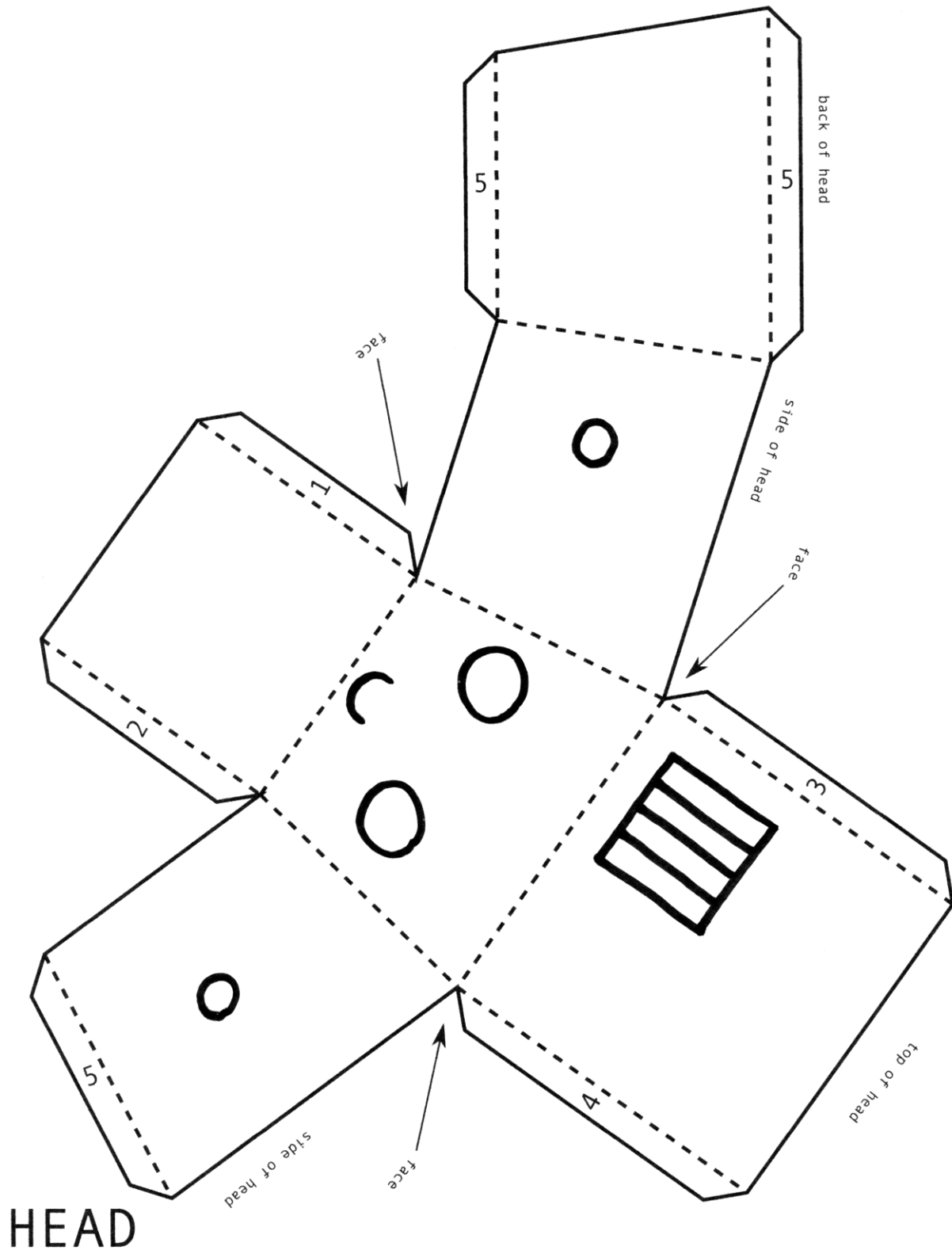
### Why's this maths?

In making Little Robot you're seeing how flat shapes come together to make 3D shapes – a maths skill. There's also counting, logic, and figuring out. If you want to take it further you can make more parts for your robot... making it more and more complicated.

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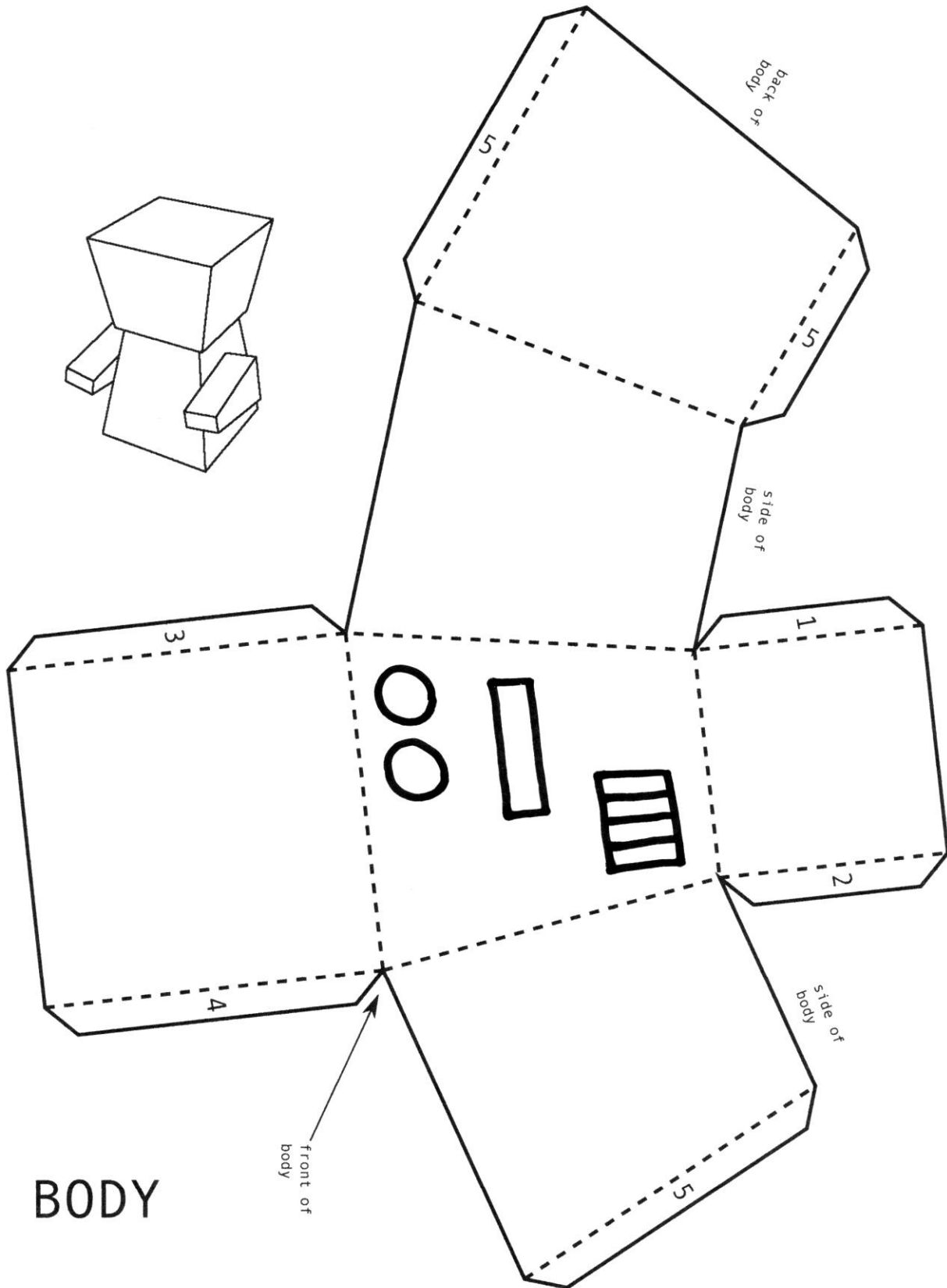
# Little Robot Template 1



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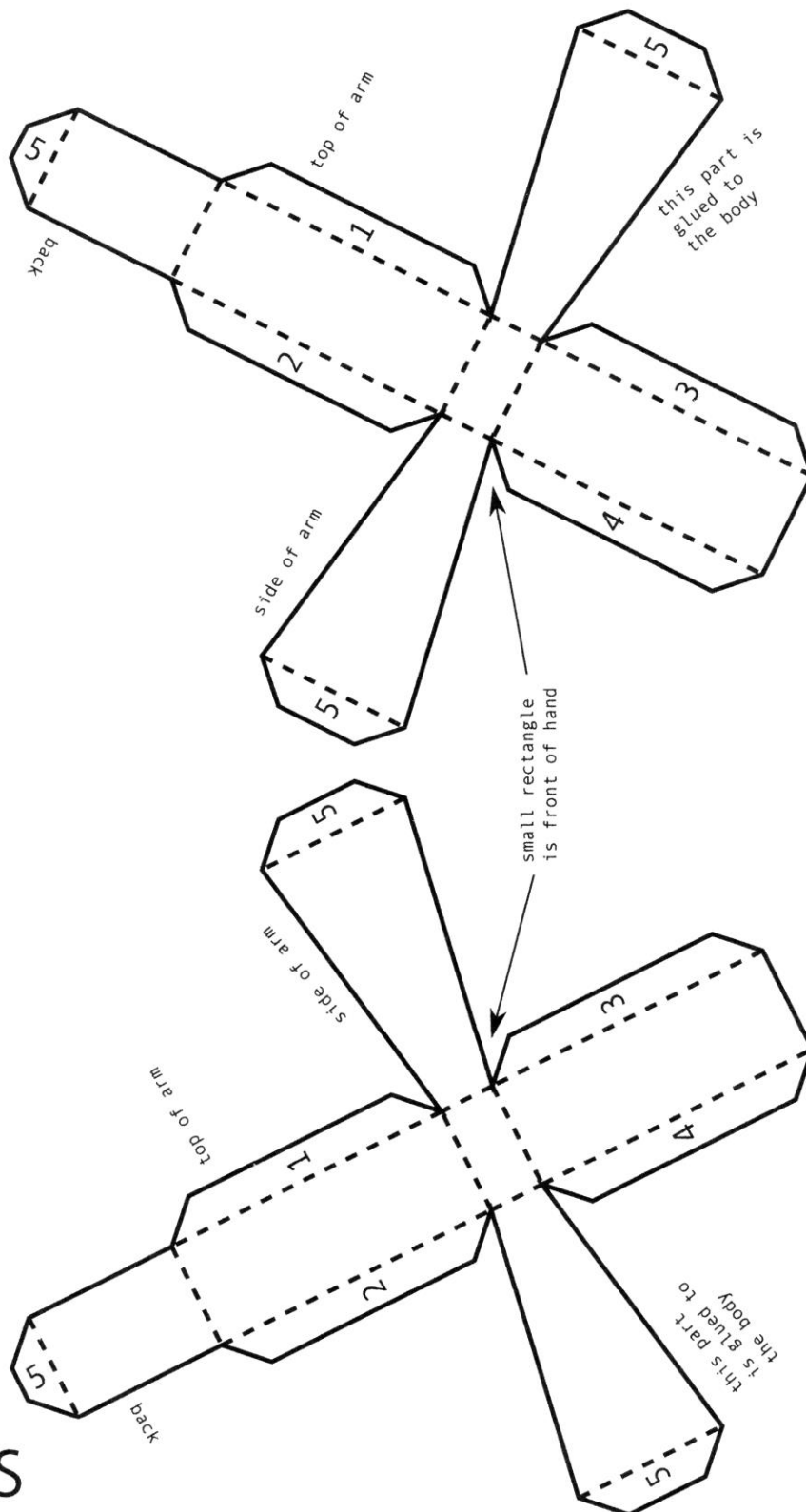
# Little Robot Template 2



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# Little Robot Template 3



ARMS

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# Little Robot and The Moon



Over the following weeks Little Robot and the moon did everything together.

Little Robot sang.

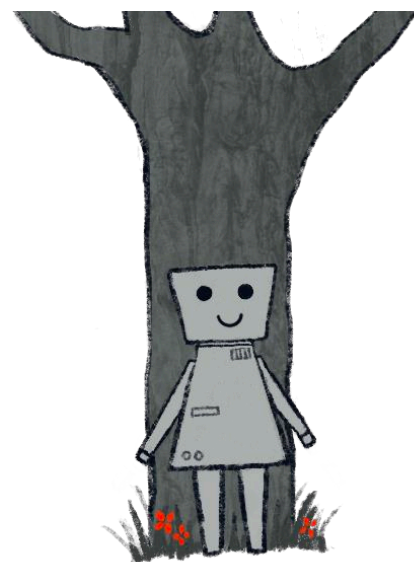
The moon listened.

Little Robot hid.

The moon found her.

Little Robot baked cakes.

The moon watched, always in silence.



For more fun activities visit [www.mathsontoast.org.uk](http://www.mathsontoast.org.uk)

# Moon Rock Cakes

## What you will need:

200g self-raising flour  
75g margarine  
75g caster sugar  
50g chocolate chips or  
currants  
1 egg  
1-2 tablespoons water

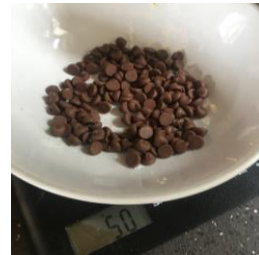


## No kitchen scales? No problem!

1 cup self-raising flour  
 $\frac{1}{2}$  cup margarine  
 $\frac{1}{4}$  cup caster sugar  
 $\frac{1}{2}$  cup chocolate chips or  
currants  
1 egg  
1-2 tablespoons of water

## What to do:

1. Set oven to 210 °C / gas mark 7. Grease a baking tray.
2. Place the flour into a mixing bowl.
3. Rub the margarine into the flour using your fingertips (it might be easier to cut the margarine into cubes first). The mixture should look like breadcrumbs.
4. Add the sugar and chocolate chips/currants and mix well.
5. Break the egg into a small bowl, beat with a fork and then add to the mixture. If the mixture doesn't stick together, try adding 1-2 tablespoons of water until quite firm.
6. Place heaps of the mixture on the baking tray. Make sure that they are all an even size. Bake them for approximately 15 minutes, or until golden brown.



## Why's this maths?

You are measuring and weighing ingredients, perhaps converting one measurement to another.

You will be thinking about timings, comparing shapes and sizes, counting cakes and sharing (dividing) between family members or friends.

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# Playdough Moon Rock Cakes

## What you will need:

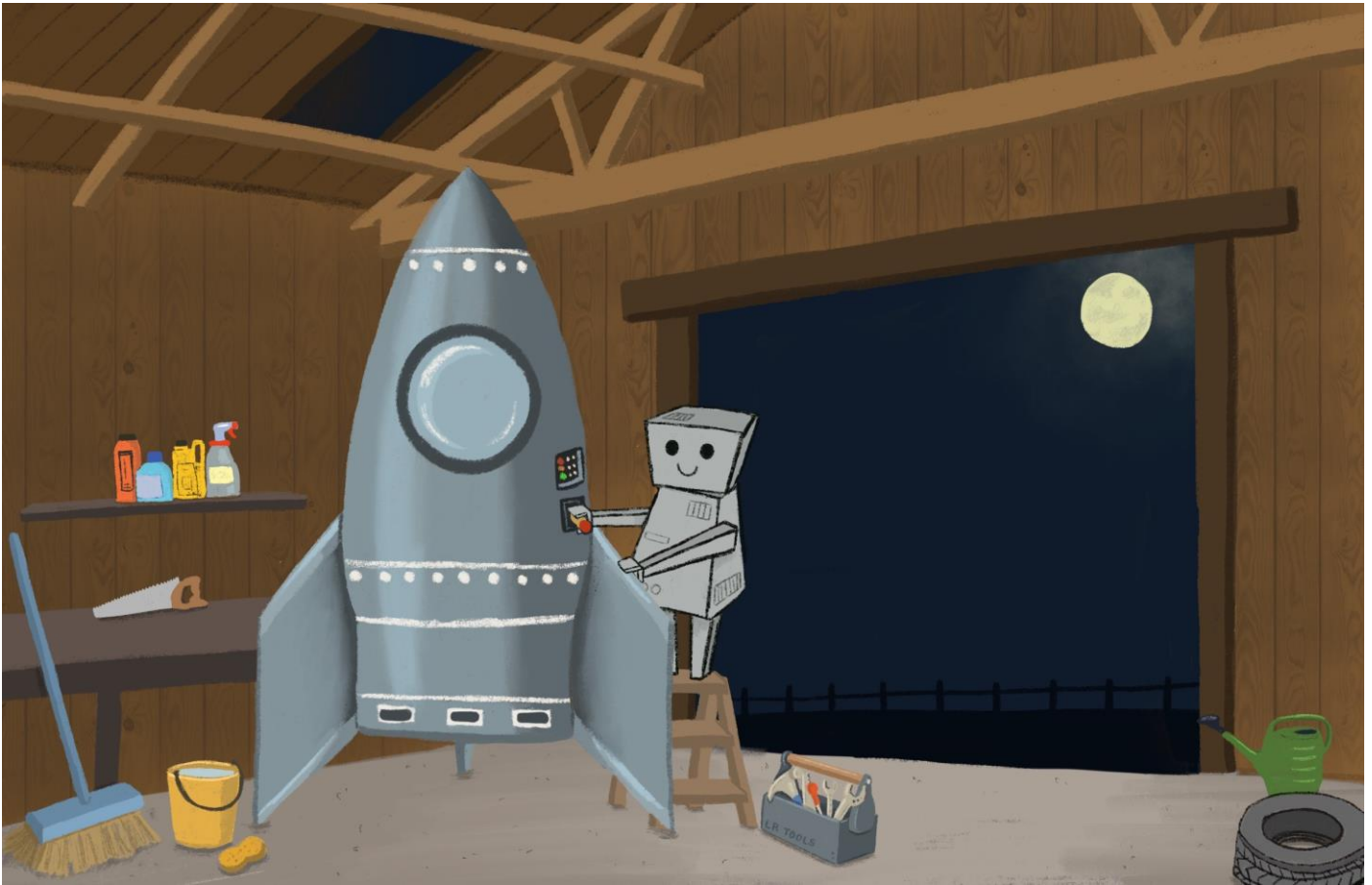
8 tablespoons plain flour  
2 tablespoons table salt  
60ml warm water  
A few drops of food colouring  
1 tablespoon vegetable oil



## What to do:

1. Mix the flour and salt in a large bowl. In a small bowl mix the water, a few drops of food colouring and the oil.
2. Pour the coloured water into the flour and salt. Mix using a spoon to form a dough.
3. Dust a work surface with a little flour and turn out the dough. Knead for a few minutes until smooth and soft. If you want more colour, work in a few extra drops of food colouring.
4. Mould your playdough into rocks (or anything else you fancy).
5. Store in a small plastic bag (squeeze out the air) in the fridge to keep it fresh.

# Little Robot and The Moon



Little Robot wanted to get a message to the moon. But the moon was so far away.

She made a huge poster.

It looked like a dot to the moon.

She used a megaphone.

It sounded like a faint whisper to the moon.

She catapulted a note.

It felt like a speck of dust to the moon.

Little Robot had a plan. She would fly a rocket to the moon!



For more fun activities visit [www.mathsontoaast.org.uk](http://www.mathsontoaast.org.uk)

# Build a Rocket

What to do:



1. Decorate a rocket template.

**No printer? No problem!** You can trace a rocket or draw your own!



2. Use tape to attach a wide straw to the back, making sure you also seal the top end of the straw with tape.

**Please remember to use eco-friendly straws!**



3. Slip a longer, narrower straw into the wider straw.

4. Blow into the long straw to launch the rocket and measure the distance travelled.

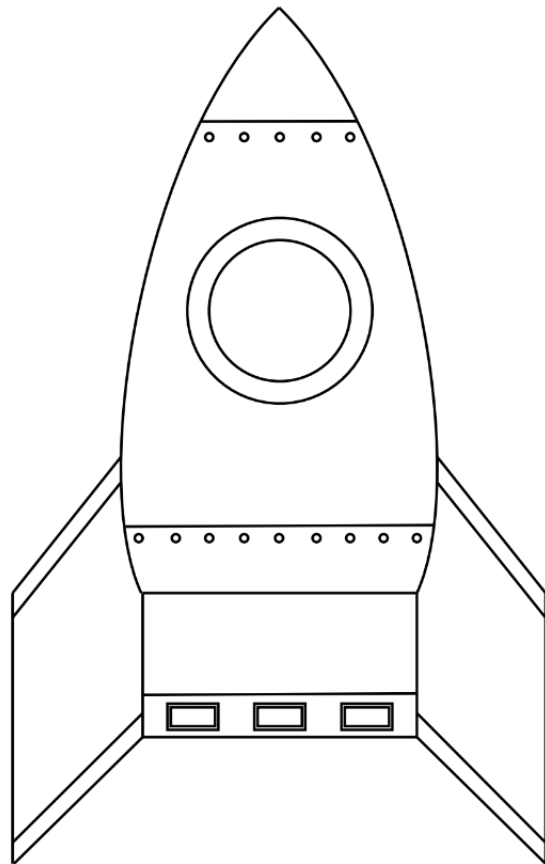
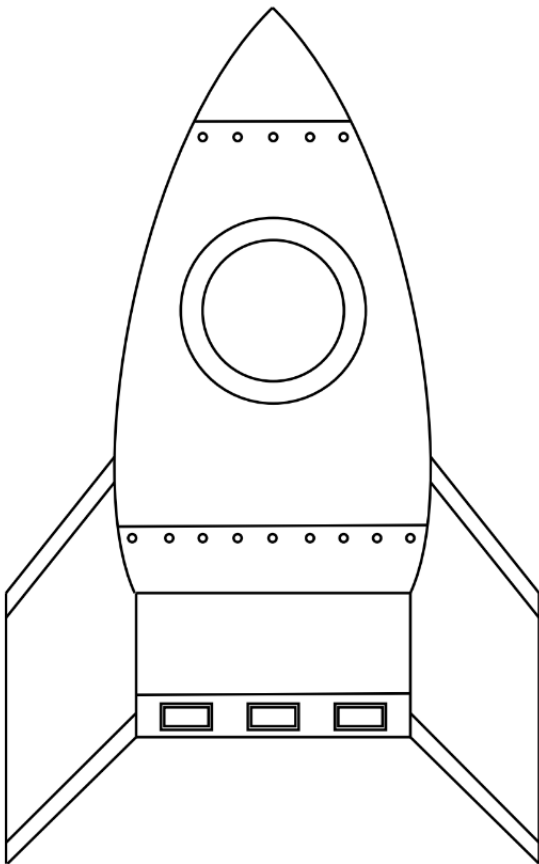
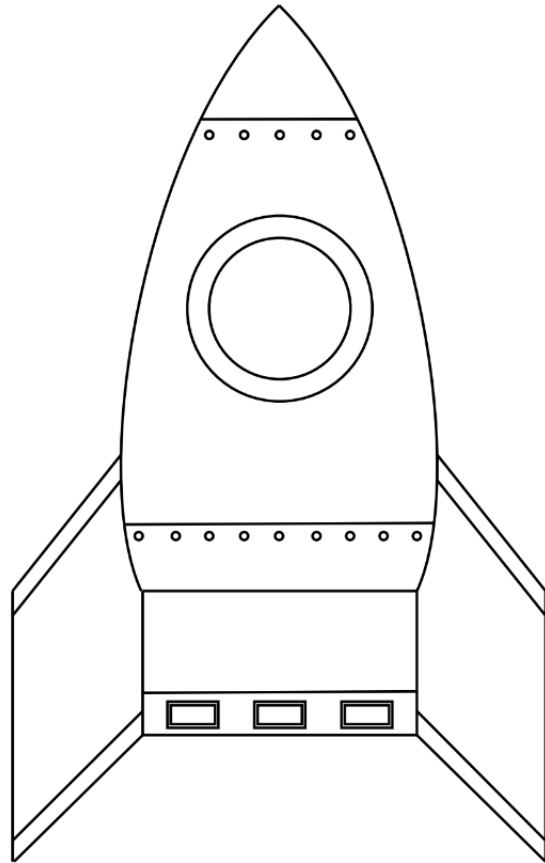
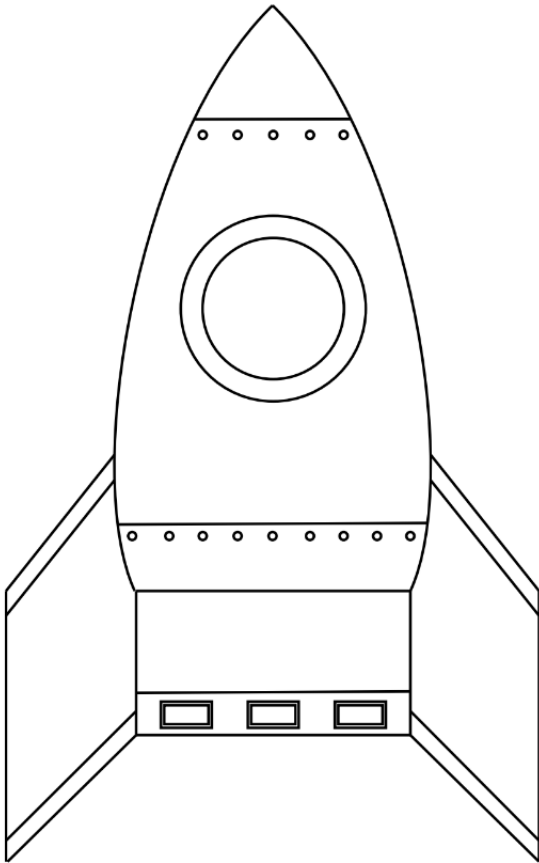
## Why's this maths?

You are measuring the length of objects and distances and selecting appropriate tools.

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# Build a Rocket

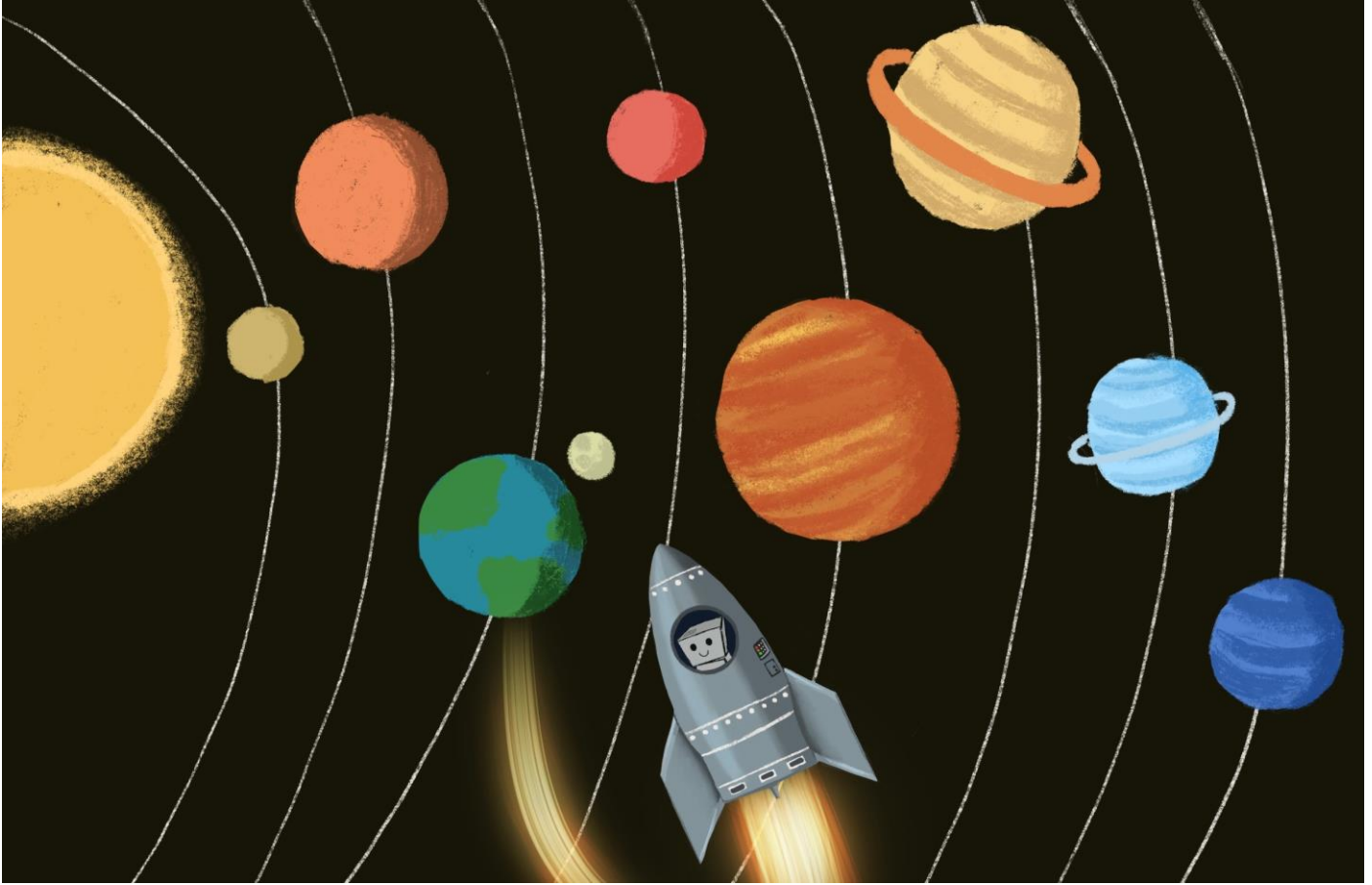


buggyandbuddy.com

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Don't forget to share your creations and comments on Twitter, Facebook or Instagram tagging  
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# Little Robot and The Moon



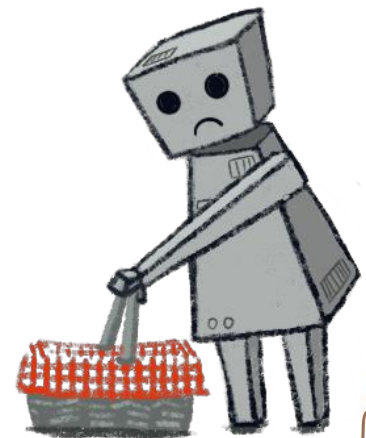
Little Robot packed a fresh batch of moon rock cakes inspired by her special friend and set off on her journey to space. She whizzed up, up, up into the night time sky in her rocket.

When she reached space Little Robot had a big surprise. Counting Earth there were eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune!

Little Robot thought perhaps there were other robots out there too, so she waved as she passed by.

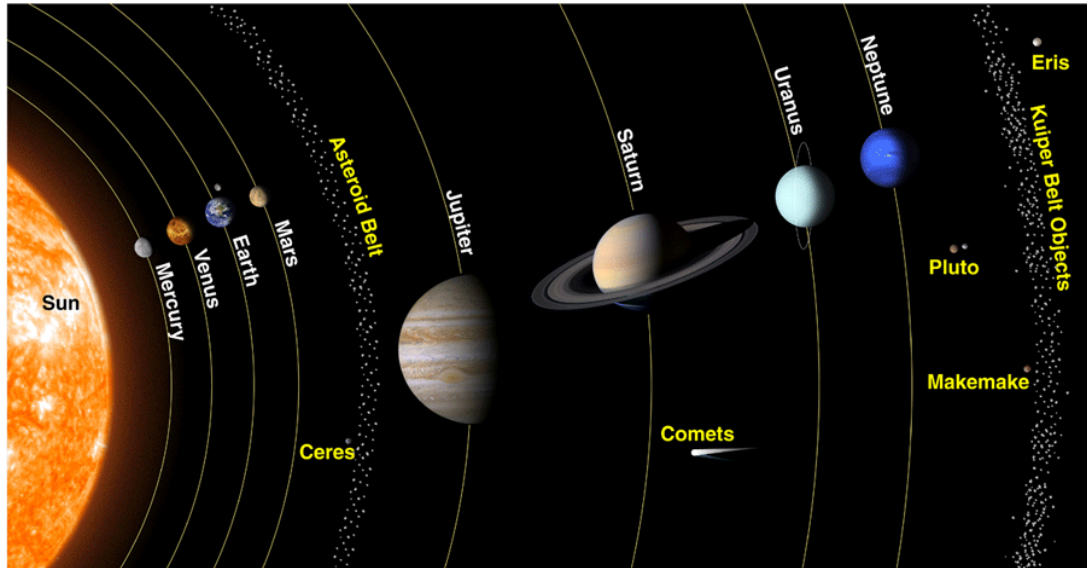
The moon was much bigger than Little Robot thought it would be, so big in fact, that it didn't notice Little Robot stopping by to say hello.

And Little Robot soon realised that her cakes would be more like crumbs for the moon. Feeling sad, she dropped off the cakes and made her way home.



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# Make a Pocket Solar System



It's almost impossible to imagine the distances in the Solar System. The distance from the Earth to the Sun is about 93 million miles (150 million kilometres). An aeroplane travelling at 400 mph (644 kph) would take 20 years to fly that distance!

Now you know why space is called "SPACE"!

We usually use light-years to describe distance in space – light travels at a speed of 186,000 miles (300,000kilometres) a second. So, the sun's light takes about 8.3 minutes to reach us!

We can use scale to help us make a pocket solar system. Scale is the relationship between the real size of something and its size on a map, model or diagram.

**Can you make a scale model of the Solar System? What will you use? Perhaps play dough or papier mâché or a strip of paper!**

## Why's this maths?


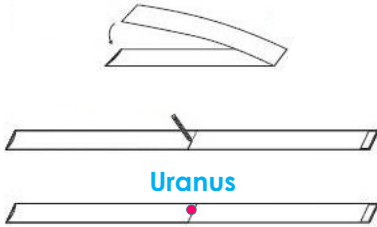
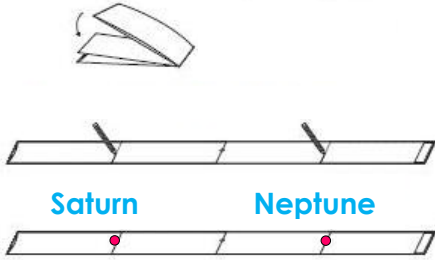
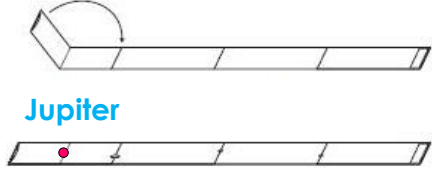

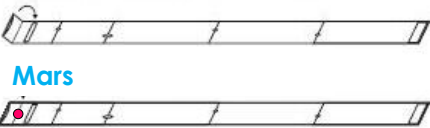
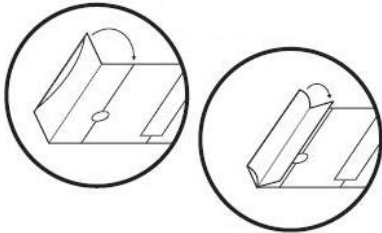


You are exploring the ideas of scale and estimation. It doesn't matter how long your piece of paper, if folded correctly it will always be to scale. Using scale can give an accurate representation of something that in real life would be gigantic

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# Make a Pocket Solar System

 <p><b>1.</b> On a long strip of paper, draw the sun at one end and Kuiper Belt at the other.</p>	 <p><b>2.</b> Fold the paper in half and draw Uranus on the crease.</p>	 <p><b>3.</b> Refold the paper and then fold in half again to make fourths. Draw Saturn and Neptune on the creases.</p>	 <p><b>4.</b> Fold the sun to meet Saturn, then unfold and draw Jupiter on the crease.</p>
 <p><b>5.</b> Now fold the sun to meet Jupiter, unfold and draw the Asteroid Belt on the crease.</p>	 <p><b>7.</b> Fold the sun to meet the Asteroid Belt, then unfold and draw Mars.</p>	 <p><b>8.</b> Fold the sun to Mars and then fold the section in half again.</p>	 <p><b>9.</b> Unfold and you should have three creases to draw Mercury, Venus and Earth.</p>
			<p>Your Solar System is complete!</p>

# Little Robot and The Moon



Back home Little Robot looked up at the moon and felt more alone than ever before.

Having a friend so far away that she couldn't talk to or play with was not much fun.

As Little Robot turned her back on the moon a sudden burst of light filled the sky. Hundreds of stars started twinkling above her and then something extraordinary happened.

The stars spelled out a message from the moon.

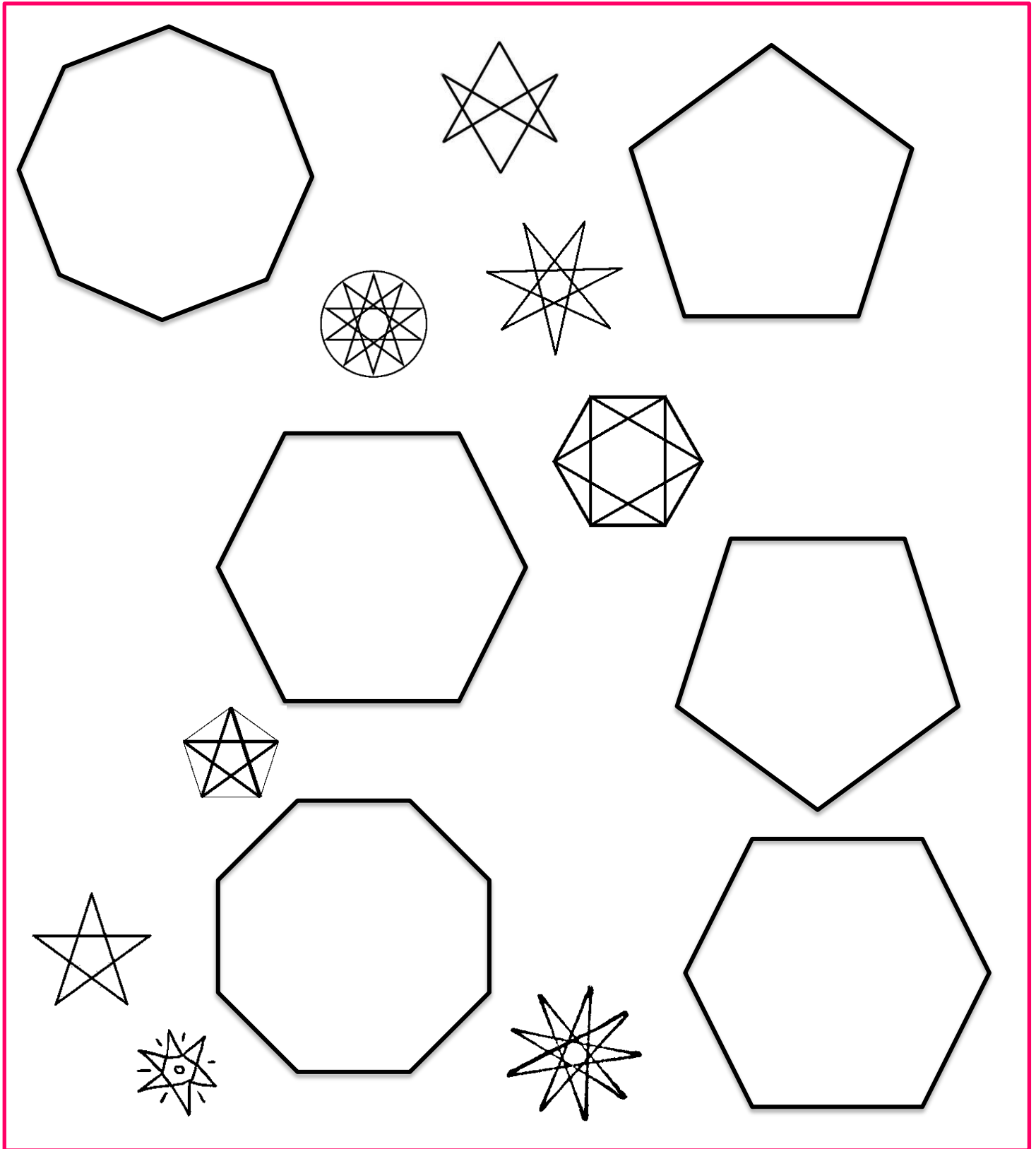
'Thank you'.

It was the most beautiful sight.

# Doodling Stars

- Colour the stars you can see
- Create stars inside the shapes
- Doodle stars in the spaces in between

Look at the next page to find out how!



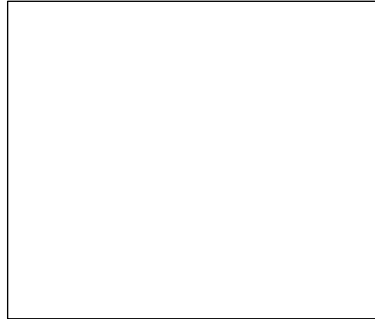
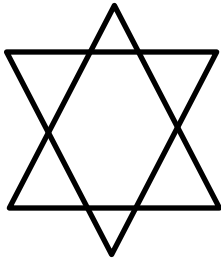
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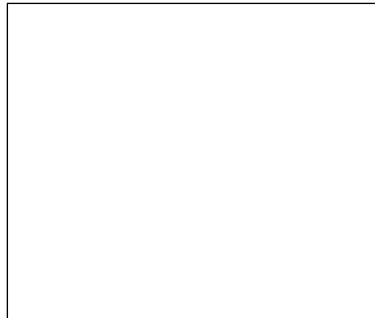
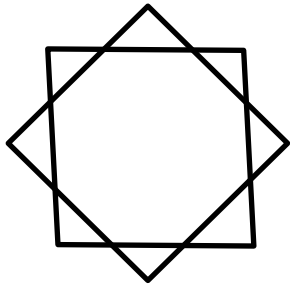
# Doodling Stars

## Try drawing your own stars.

Not stars-in-the-sky stars, but stars you draw on paper. A six pointed star can be made by drawing two overlapping triangles:

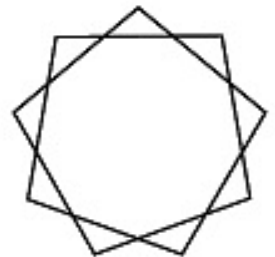
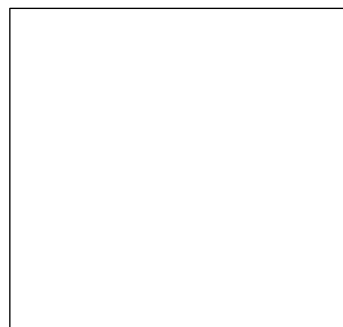
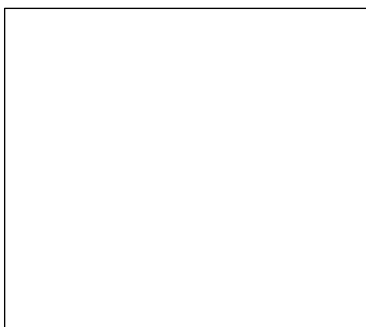


An eight pointed star can be made by drawing two overlapping squares:



## Try drawing a continuous line:

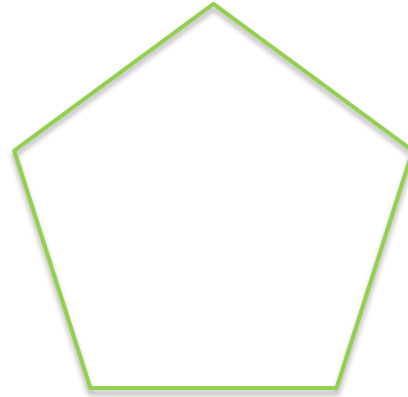
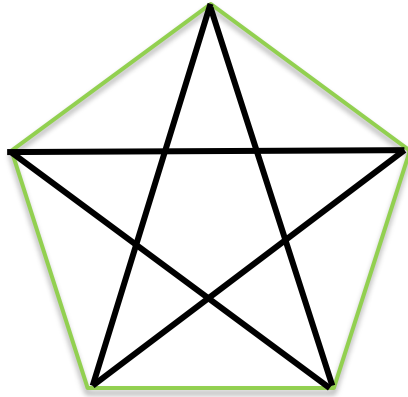
Can you draw a star without taking your pencil off the paper?



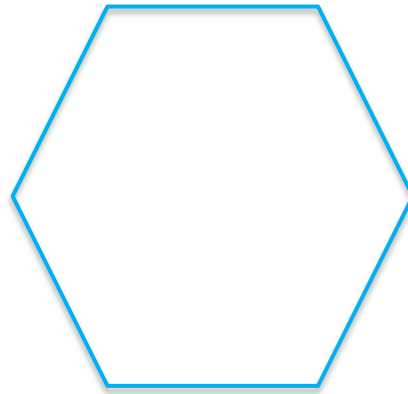
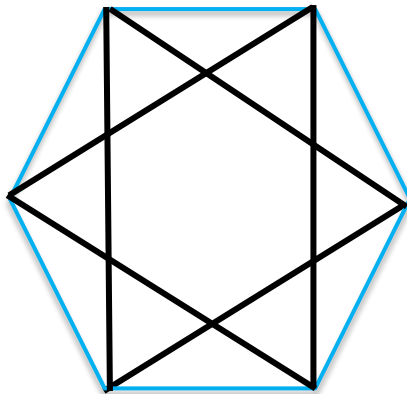
# Doodling Stars

Draw stars inside shapes:

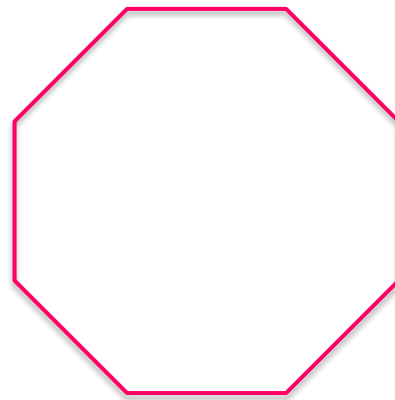
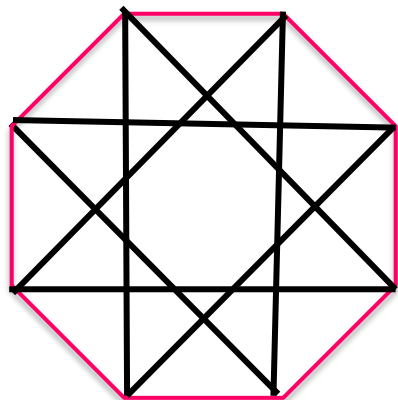
Pentagons



Hexagons



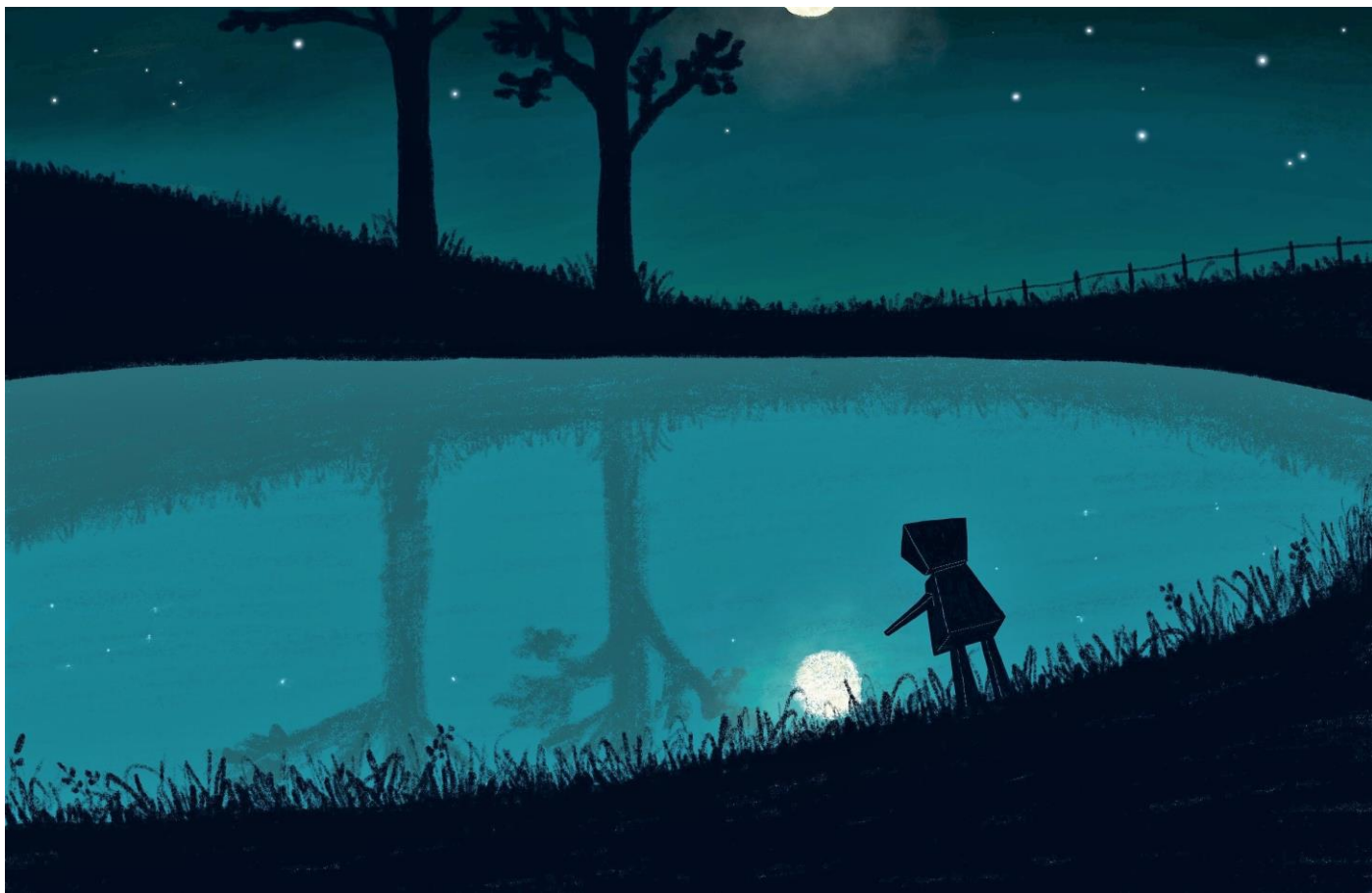
Octagons



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# Little Robot and The Moon



The moon was so far away yet felt so close.

This gave Little Robot an idea!

Now every night Little Robot takes a trip to the pond to sit side by side with her best friend the moon...

# Phases of the Moon Game



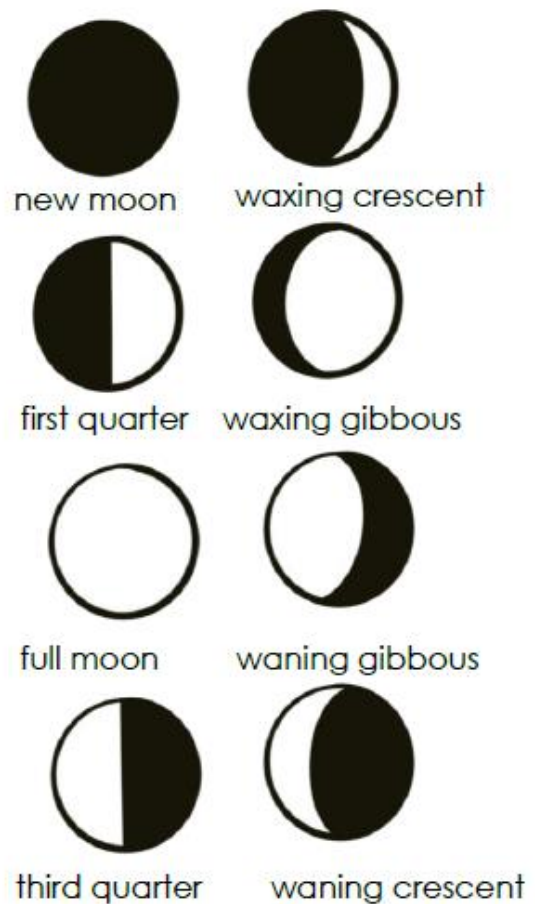
Our moon doesn't shine, it reflects. What we see is sunlight reflected off the moon.

But we can't always see it!

As the moon circles the Earth, we only see a portion of the lit up side. When we see 100% of the lit up side, this is a full moon and when we can't see any of the lit up side, this is a new moon. There are 8 phases of the moon.

- new moon
- waxing crescent
- first quarter
- waxing gibbous
- full moon
- waning gibbous
- third quarter
- waning crescent

Around once a month (every 29.5 days) the phases of the moon make a complete cycle.



Why not play a game to find the phases of the moon (and explore your 8 times table at the same time!)

## Why is this maths?

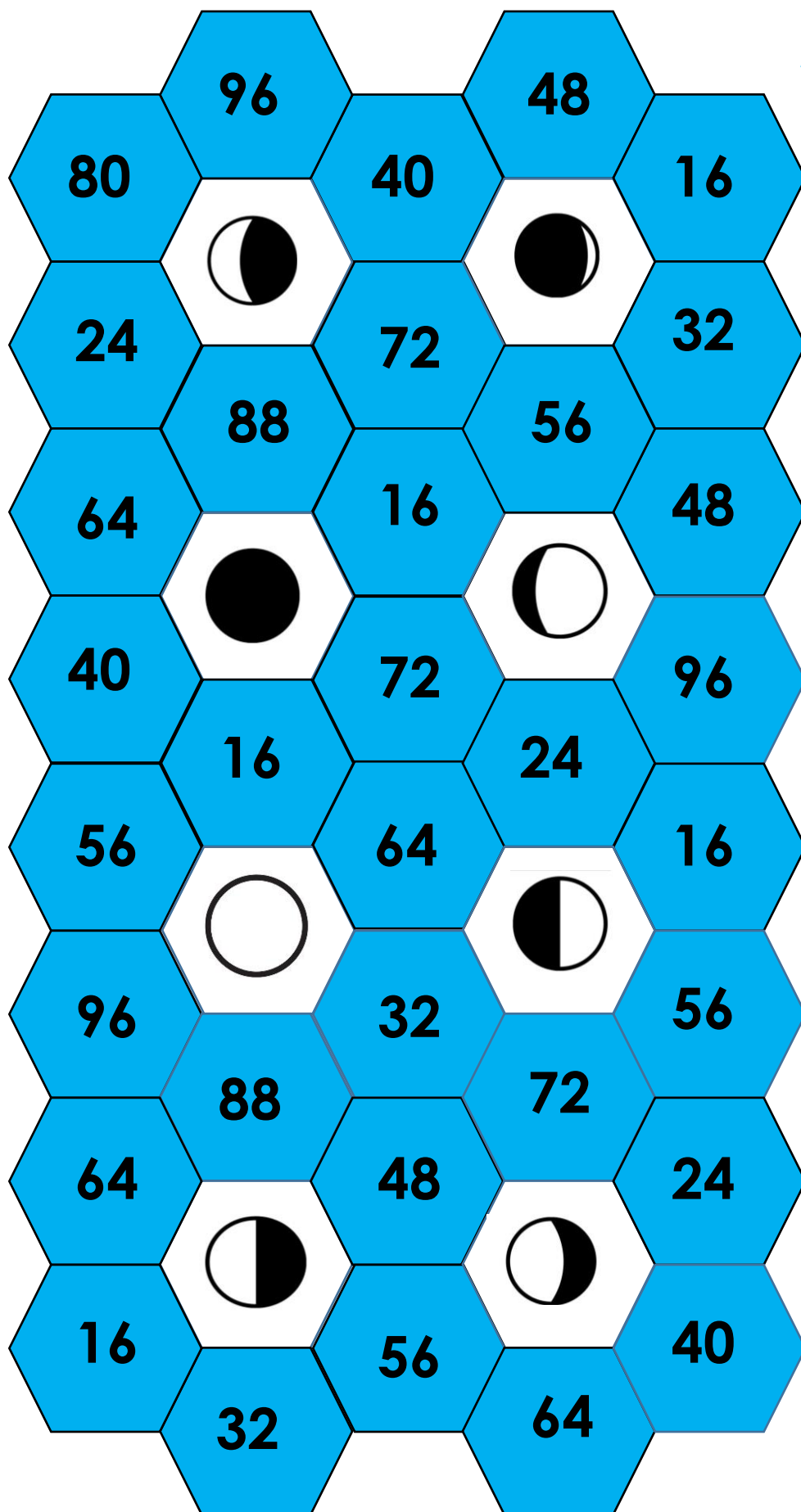
You are thinking about how the moon moves around the Earth and how the appearance of the illuminated half of the moon changes as we look at it from Earth. The moon's phases are a result of the geometry between the sun, the Earth and the moon. You'll also be exploring your eight times table!

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# Phases of the Moon Game

## Multiplication



### What you need:

2 players  
2 dice  
Counters or a pen

### How to play:

Take turns to roll 2 dice

Add the numbers together and multiply the total by 8

Cover the answer on the game board with a counter or cross off with a pen

Keep playing until you spot a phase of the moon (a counter or cross on each space surrounding it)

The player who places the last counter or cross to spot the moon wins!

Adapted from a game by [games4learning.com](http://games4learning.com)

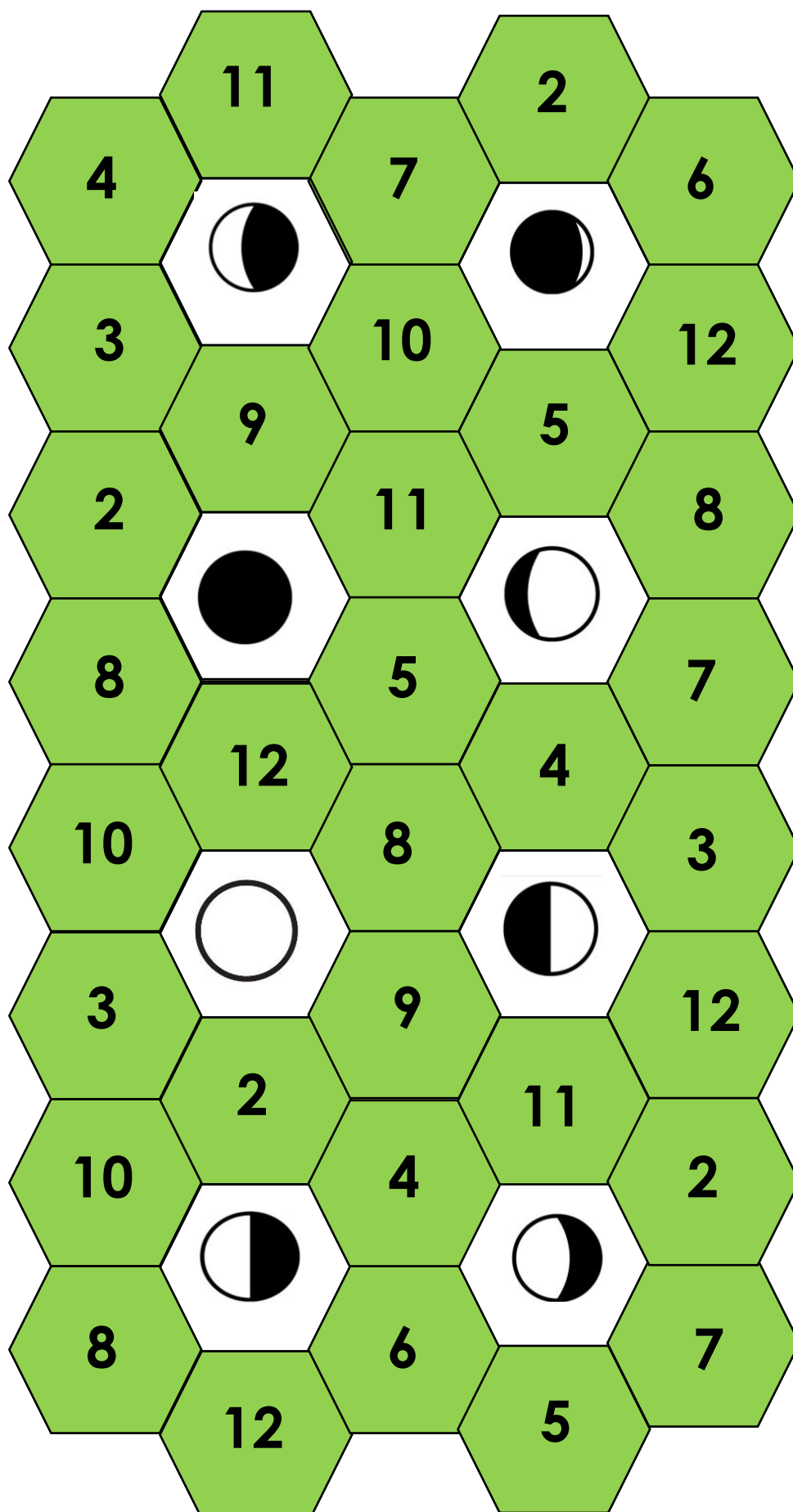
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# Phases of the Moon Game

## Addition



### What you need:

2 players  
2 dice  
Counters or a pen

### How to play:

Take turns to roll 2 dice

Add the numbers together

Cover the answer on the game board with a counter or cross off with a pen

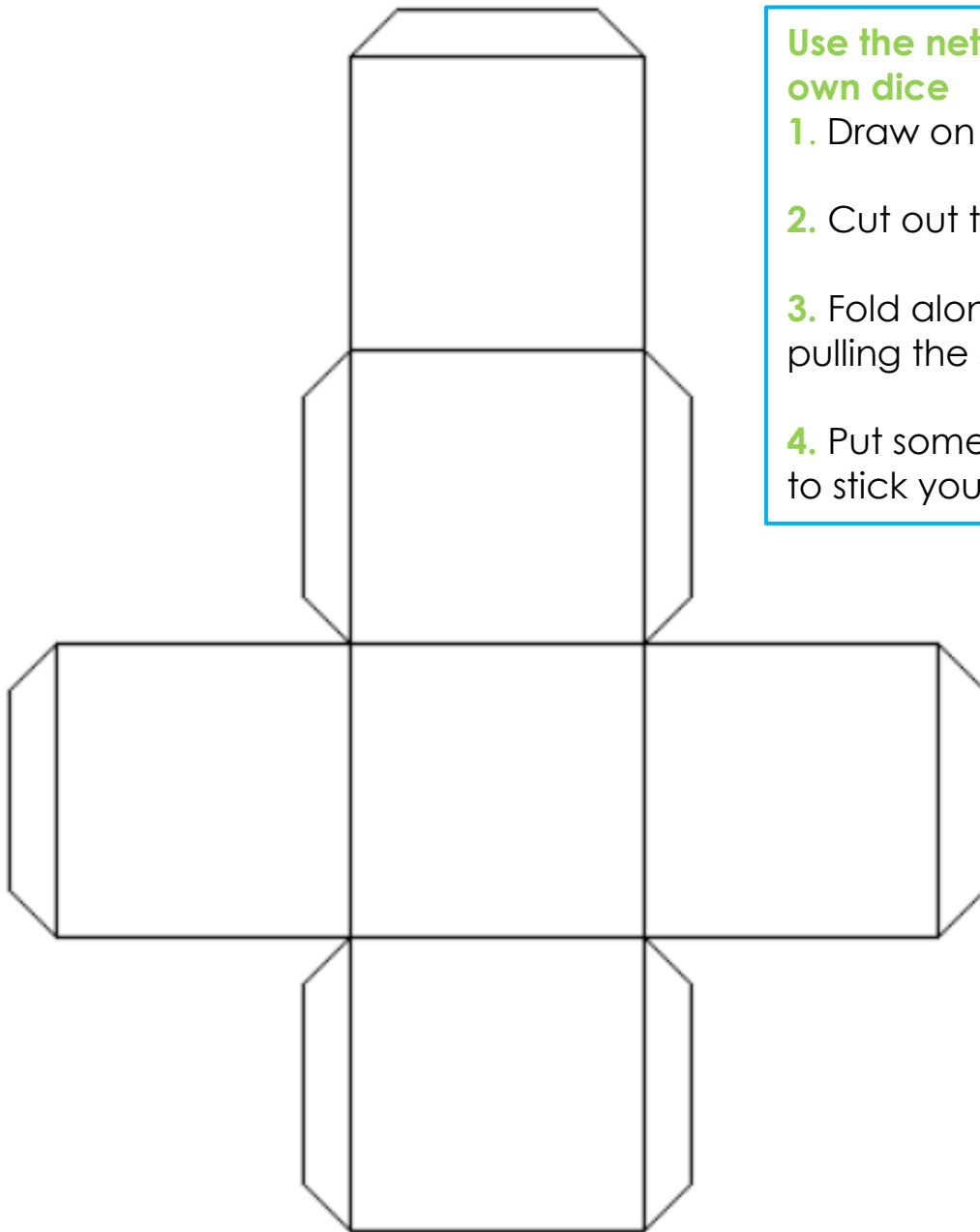
Keep playing until you spot a phase of the moon (a counter or cross on each space surrounding it)

The player who places the last counter or cross to spot the moon wins!

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# Phases of the Moon Game



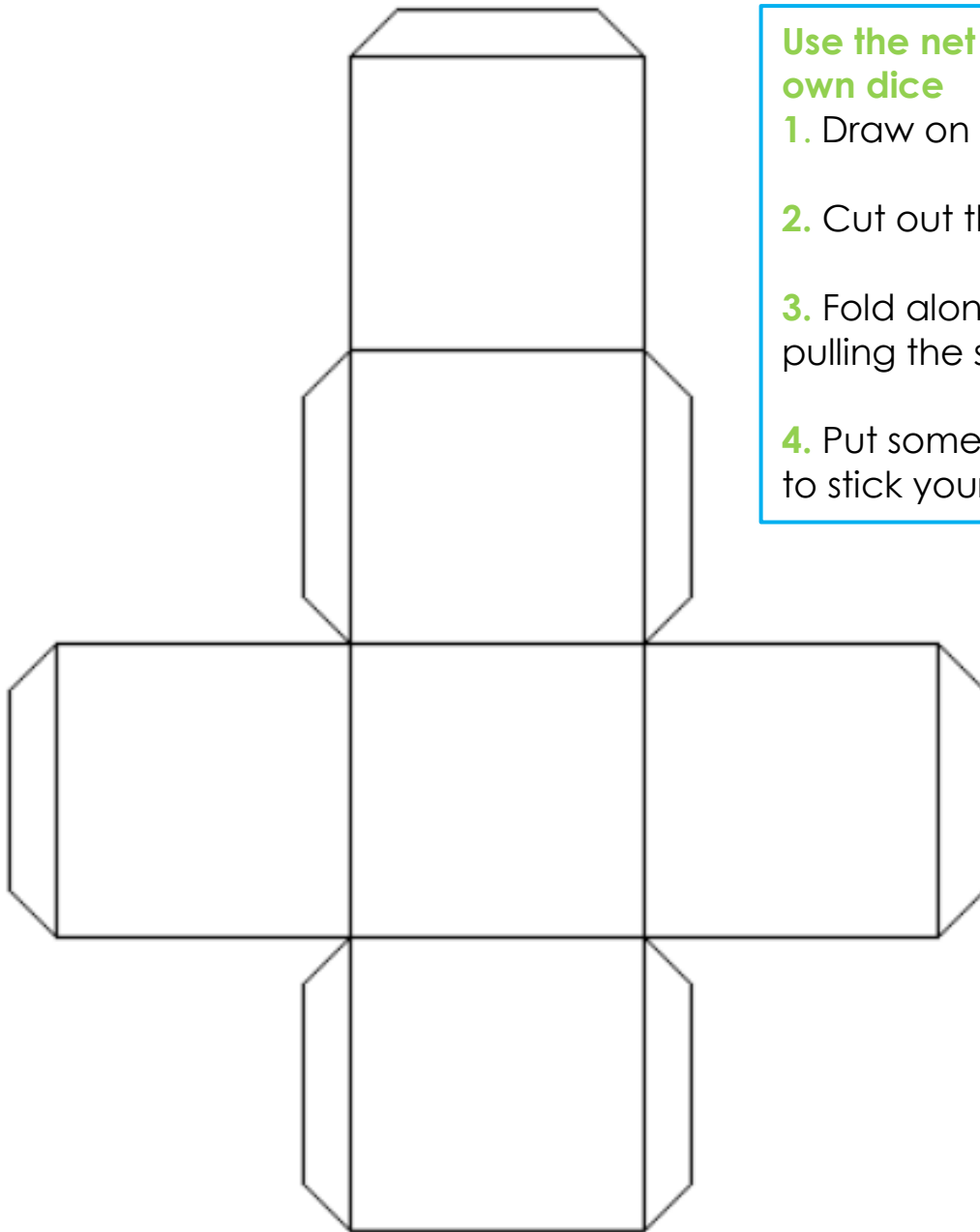
Use the net to make your own dice

1. Draw on the dots
2. Cut out the net
3. Fold along all the lines, pulling the sides together
4. Put some glue on the tabs to stick your dice together

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# Phases of the Moon Game



Use the net to make your own dice

1. Draw on the dots
2. Cut out the net
3. Fold along all the lines, pulling the sides together
4. Put some glue on the tabs to stick your dice together

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