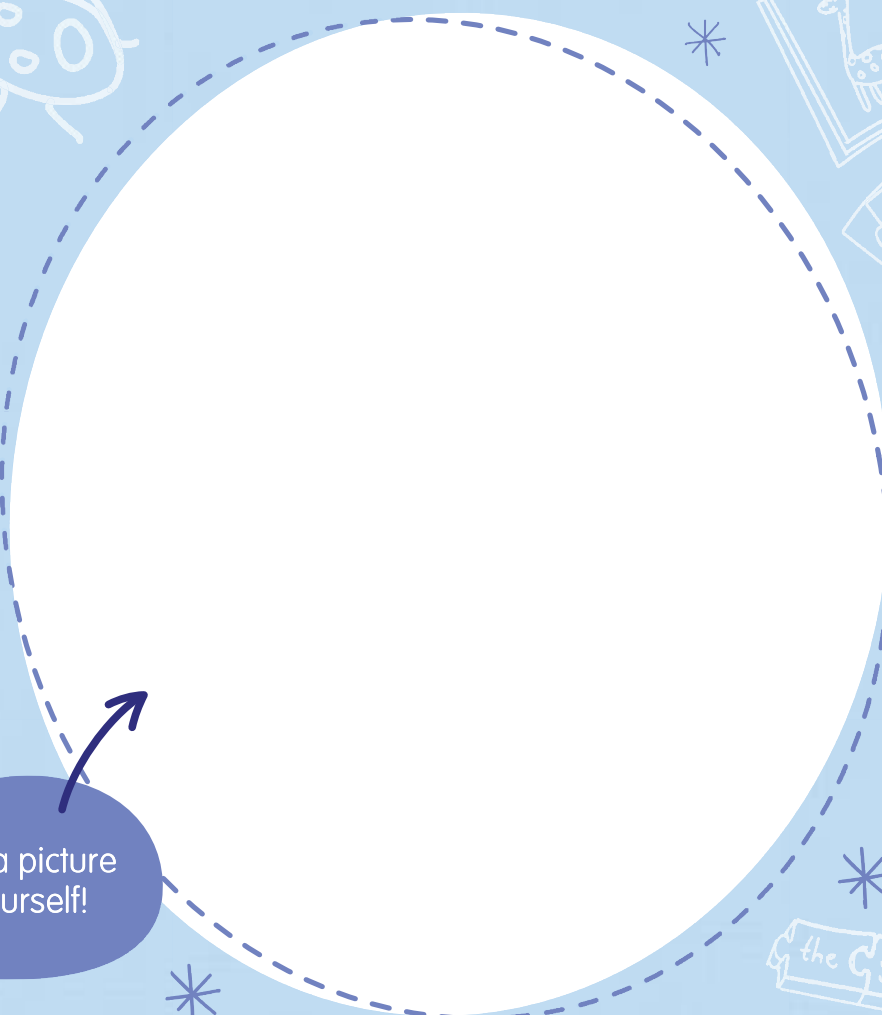




5-7 yrs

MY ACTIVITY BOOK

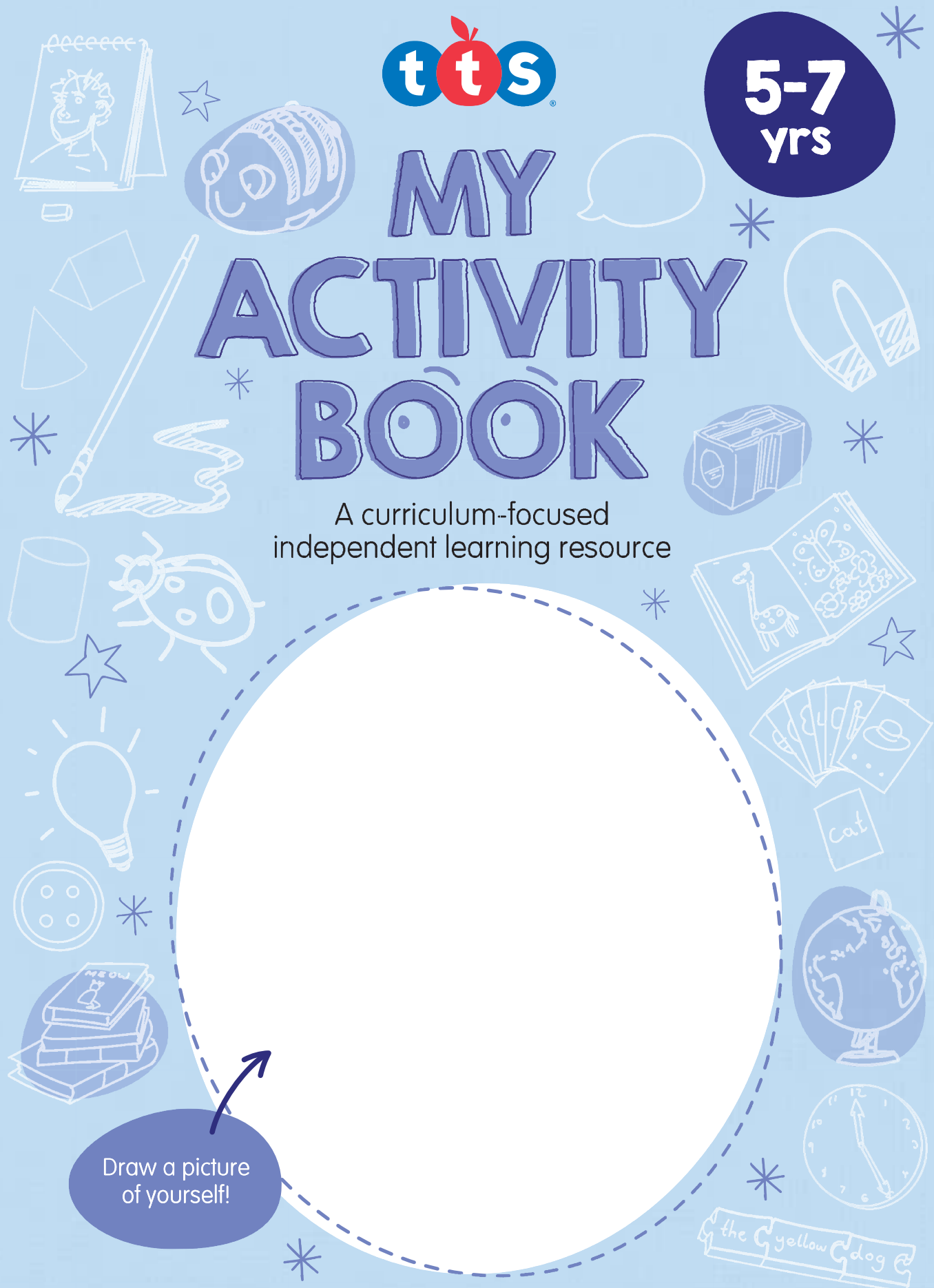
A curriculum-focused independent learning resource



Draw a picture of yourself!

This book belongs to:

Class:



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Introduction

We hope that you enjoy the lessons in this book which have been carefully planned by our TTS Teachers. We have created these to support and compliment the home learning provided by schools. It is in no way intended to replace the brilliant curriculum materials your child's school will have created – but as a little something from us to you to support your child when learning at home.

All resources have been written by qualified teachers and using TTS resources. Please respect our intellectual property by keeping this pack together as it was intended and not republishing it in any way for commercial gain. Please feel free to share the free download with anyone who may benefit from it!

It is recommended that children undertake a Literacy and Numeracy task everyday plus one other lesson from another subject area. The lessons have been designed to be “pick and mix” so you do not need to follow any particular order.

Try to find a quiet place for your child to work, ideally at a table, with limited distractions.

Remember that all children work at a different pace and if you feel they are getting restless move on to another task and you can always revisit an activity later.

Encourage your child with their work and ask lots of questions, some of our lessons offer a great opportunity to learn together and share the experience. Remember to encourage your child to hold their pen/pencil correctly, think about the presentation of their work and take their time.

Use the opportunity of working at home to develop independence, perseverance, problem solving skills and creativity. Children will love the opportunity to show you what they are capable of as they work through the activities in this book. Remember, the most important thing is for children to enjoy these activities and have fun!

Diary

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

The Things I Like

The Things I Like



My name is Sam.

I like to ride on my bike because I like to go very fast.

I like to swim in the sea. It feels very cold.

Sometimes, I like to run very fast. I love to feel the wind on my face.

I also like to read books and play games on my computer.

What about the food that I like? My favourite food is chicken and rice. I like to eat fruit and chocolate.

What do I like to drink? My favourite drink is apple juice and water.

What do you like to do?



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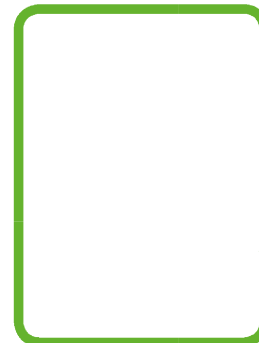
tts

Now you have a go

The Things I Like



This is me!



tts



The Things I Like Questions



- 1. What is the name of this boy?
- 2. Why does he like to ride his bike?
- 3. How does the sea feel?
- 4. What does he like to eat?
- 5. What are Sam's favourite drinks?

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1

2

3

4

5

Tongue Twisters

Red lorry, yellow lorry

Tongue Twisters

Peter Piper picked a
peck of pickled
peppers

Tongue Twisters

Freshly fried flying fish

Tongue Twisters

Black bug's blood

Tongue Twisters

Greek grapes, Greek
grapes, Greek grapes

Tongue Twisters

Crisp crusts crackle
and crunch

Tongue Twisters

Information for Grown Ups

Tricky words do not follow the usual phonic patterns so cannot be sounded out but need to be learned by sight.

If possible, read a version of 'The Three Billy Goat's Gruff' together. Tell children that Tricky Troll is the troll from this story. He is very grumpy and likes nothing better than to trick children by giving them words that are difficult to read and spell!

Play the Tricky Word dice game for 2 players







You will need:

- A dice and counters (of 2 different colours)

How to play

- One at a time, each player roles the dice and chooses one of the words under that number.
- If they read and/or spell the word correctly, they may place a counter over it.
- If there are no words left under the number thrown, miss a go.
- The player with the most counters at the end is the winner.



					
I	no	go	the	to	into
he	she	we	me	be	you
are	her	was	all	they	my
said	have	like	so	do	some
come	little	one	were	there	what
when	out	Mrs	people	asked	could

Timmy the Tooth

Timmy the Tooth

I'm Timmy the Tooth
I'm shiny and white
I like you to brush me
Both morning and night
I'm very important
When you need to eat
I'm so good at biting
Potatoes and meat

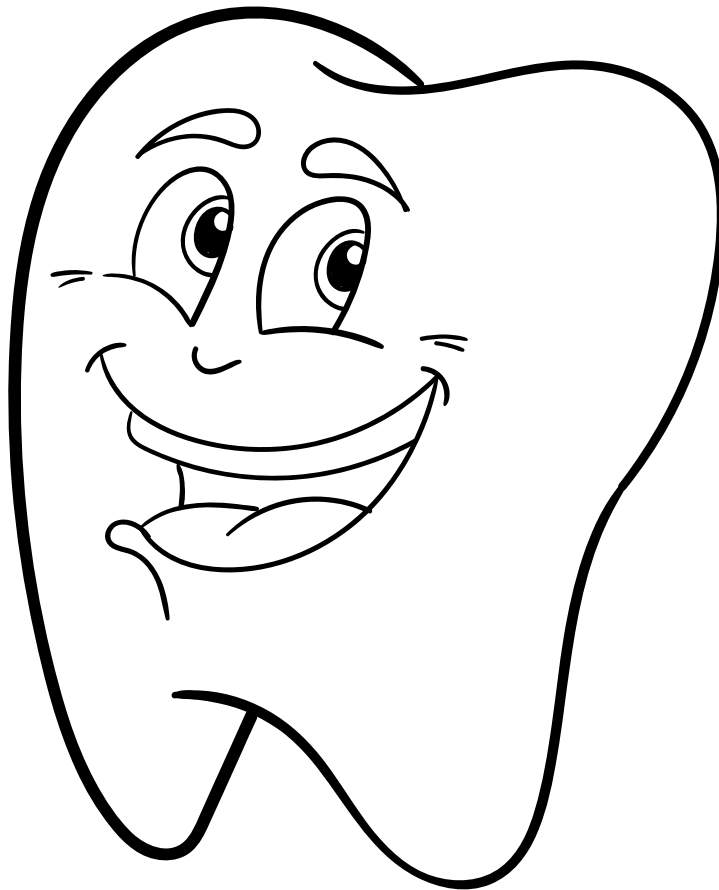
When you eat an apple
I'll help you to chew
And when food is hard
Then I know what to do

But I have a weakness
For when you have treats
Like sugary snacks
And packets of sweets

The sugar attacks me
It causes decay
Holes start appearing
And I wear away

Sugar is hard on me
Makes me go bad
If you eat a lot of it
I will feel sad

Please limit your sugar
A little's enough
Then I can be healthy
And stay good and tough



Read the poem Timmy the Tooth. Can you read it out loud? Can you learn the first verse (or even more) off by heart?

Now try these questions!

1. What is the name of the tooth?
2. Why do you think the author chose that name? Can you think of another name that would have had the same effect?
3. How many verses does this poem have?
4. Find the word 'chew' in the 3rd verse. Which word rhymes with it in the poem? Can you think of any other words to rhyme with 'chew'?
5. What is the poem trying to persuade you to do? Does it work?

1.....

2.....

3.....

4.....

5.....

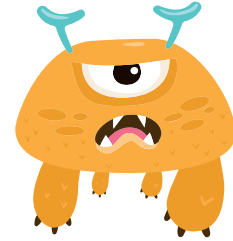


Acrostic Poetry

Acrostic poems are fun! The first letter in each line spells out a word. They do not have to rhyme, but the words should be carefully chosen for the best effect.

ALIEN

Awesome aliens have
Landed on Earth
Incredible but true
Everyone is flabbergasted
No one can see them but you!



SPACE

Starry
Perfect
Amazing
Constellations surrounding
Earth



Now try writing your own poems and add pictures too!

ALIEN

A.....

L.....

I.....

E.....

N.....



SPACE

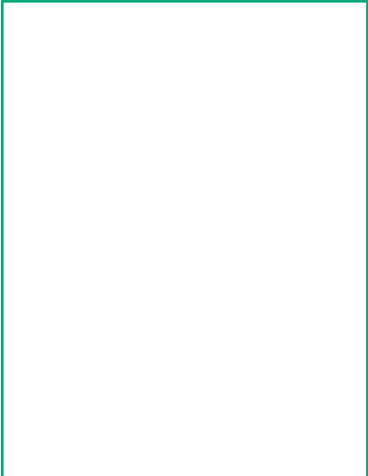
S.....

P.....

A.....

C.....

E.....



If you love learning about space, the following websites are out of this world!

<https://spaceplace.nasa.gov/menu/play/> or

<http://www.spacekids.co.uk/learn/>



Read a book about space or aliens.

These books are SPACETASTIC! You might find them in the library but many are also available to listen to and watch online.

'Aliens Love Underpants' by Colin McNaughton

'Q Pootle 5' and **'Q Pootle 5 in Space'** by Nick Butterworth

'Beegu' by Alexis Deacon

'The Way Back Home' or **'How to Catch a Star'** by Oliver Jeffers.

'Goodnight Spaceman' by Michelle Robinson

'One Giant Leap: The Story of Neil Armstrong' by Don Brown

'Look Inside: Space' by Rob Lloyd Jones.

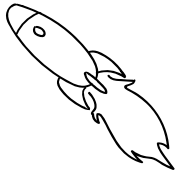
When you have been inspired, try writing a story of your own.

You might use one of these ideas to start you off...

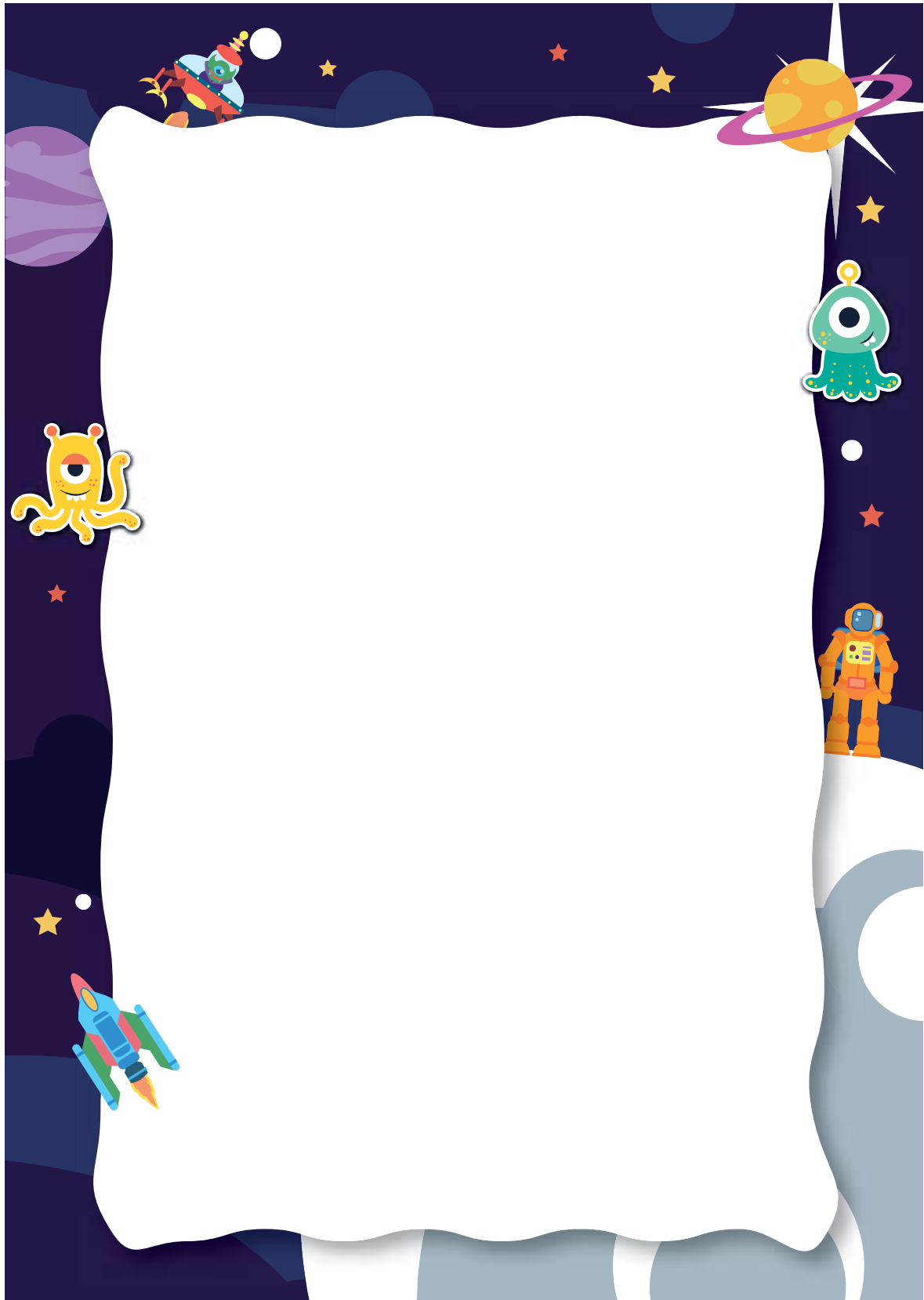
"Put the rubbish out!" yelled mum. I lifted the lid of the dustbin and a small, green creature looked up at me...

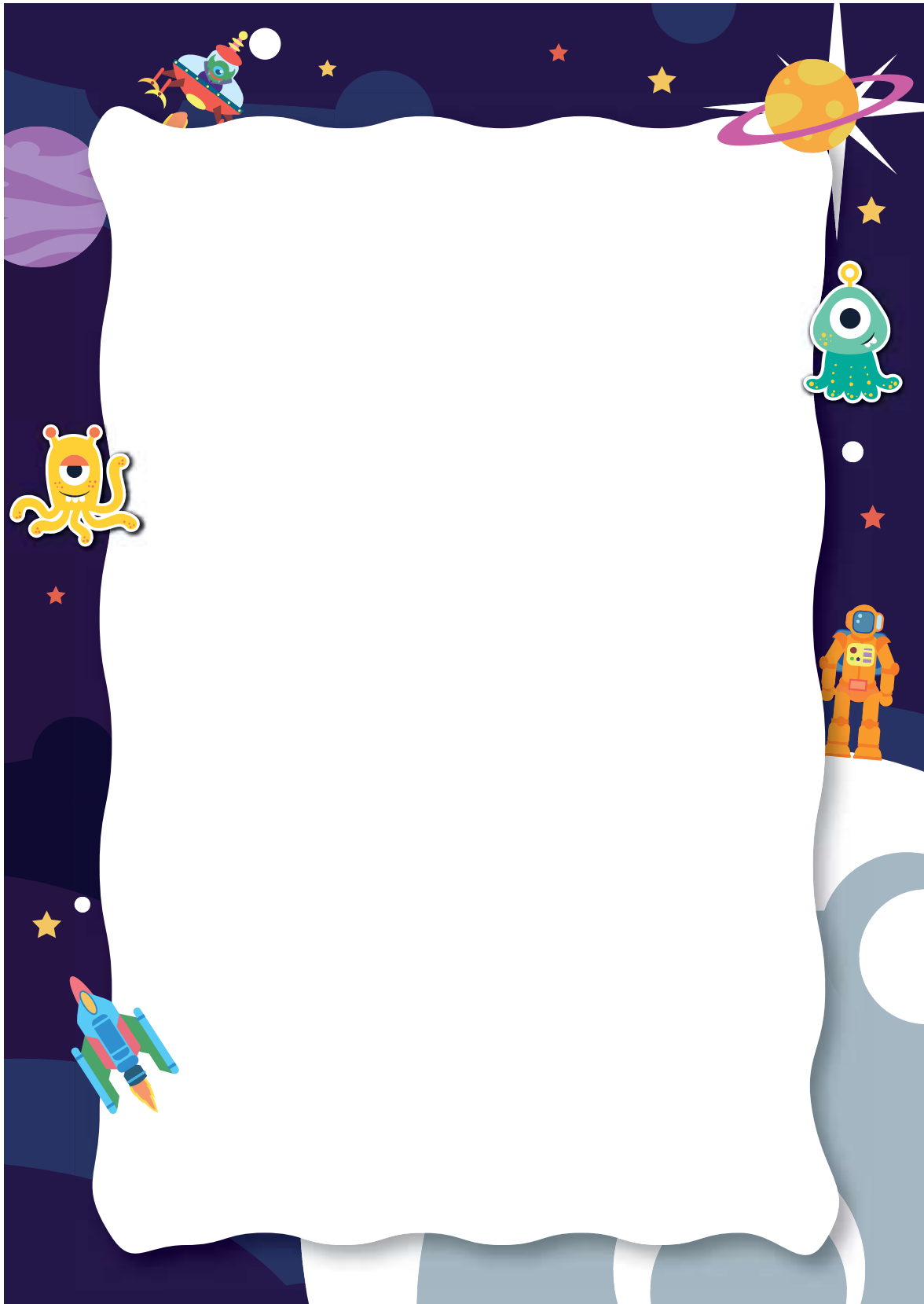
Last Monday I was on my way to school when I saw what looked like a space rocket at the side of the road. It was making a loud rumbling noise and smoke was coming from the bottom. "Quick, get in! We're blasting off in 10 seconds..."

5, 4, 3, 2, 1... BLAST OFF!"



Use pages 19, 20 or 21 to write or draw your own story.





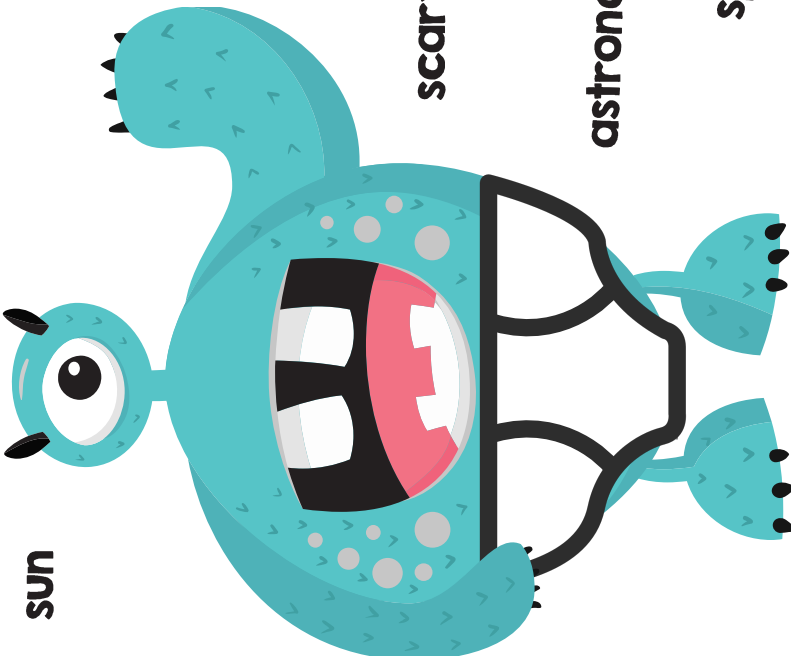
Word/story mat

night dark sun strange

stars Moon alien flying saucer blast off space

planet rocket spaceship Mars scaly outer space slimy air oxygen

human Earth astronaut scary space suit

A cartoon alien character is the central focus of the word/story mat. The alien is teal-colored with a large, single eye, a wide, toothy grin showing pink gums and white teeth, and a small antenna on its head. It is wearing a black space helmet with a clear visor and a black space suit with a white chest panel. The alien is standing on a white mat that contains various words related to space and the alien itself. The words are arranged in a grid-like pattern around the alien.

Underpants Anagram Challenges

Those naughty aliens have been at it again, stealing underpants!

They have mixed up these 4 words. Can you work out what they should be?

e d b _____

a s p e c _____

l a e p n t _____

n d h i c l r e _____

Anagram Challenge

Find as many words as possible using letters from the word

underpants

There are 100s of possible words, using from 1 to 8 letters. You may only use each letter once per word (except n which is there twice)

If it is helpful, cut out the pictures of underpants from the back of the book so that you can swap letters around to find more words.



Learn to Fingerspell

Have you heard about fingerspelling?

Fingerspelling is a way of spelling words using hand movements and is a part of learning sign language; each letter of the alphabet has a different sign.



Why should we learn it?

Firstly, it can be picked up very quickly and is great fun. It's a bit like learning a secret code.

Secondly, it is a new and different way to learn the alphabet and perhaps practise spelling.

Last, but not least, more people will be able to communicate in a small way with a deaf or hearing impaired person.

Try fingerspelling!

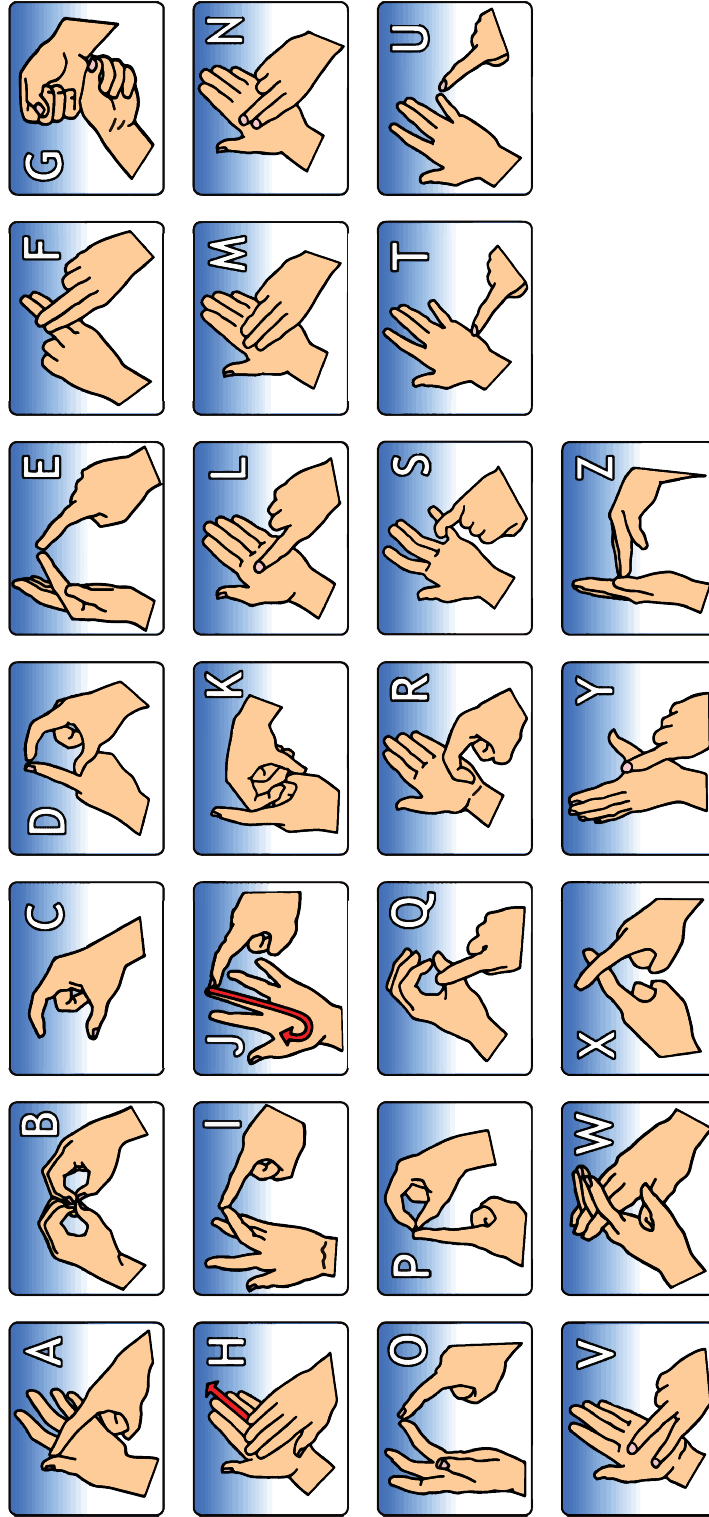
Begin by learning the vowels - a, e, i, o, u. They are shown by pointing to each finger in turn, starting with the thumb.

Next try finding the signs for your name.

Can you sign a whole sentence?



BRITISH SIGN LANGUAGE - FINGERSPELLING



british-sign.co.uk

LEARN BRITISH SIGN LANGUAGE ONLINE AT
WWW.BRITISH-SIGN.CO.UK

Letter from the 3 Bears

To the parents or guardians of Goldilocks,

We are writing because we think you should know about the naughty behaviour of your daughter, Goldilocks.

We live in the yellow cottage in the middle of the wood and today, we returned from our walk to find our house had been broken into.

As well as helping herself to our porridge, which had been left to cool down, Goldilocks had also broken one of our chairs! Baby Bear was most upset, because it was his own special chair and it now needs mending.

We are sure it was your daughter because we found her asleep in a bed upstairs. She woke up as we came into the room and rather than saying sorry, she just ran away without a word. Very rude!

We are sure you will agree that Goldilocks should be punished in some way. We would suggest that she is not allowed to play out for at least a week. She should certainly stay away from our cottage, unless she would like to apologise.

Yours faithfully,

The 3 Bears

1. Who is this letter from?
2. Why are they writing it?
3. What do you think they were most upset about?
4. How do they think Goldilocks should be punished?
5. Do you think Goldilocks should apologise?
6. Pretend you are Goldilocks. Write a note or card to say sorry to the bears.

1

2

3

4

5



6. Note to the Bears...

Try some number activities like these every day to help develop your number skills!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Counting Activity Ideas

- Start from 0 and count in 1's, 2's, 5's or 10's.
- Pick a number to start from and count in 1's, 2's, 5's and 10's.
- Make it fun and count in funny voices – can you count like a robot or with a very high voice?
- Cover up several numbers. Can you count up to find the hidden numbers?



Oh dear! Bee-Bot has jumbled up these numbers.
Can you help to put them in order?



1.

33	6	39	21	67

2.

92	37	8	44	18

3.

50	4	23	99	51

You could try making
some more of your own

Fill in the missing numbers.

- 2, 4, _____, 8, _____ 12.
- 30, _____, 50, _____, _____, 80.
- 15, 20, _____, 30 _____, _____, 45.

Now try making some of your own:

- _____, _____, _____, _____, _____.
- _____, _____, _____, _____, _____.



Number Bonds

Number Bonds are pairs of numbers that make up a given number.



Can you write down all the Number Bonds to 10?

Now a bit trickier...

Can you write down all the Number Bonds to 20?

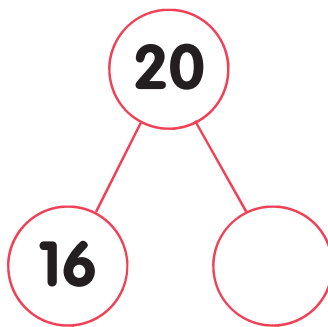
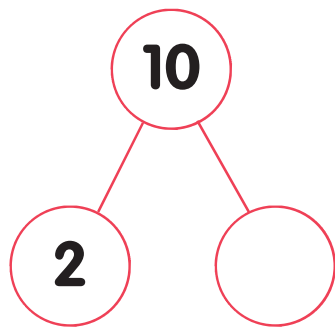
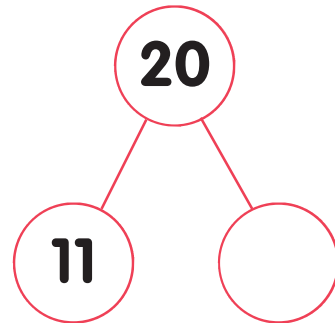
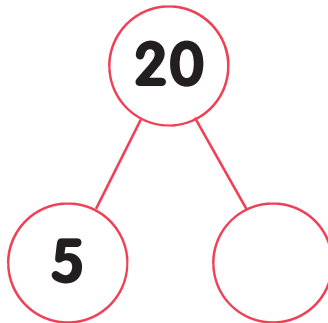
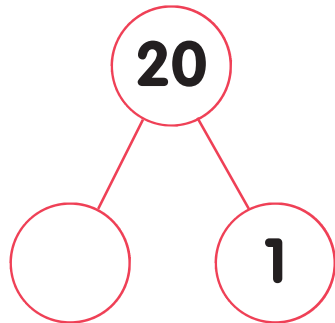
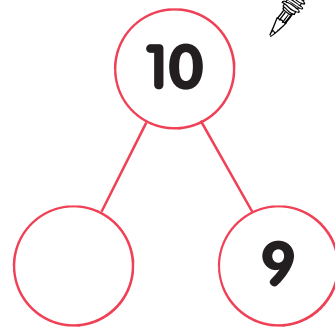
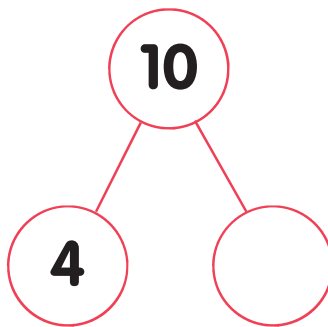
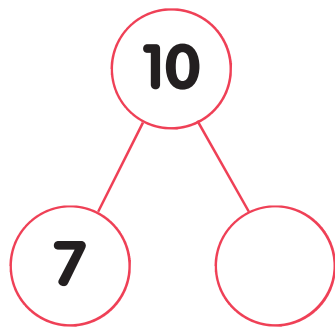
Tip: try counting out 20 objects and use them to help you.

Play 'Number Bond Ping Pong'

- Player A says a number to 10/20 (say it while pretending to swing your racket).
- Player B 'hits' back the number bond to 10/20
E.g. Player A – 4" Player B – 6"
- Keep going until you 'miss a ball' and make a mistake, then swap over!



Can you fill in the circles with the correct Number Bond?




Can you make
some of your
own to test family
or friends?

Let's Multiply!

It can help us in lots of areas of maths if we can quickly recall our multiplication facts.


Let's get practising our 2x, 5x and 10x table!

2x



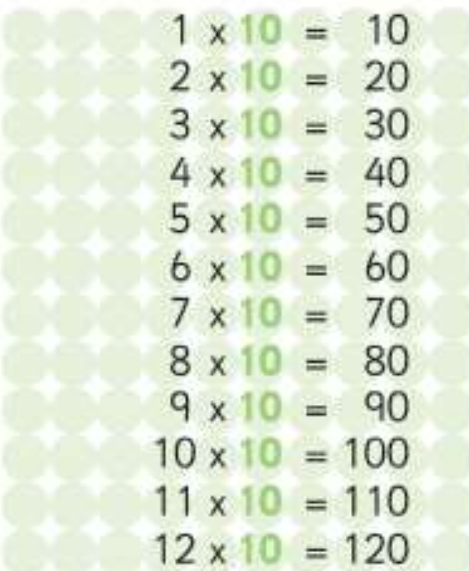
1	x	2	=	2
2	x	2	=	4
3	x	2	=	6
4	x	2	=	8
5	x	2	=	10
6	x	2	=	12
7	x	2	=	14
8	x	2	=	16
9	x	2	=	18
10	x	2	=	20
11	x	2	=	22
12	x	2	=	24

5x



1	x	5	=	5
2	x	5	=	10
3	x	5	=	15
4	x	5	=	20
5	x	5	=	25
6	x	5	=	30
7	x	5	=	35
8	x	5	=	40
9	x	5	=	45
10	x	5	=	50
11	x	5	=	55
12	x	5	=	60


10x



1	x	10	=	10
2	x	10	=	20
3	x	10	=	30
4	x	10	=	40
5	x	10	=	50
6	x	10	=	60
7	x	10	=	70
8	x	10	=	80
9	x	10	=	90
10	x	10	=	100
11	x	10	=	110
12	x	10	=	120

Learning Tips

- March like a soldier and chant the multiplication tables e.g. $1 \times 5 = 5$, $2 \times 5 = 10$...
- Play multiplication ping pong with one person batting the question and the other batting back the answer.



Quick Questions

- | | |
|--------------------------|--------------------------|
| 1. $2 \times 5 =$ | 6. $3 \times 2 =$ |
| 2. $5 \times 10 =$ | 7. $8 \times 5 =$ |
| 3. $7 \times 2 =$ | 8. $1 \times 10 =$ |
| 4. $6 \times 10 =$ | 9. $12 \times 2 =$ |
| 5. $2 \times 2 =$ | 10. $4 \times 5 =$ |

Now try making your own 'quick 10' and test yourself or someone else!



Try practising your times tables every day!

What's Missing?

Blue-Bot has been cheeky and stolen lots of numbers and operations. Become a maths detective and see if you can solve these problems and fill in the missing gaps.



WHAT'S MISSING?

a) 11, 13, __, __, 19, 21, __

b) 83, 73, __, __, 43, 33, __

Explain what is happening and find the missing numbers

Can you see any patterns?

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WHAT'S MISSING?

A number line diagram with two horizontal lines. The top line starts at 37 and has two jumps: a large jump of +30 to a box, and a smaller jump of +3 to another box. The bottom line starts at 16 and has two jumps: a small jump of +4 to a box, and a larger jump of +20 to another box.

Can you fill in the missing numbers by counting on?

Could you put different numbers instead of 37 and 16 and still make it work?

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WHAT'S MISSING?

$$4 _ 2 = 7 _ 1$$

$$15 _ 5 = 3 _ 7$$

$$7 _ 5 = 10 _ 2$$

$$10 _ 4 = 8 _ 2$$

$$3 _ 2 = 4 _ 2$$

$$10 _ 2 = 19 _ 1$$

Find the correct operation signs to balance the equations

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WHAT'S MISSING?

a) 28, 33, 38, __, __ 53, __

b) 1, 4, 7, __, __, 16, __

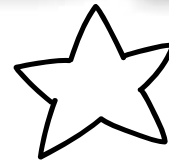
Explain what is happening and find the missing numbers

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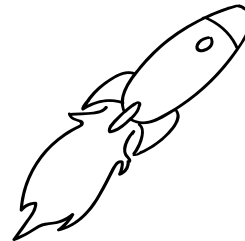
On Brad's ice-cream there are 14 marshmallows. He has double the amount that Jill has. How many marshmallows does Jill have on her ice-cream?

Sam has 4 marshmallows on his ice-cream. Jake has double the amount on this. How many marshmallows does Jake have on his ice-cream?

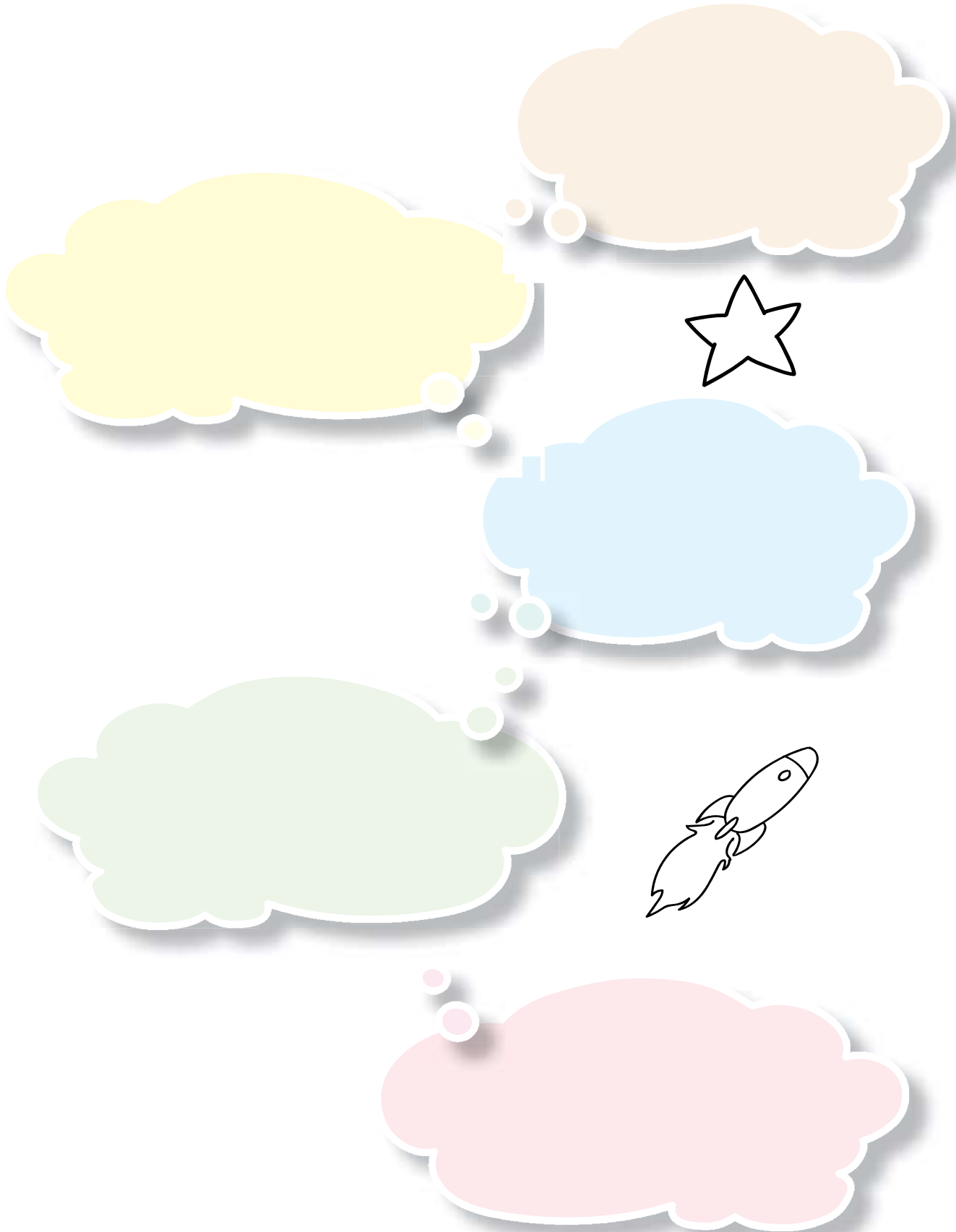


Sam has 6 marshmallows on his ice-cream. Jake has double the amount on his. How many marshmallows does Jake have on his ice-cream? Jake's dad gives him 8 more marshmallows. How many does Jake have now?

Sam has 4 marshmallows on his ice-cream. Jake has double the amount on his. Jake's dad gives him 8 more marshmallows. How many does Jake have?



There are 20 marshmallows in a shop. John buys 6 marshmallows. Olivia wants to buy double the amount that John has. Are there enough marshmallows? Explain how you know.



Number and Place Value

Bee-Bot has been struggling with his maths.

Put your maths hats on and see if you can help him to solve these questions.



I am an odd number
less than 6.

What numbers could I be?

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Chose two digit cards from below to
make the number sentence correct.

6 3 5 4

One less than ? is ?

Find three ways to do it.

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Anna has placed the number 9 on
the number line.



Is she correct?

Explain your thinking.

Product Code: MA10014 - 11 - 17 Made in UK



Chloe says she has 42.



Is she correct?

Explain your thinking.

Product Code: MA10016 - 11 - 17 Made in UK



Ben says the place value grid
shows the number 6.

T	O
● ● ● ●	

Is he correct?

Explain your thinking.

Product Code: MA10016 - 11 - 17 Made in UK



Use the digit cards 2, 6, 3 and 5.

2 6 3 5

Write all the two-digit numbers you
can make, that are less than 50.

How do you know you have them all?

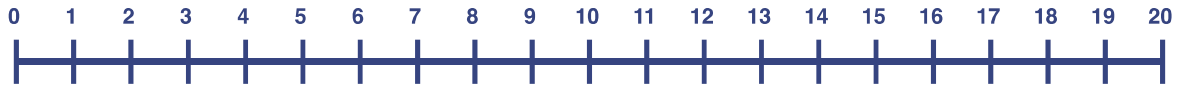
Convince me.

Product Code: MA10016 - 11 - 17 Made in UK





Record your answers and working out here.



1.

2.

3.

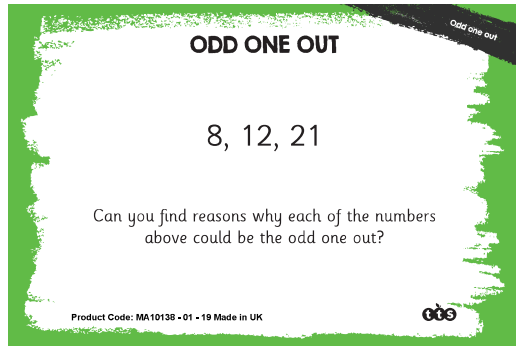
4.

5.

6.

Reasoning

Test your knowledge and combine your mathematical skills to help solve these reasoning problems.



ODD ONE OUT

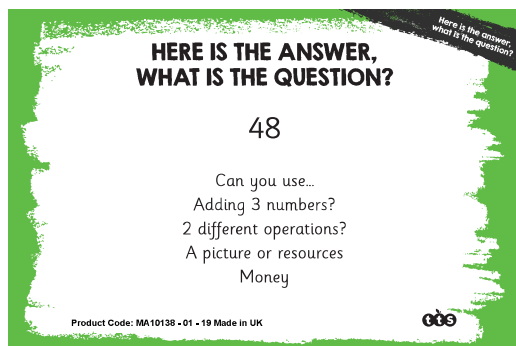
8, 12, 21

Can you find reasons why each of the numbers above could be the odd one out?

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Odd one out

tts



**HERE IS THE ANSWER,
WHAT IS THE QUESTION?**

48

Can you use...

- Adding 3 numbers?
- 2 different operations?
- A picture or resources
- Money

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Here is the answer, what is the question?

tts

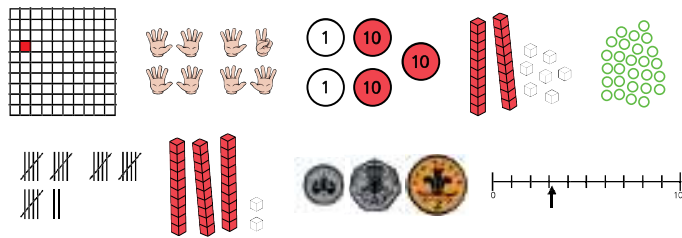


CORRECT ANSWER

Silly or correct answer

Find the correct answers for
Images of 32

Which of these images below show the number 32?

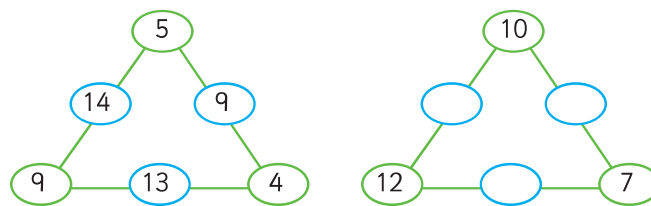


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WHAT'S MISSING?

What's missing?



Explain what is happening and find the missing numbers

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Prove It!

You are a Maths Superstar!

Time to show off and 'prove' what you know and can do!



I can tell you the missing numbers in this number track.



PROVE IT!



Product Code: MA10034 - 02 - 18 Made in UK



True or false?

If I count in steps of 10 from 7, I will say the number 70 in my count.

PROVE IT!



Product Code: MA10034 - 02 - 18 Made in UK



I can show 46p using 10p
and 1p coins.

PROVE IT!



Product Code: MA10034 - 02 - 18 Made in UK



True or false?
There are eleven different pairs of
numbers with a total of 11.

PROVE IT!



Product Code: MA10034 - 02 - 18 Made in UK



Problem Solving

Have a go at these tricky problems!

1.

NUMBER & PLACE VALUE

TALK

Look at this set of numbers.

9, 3, 14, 18, 6

Which is the largest number?

Which is the smallest number?

Which number is one more than 13?

Which number is one less than 10?

Product Code: MA00468 - 11 - 18 Made in UK

tts

2.

ADDITION & SUBTRACTION

Farmer Large has 5 sheep, 2 goats and 8 cows.

How many animals does he have altogether?

Product Code: MA00468 - 11 - 18 Made in UK

tts

3.

MEASURES - MONEY

TALK

Ruth bought an ice-cream for 12 pence.

Which coins could she have used to pay for it?

Product Code: MA00468 - 11 - 18 Made in UK

tts

4.

NUMBER & PLACE VALUE

TALK

Henry says that 64 can be partitioned into $50 + 14$ but Lewis disagrees and says it can only be partitioned into $60 + 4$.

What do you think?

Can you find a different way to partition 64?

Product Code: MA00469 - 11 - 18 Made in UK

tts

5.

ADDITION & SUBTRACTION

Write four number sentences using the numbers

25, 9, 34

Product Code: MA00469 - 11 - 18 Made in UK

tts

6.

MEASURES - MONEY

Sam finds 73p down the side of the sofa.

What is the highest number of coins Sam could have found?

What is the lowest number of coins Sam could have found?

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Record your answers and working out here.

1.

2.

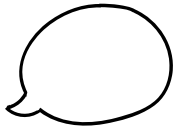
3.

4.

5.

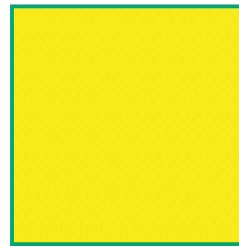
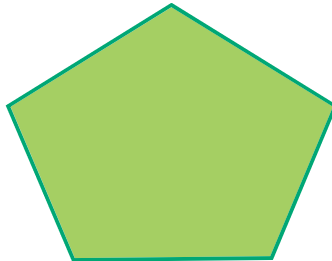
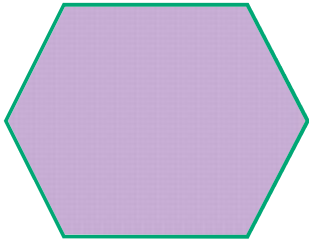
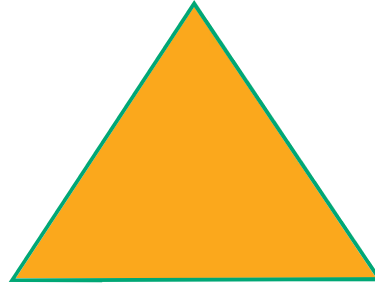
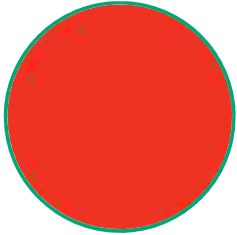
6.

Shape Hunt!



Take a look at the 2D shapes below and discuss:

- What are the names of these shapes?
- Can you name the properties of each shape? (sides, vertices)



What can you find?

- Go on a shape hunt around your home.
- Draw or stick pictures of the shapes that you find.

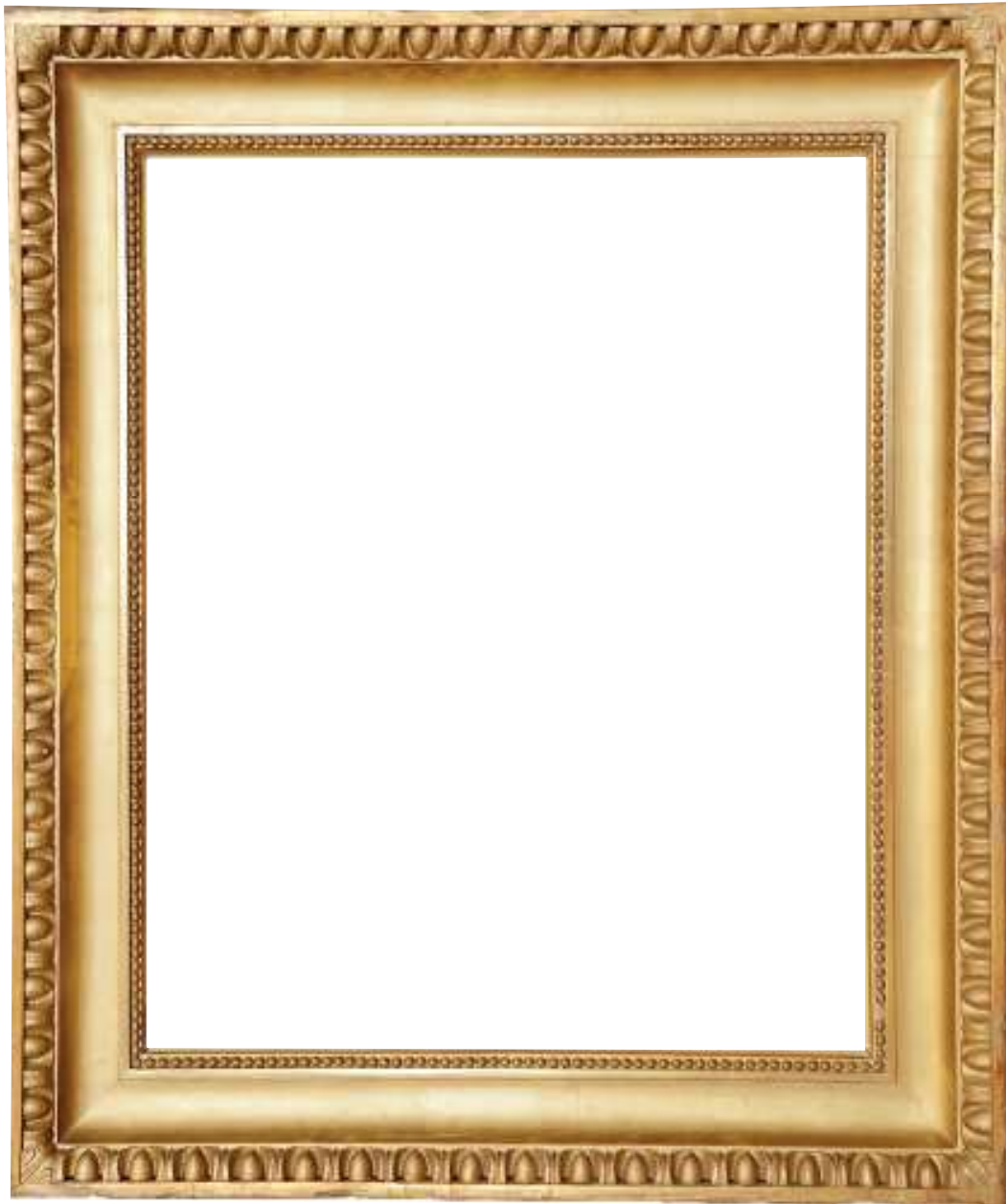
Here is one to get you started.



dining table top –
rectangle



Draw your own picture using 2D shapes



What shapes have you used in your picture?

Kitchen Science: Raisin Bubble Boogie

This science activity will require a few items from your kitchen and an adult to help. Many thanks to **Sue Martin** for this amazing kitchen science lesson!



For the grown ups

This experiment is really easy to set up and will help children develop their understanding of floating and sinking, liquids and gases.

What you do

This one couldn't be simpler: pour out a glass of fizzy drink and drop in the raisins.

Now watch the raisins dance!

What you need

- A bottle or glass of clear fizzy drink (e.g. lemonade, tonic or soda water – freshly opened)
- A handful of raisins (4 or 5 will suffice)

What's happening?

The raisins are initially too heavy to float, so they sink into the drink. The drink itself contains carbon dioxide (CO₂) gas, which has been forced into the drink at high pressure. When a bottle is opened, some of this gas escapes immediately (you hear the whoosh as it rushes to escape) but the rest remains in the liquid for quite a while. You may notice that bubbles form on the sides of the container first.



Tiny imperfections in the glass/plastic make ideal sites (known as 'nucleation sites') for bubbles of gas to form. Dropping anything else into the drink will provide more of these sites, so more bubbles are produced. Raisins have a pitted surface, which makes them ideal for the formation of gas bubbles. When the raisins reach the bottom, bubbles of CO₂ form and attach themselves to the raisins. These act like floats for the raisins and together they rise to the surface. Here, the gas bubbles burst into the air, leaving the raisins without their floats to sink again.

The process repeats and the raisins dance up and down! This will continue only whilst the drink is still fizzy – as more bubbles burst at the surface, fewer remain in the drink, until eventually it will become 'flat'.

Encourage your children to try other small food items to see which ones float, sink or dance. Broken pieces of spaghetti, numerous other pasta shapes, lentils, uncooked popcorn and some berries will also dance. Look at the surface of each item and try to predict which will work well.

Draw your experiment and label what happened!









ACTIVITY 1 | SAILING BOAT



STEM Learning Objectives:

-  **Science:**
Explore resistance in water by making and testing a boat.
-  **Technology:**
Use a range of tools, equipment, materials and components.
-  **Engineering:**
Understand the forces acting on a sailing boat.
-  **Maths:**
Measuring and marking out.

WHAT YOU NEED:

- Materials:**
- Polystyrene foam pizza disc
 - A4 coloured card
 - Plastic milk bottle lid
 - Wooden skewer
 - Decorations



- Tools:**
- Low melt glue gun
 - Ruler
 - Felt tip pens
 - Large scissors
 - Lump of poster tack
 - Pencil
 - Hole punch
 - Water tray



Can you spot any hazards? How can you reduce the risks?

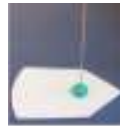
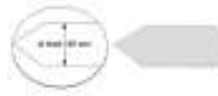
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WHAT YOU DO:

1. Use the felt tip and ruler to draw a boat shape on your pizza disc. Make it as long as the disc and quite wide to help prevent the boat capsizing. Cut out the boat base.
2. Place the poster tack on the table and press a bottle lid onto it with the open side downwards. Press down with the pencil to make a small hole in the middle. Don't make the hole too big as it needs to be a tight fit on the skewer.
3. Take out the poster tack and glue the lid down towards the front of the boat base. Push the pointed end of the skewer down through the hole in the lid and into the base.
4. Cut the sheet of coloured card so that it is shorter than the skewer, and trim it to your preferred shape. You can decorate it with a felt tip pen. Punch a hole in the middle of the top and bottom, then slide the sail onto the skewer.
5. Place the boat in the water tray and blow into the sail to make it move across the water. You can customise your boat by adding a sailor, flag, decorations etc. You could try to help it move faster, for example by changing the shape of the base to make it more streamlined.



STEM Explanation:

Gravity acts downwards on the boat, pulling it down onto the water.

The boat base is made from polystyrene foam pizza disc; this contains lots of little air pockets, making it buoyant so that it doesn't sink.

When you blow into the sail the boat moves across the water.

The resistance of the water (drag) slows the boat down.

If you make the boat more streamlined (e.g. by making the front pointed and rounding off the corners) this reduces the drag so the boat can go faster.



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Draw and annotate your sailing boat here:

Explain two improvements you could make to your boat:




Egg Parachutes



ACTIVITY 5 | EGG PARACHUTE



STEM Learning Objectives:

-  **Science:**
Explore falling objects and the effects of air resistance.
-  **Technology:**
Engage in an iterative process of designing and making.
-  **Engineering:**
Design, make, test and improve a product.
-  **Maths:**
Measure time; compare duration of events.

WHAT YOU NEED:

Materials:

- Large piece of thin material, e.g. broken umbrella with the spokes removed, bin bag, part of an old lightweight raincoat
- Plenty of packaging material, e.g. bubble wrap, packaging foam, cotton wool, egg box, yogurt pot, foam cup
- Thin string
- A hard boiled egg
- A raw egg



Tools:

- Scissors
- Transparent sticky tape
- Stopwatch



Can you spot any hazards? How can you reduce the risks?

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WHAT YOU DO:

The aim is to construct a parachute to allow an egg to be dropped out of an upstairs window onto a hard surface without it breaking. Here are some suggestions:

1. Tie four or more strings near the corners or edges of the piece of thin material so that it will act as a parachute.
2. Use the hard boiled egg initially. Package it well, particularly underneath, to cushion the impact when it lands.
3. Attach the other end of the strings to the egg package or basket without getting the strings tangled up!

Ask an adult to hold the parachute by the middle, with the egg package hanging down, drop it out of an upstairs window onto hard ground (e.g. concrete). Time the descent of the egg and then check whether it has broken.

Modify and improve your design as required; for example you could make a larger parachute to slow the egg down more (time the descent to see if this has increased). You could change the number of strings or re-position them to improve your parachute, and/or use more packaging underneath the egg.

Once you are happy with your design, place the raw egg in the package instead of the hard boiled egg. Once it has descended, check whether the raw egg has broken.



STEM Explanation:

The egg and parachute are pulled downwards by gravity.

As they move down the air pushes against them.

The parachute is relatively large; the air resistance gives rise to an upward pull, slowing down the descent of the egg.

The egg must be packaged well to absorb and cushion the impact when it hits the ground.

To prevent the egg from breaking, you can try increasing the air resistance, cushioning the egg better, or both.



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Draw and annotate your parachute here:

What was the result of your first test?

Explain how you improved or refined your design: