Family Maths Toolkit

Family Maths Scrapbook Activities Year Reception

R

Any questions, please email:
enquiries@nationalnumeracy.org.uk

familymathstoolkit.org.uk

National Numeracy
Getting on with numbers

Family Maths Toolkit

Introduction

Proven to improve children's and parents' confidence in maths, this family engagement resource aims to promote enjoyment of maths through discussion and working together on everyday maths.

This activity pack, created by National Numeracy, contains short, fun, 'real life' activities for families to do with their children. They are aligned to the English National Curriculum and compatible with the Scottish Curriculum for Excellence, with a strong focus on problem solving and reasoning.

There are 30 activities, one for each week of the school year. They are organised in this pack so that they get progressively harder - but they can be selected to match the curriculum area on which your children are working.

The individual activity sheets are not marked with the age or year group, but they are colour coded so you can tell the difference. Please note that the level is based on average expectations for the year group - children may be working below or above this, so draw on activities from other year groups if you need to.

This pack contains:

- An overview showing the suggested split of the activities by school term and by numeracy topic from the English National Curriculum.
- 30 activities, in the order given in the overview.
- 3 answer sheets, one per term. (Please note that many of the activities are designed to be open-ended, so answers are only given for activities that require them)

For schools

We recommend the following approach for schools using the activities:

- A whole class approach and even a whole school approach.
- If children are working well above or below age-related expectations, select an activity from a different year group pack.
- Hold a workshop to model the activity discussions for less confident parents.
- Have a launch event, giving out scrapbooks if you are using them. (Family Maths scrapbooks, in which children and families can record their work on these activities, are available to order through National Numeracy's website.)
- Emphasise that any member of the family can work with the child being given the activity.
- If there are no adults helping out at home, we suggest finding an older school buddy to help in an after or pre-school club.
- The parent/carer does not have to have any special knowledge of school maths or equipment.
- Encourage children to be creative: take photos, draw pictures, write calculations or create diagrams.
- Encourage both adult and child to use the comment box to promote reflection and help you understand what they think about each activity.
- Put completed activities on show so that children and families can learn from each other that there is not just one answer but many ways of approaching problems.

Any questions, please email:
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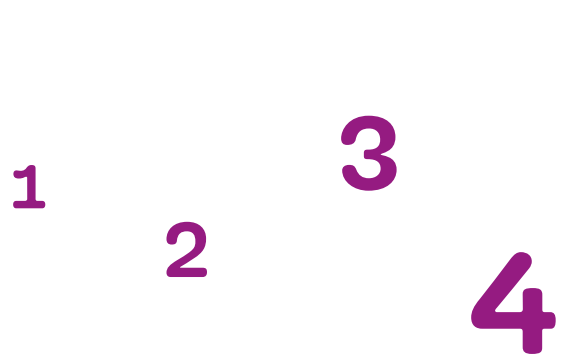

For parents and carers

However you might feel about maths, you can make a huge difference to your children's numeracy learning.

All the evidence shows that talking about everyday maths helps develop children's maths confidence. Here are some questions that you can ask each other when tackling the activities:

- What do we need to do?
- What information do we have? What do we need to find out?
- Would any equipment help?
- What do you notice when...?
- Shall we make a guess and see if it works?
- What could we do if we get stuck?
- If we were doing this again, is there anything we could do differently?

You can adapt these activities to suit your family's interests and use whatever items you may have to hand, at home or out and about.

You might want to take photos, draw pictures, write calculations or create diagrams - it's up to you!

Do use the comment boxes to reflect your discussions and thoughts as you complete each activity together.

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Reception Family Maths activities

Family Maths Toolkit

Tips for teachers

If possible could dice be sent home for those activities needing one? A paper net has been provided but is not ideal.

Note for YR children and families

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Suggestions for engaging with your child

- Praise effort
- Choose a time to practise when your child is not tired or reluctant
- Short but frequent sessions are better, 5-10 minutes is enough
- Enjoy the activities together – this helps develop confidence
- Be encouraging and let the teacher know if there are any particular difficulties

(**Note to teachers:** Please add these suggestions into each Reception child's scrapbook, or send it home with the activities if you are not using the scrapbook.)

YR Overview and Curriculum links

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Term	Topic	Activities	Main Curriculum link	Also covers
Autumn	**Numbers** (place value)	Dice bingo	Subitising.	
		Matching pairs	Subitising; same and different.	
		Play beetle	Subitising, counting to 6.	
		The number 5	Recognising 5.	
		Making 10	Count to 10; place numbers in order.	
	Numbers (calculations)	Two dogs	Number bonds to 10 including double facts.	
	Pattern and shape	Secret Christmas tree	Spatial reasoning skills - shape.	2D shapes.
		Shapes of food	Spatial reasoning skills - shape.	2D shapes.
	Measures	Autumn leaves	Spatial reasoning skills - measures.	Length.
		Weight of fruit	Spatial reasoning skills - measures.	Weight.
	Position	Teddies in a queue	Vocabulary for patterns, 1st, 2nd, last.	Positional language.
	Money	Recognising coins	Spatial reasoning skills - measures.	Coins 1p. 2p. 5p, 10p.

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YR Overview and Curriculum links

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Term	Topic	Activities	Main Curriculum link	Also covers
Spring	**Numbers** (place value)	Roll over	Counting backwards to zero.	
		Pair of socks*	Count confidently, recognise patterns, doubles, odds and evens.	Counting in 2s.
		Squirrels	Count to 20, recognise quantity greater than, less than, the same.	Sharing equal/unequal groups.
	Number (calculations)	The Mad Hatter's tea party	Compare quantities up to 10.	One to one correspondence.
		Bugs	Number bonds to 10.	Addition/ subtraction single digits.
		Seeing double	Subitising.	Doubles.
		Giraffes and hippos*	Subitise; 'have a go' and talk.	Estimation.
		Building 3D shapes	Spatial reasoning skills - shape.	Properties of 3D shapes.
	Pattern and shape	Easter egg patterns*	Patterns and relationships.	
		Samosas	Spatial reasoning skills - shape.	
	Measures	Goldilocks and the Three Bears	Spatial reasoning skills - measures.	Capacity, double, half.
	Time	Time	O'clock times.	
	Money	Chinese Lion Dance	Count to 20; recognise quantity greater than, less than, the same.	Counting money £1.

*Needs to be printed in colour

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YR Overview and Curriculum links

Family Maths Toolkit

Term	Topic	Activities	Main Curriculum link	Also covers
Summer	**Numbers** (place value)	Counting challenge	Count verbally to 20 and beyond.	
		100 square puzzle	Count beyond 20, pattern of number counting system.	Positional language.
	Numbers (calculations)	Snakes and Ladders*	Count beyond 20, pattern of number counting system.	Numbers to 100.
		Burying bones	Number bonds to 10; compare quantities.	Grouping, problem solving.
		Sheepdog trials	Count to 20; compare quantities.	'Have a go' and talk.
		The farmer and his cows	Compare quantities.	Groups of 2, remainders.
	Measures	Three Little Pigs	Spatial reasoning skills - measures.	Fractions- half and quarter.
		Summer leaves	Spatial reasoning skills - measures.	Length.
	Money	Biscuits	Spatial reasoning skills - measures.	Developing vocabulary.
		Chetan's pocket	Spatial reasoning skills - measures.	Recognition of coins, problem solving.
		Cost of an ice-lolly	Spatial reasoning skills - measures.	Using coins.

*Needs to be printed in colour

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Dice bingo

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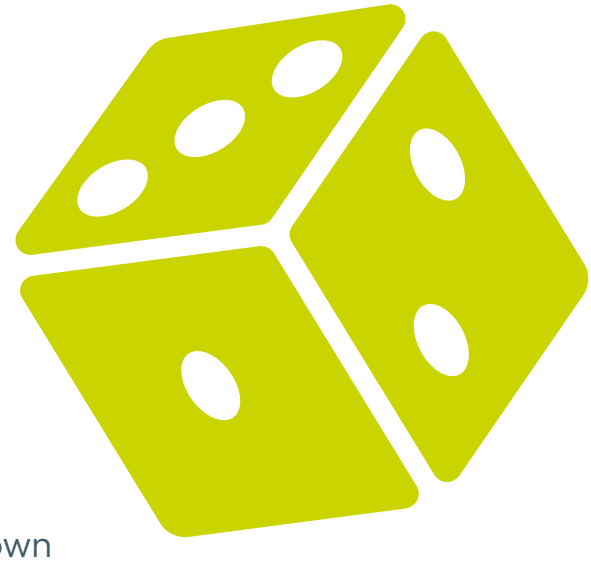
Play a game of bingo together.

Copy the grid below for each person.

4	1	5
6	2	3



Take it in turns to roll a die. If you roll a number shown on your card, you may colour or cover it. Only the person rolling can colour or cover that number.

Who has coloured or covered all their numbers first?

Helpful hints: You could make different grids for each person playing. Encourage your child to recognise the pattern of dots before counting them.

Family comments:

Child comments:

Curriculum Link

Subitising - recognising the pattern of dots to represent numbers and matching to the symbol.

Matching pairs

Family Maths Toolkit

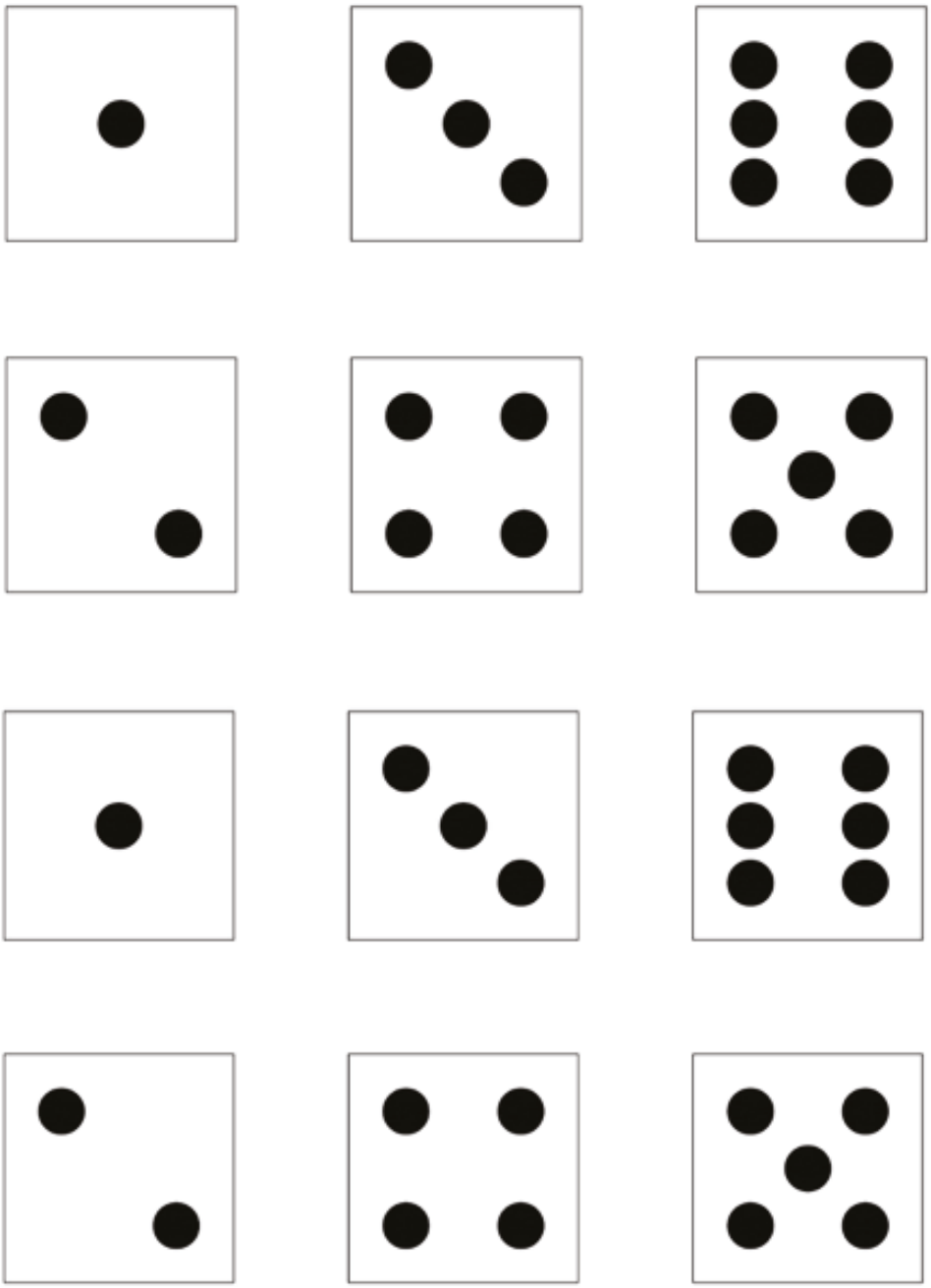
Who can find the most matching pairs?

Cut out the dice cards and turn them all over. Muddle them up. Each person turns over two cards – if they match, then keep them as a pair. If not, they must be turned back over in the same place.

Dice do not have a '7' but what pattern would you make to show the number '7'?

Helpful hints: Count the dots before the game starts. Ensure your child recognises, for example, the pattern of 5. Talk throughout the game – for example, can you remember where you saw the 3 before? Talk about same and different.

This game can be extended to a set of playing cards or for a shorter game, use half a set.



Family comment:

Child comment:

Curriculum Link

Subitising - recognising patterns to represent numbers, developing memory skills.

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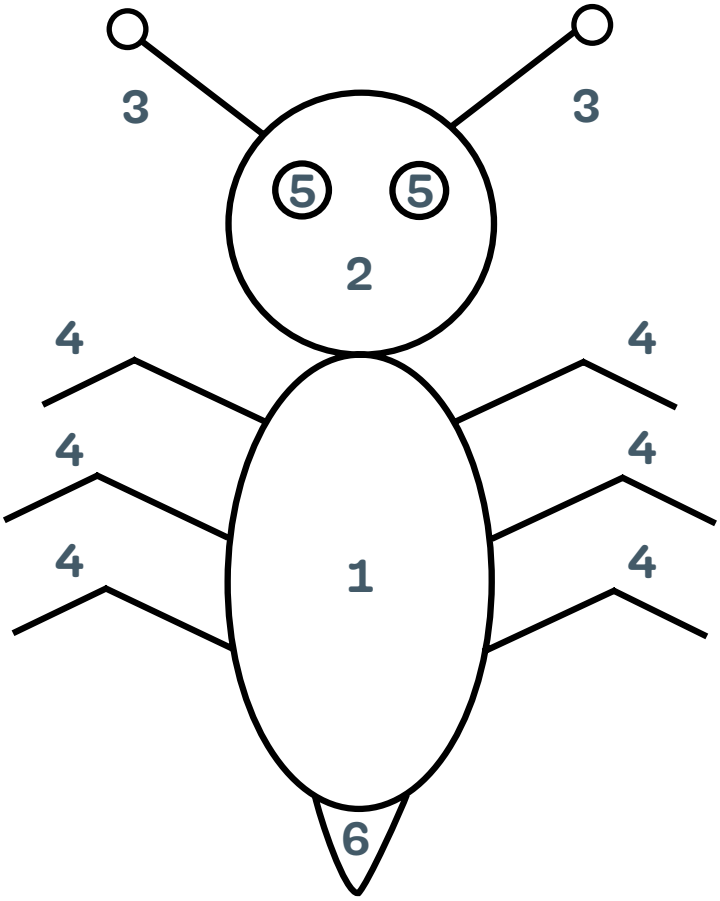
Play Beetle

Family Maths Toolkit

Play the game of 'Beetle' by taking turns to throw a die. If you throw a 1, you may draw a body; 2 is for the head; 3 is for two antennae; 4 is for six legs; 5 for the eyes and 6 will give your beetle a tail. First one to finish is the winner.



Who will be first to complete a beetle? When you have won, you can add a nose and mouth!

Have fun!

Helpful hints: Any number of people can play this game; you can make the game harder by saying that you cannot add antennae or legs until you have the head or body. Also you could say that you can only draw a single leg (or eye, or antenna) each time you roll a 4 (or 5, or 3), rather than all of them.

Family comments:

Child comments:

Curriculum Link

Subitising - recognising dot patterns on a die which represent a number, counting reliably to 6.

Making 10

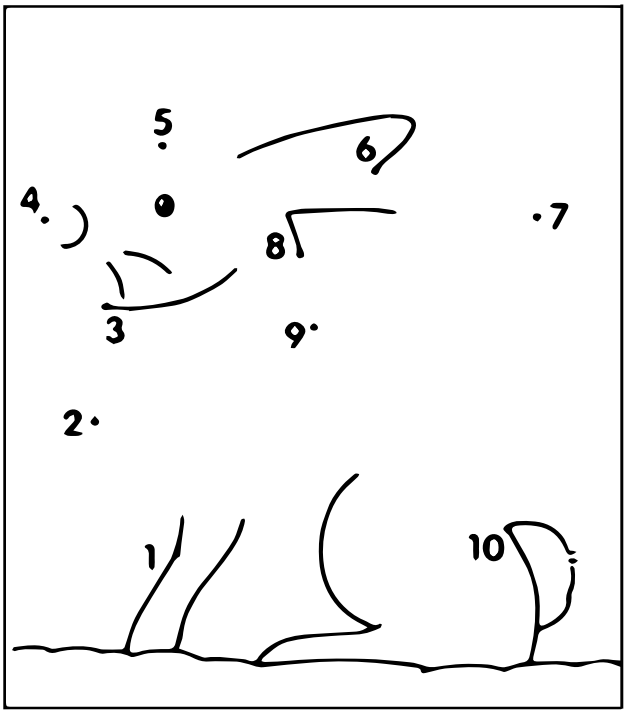
Family Maths Toolkit

Can you hop on one foot 10 times?
Can you clap 10 times?

What else can you do 10 times and count?
Can all your family do it too?

Here is a dot-to-dot. What do you think it will be?

Can you make one up with your family?



Family comments:

Child comments:

Curriculum Link

Count reliably with numbers 1 to 10, place numbers in order.

The number five - 5

Family Maths Toolkit

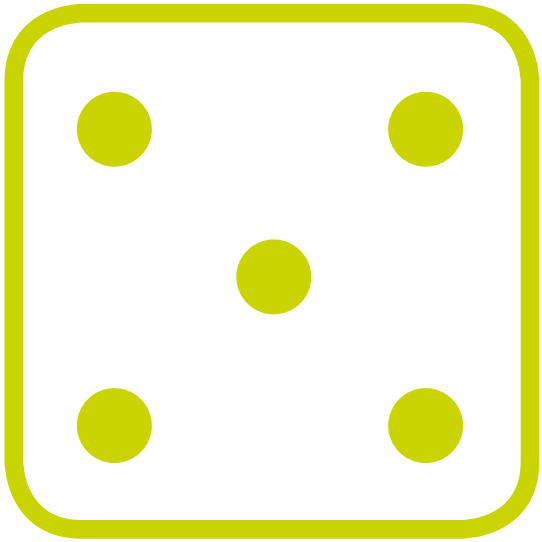
How many ways can you show five or find the number 5?

Here are a few ideas:

- the number 5 on a clock
- the number 5 on the washing machine dial
- the number of letters in the word **M U M M Y**
- dots on a die

How many more ways can you find?

Helpful hint: Think about when you are in the house and when you are out and about. You could 'high five' when you find a 5.



Family comments:

Child comments:

Curriculum Link

Recognising 5.

Two dogs

Family Maths Toolkit

Two dogs, Paddy and Monty, are playing in the woods with a ball.

- How many tails?
- How many noses?
- How many balls?
- How many legs?
- How many ears?

Are there any more questions you could ask?

Draw another animal who could play with them and would make one more tail to count.

Helpful hints: Talk about the same, different, double, one more than, one less than, ensure your child points and counts, talk about one back leg that cannot be seen but should be counted!

Family comments:

Child comments:

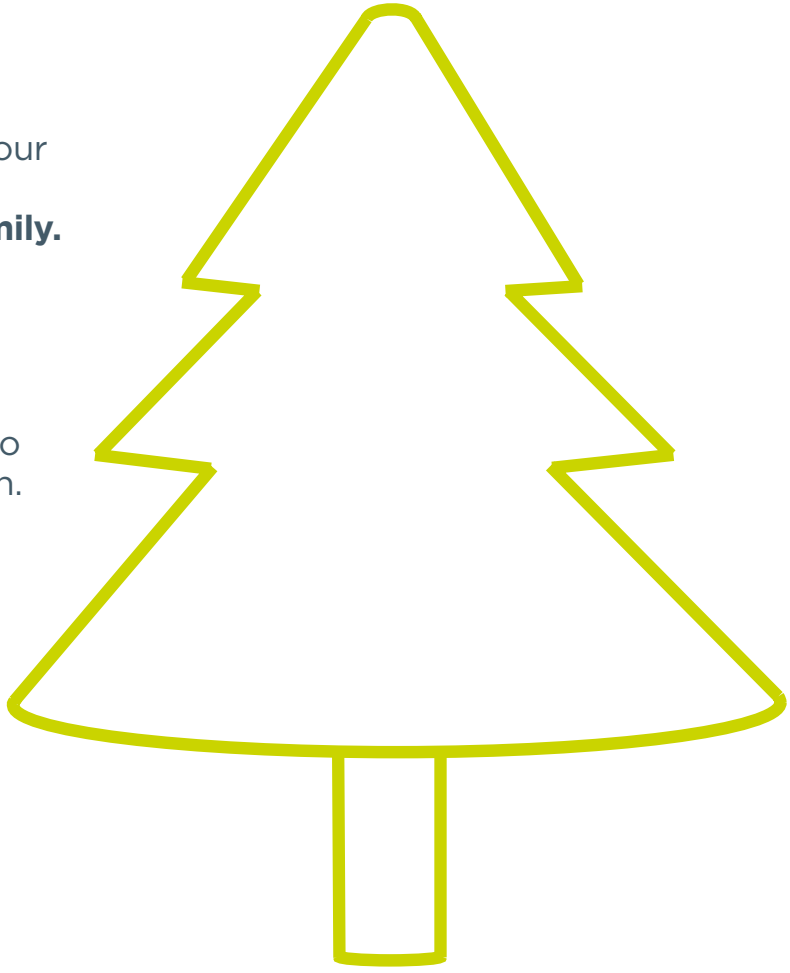
Curriculum Link

Number bonds to 10 including double facts.

Secret Christmas tree

Family Maths Toolkit

Draw a Christmas tree without any decorations.



Now draw 6 different decorations on your tree – make them different colours and different shapes. **Do not show your family.**

Now ask anyone in your family to draw a tree without any decorations. **They must not look at what you have done.** When they have drawn their tree, you are going tell them which decorations to draw and where to place the decoration.

Did they get them all right?

Swap round and they choose the decorations and describe them to you, for you to draw.

Helpful hints: Try to encourage mathematical language so, for example, use 'circle' not 'round' to describe a shape. If the child is not sure, you could say 'my shape has 3 sides and is a triangle'.

Family comments:

Child comments:

Curriculum Link

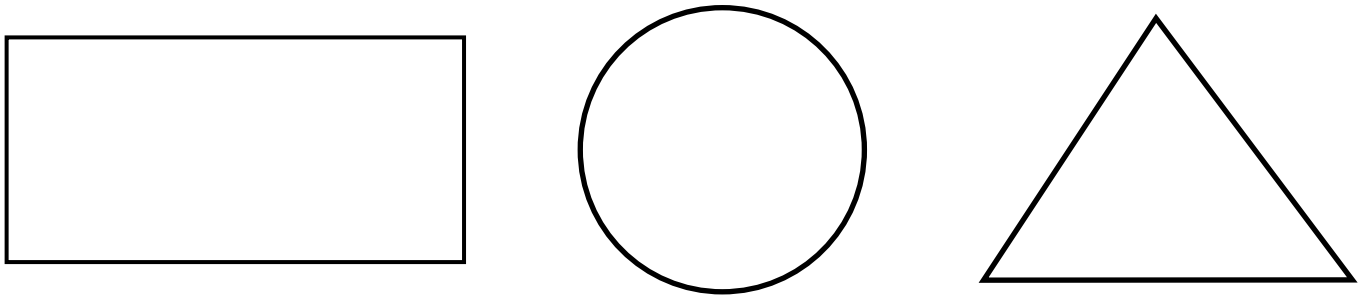
Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape.

Shapes of food

Family Maths Toolkit

Think about the shape of some of the food you eat.

Do you eat any of these shapes?



Can you draw them?

Are there any other shapes you might find in your food? Could you make a different shape from food?

Helpful hints: Talk about circles, squares, rectangles, triangles and any other shapes you might find. If possible, make shapes from sandwiches, biscuits, pizzas etc. Talk about how many straight sides and how many round edges.

Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape.

Autumn leaves

Family Maths Toolkit

Find some autumn leaves – which is the longest you can find?

Is it longer than your hand?

Which is the shortest?

What could you use to measure the leaf?

Can you draw 4 of your leaves in order of size, shortest to longest? (You could draw around them.)

Helpful hints: Compare leaves to talk about length. Estimate which might be longer before checking. Use hands, fingers, cubes or other objects to measure. Only use a ruler if your child is confident using non-standard units of length, such as hands or counters.

Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Weight of fruit

Family Maths Toolkit

Choose a favourite teddy bear or soft toy. Hold it in one hand. Now hold it in the other hand.

Feel how **heavy** it is.

Can you find three pieces of fruit or vegetables which are **heavier** than your toy? Hold your toy in one hand and the piece of fruit in the other to feel the **difference**.

Can you find three which are **lighter than your toy**?

Helpful hints: Encourage your child to choose a toy which is not too heavy so that heavier and lighter examples of fruit can be found.

Family comments:

Child comments:

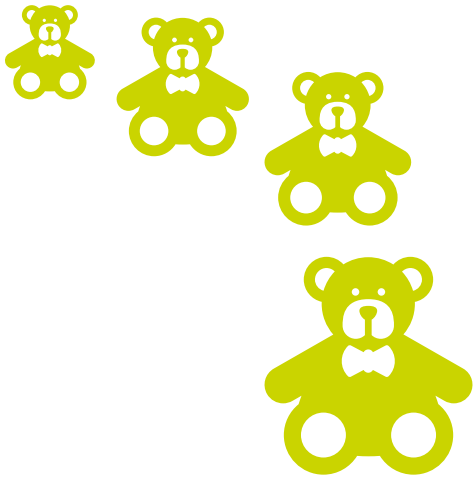
Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Teddies in a queue

Family Maths Toolkit

Find 7 teddy bears (or other toys). They are going on a picnic and need to catch a bus.



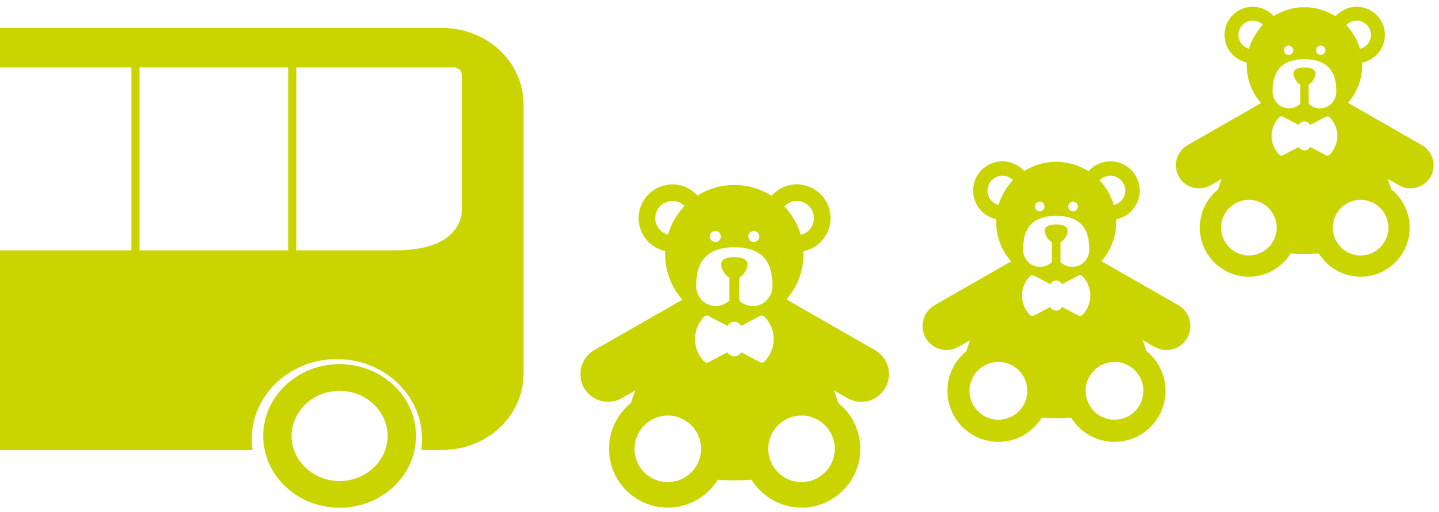
Put them in a line. Who is first in the line?

Who is third? Who is fifth?

The last toy is crying – move it so that it is second. Who is last now?

Draw a picture of the toys and label them 1st, 2nd...

Helpful hints: When out and about, link this to real queues that you see.



Family comments:

Child comments:

Curriculum Link

Develop the vocabulary for patterns and relationships - ordinal numbers 1st, 2nd...last.

Recognising coins

Family Maths Toolkit

Find five coins – a mix of 1p, 2p, 5p and 10p coins.

Lay them out and talk about what you can see on each side of each one. Identify the value of the coins.

Take it in turns to hide them with your hand and secretly take one away. Then show the ones that are left. Can the other person say which coin is missing?

If you are good at this, increase the number of the same coins to add to the challenge.

Helpful hints: Encourage your child to name the coin by its value, for example 2p; they could ask for clues such as 'is it silver in colour?' or, 'is it the smallest coin?'

Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Roll over

Family Maths Toolkit

Sing 'There were 10 in a bed' together:

"There were 10 in a bed and the little one said

Roll over...roll over...

So they all rolled over and one fell out.

There were 9 in the bed and the little one said..."

Continue until there are none in the bed.

Helpful hints: Great fun to act this out with teddies as you sing – this reinforces what is happening to the numbers as you count back and also what none (zero) means. Stop at some points to ask how many are left? How many have fallen out? How many did we start with? This will build the understanding of addition and subtraction.

Family comments:

Child comments:

Curriculum Link

Counting backwards in ones; recognising the value of zero (none).

Pairs of socks

Family Maths Toolkit

Here are some pairs of socks. How many pairs do you think there are?

Can you count each sock by pointing to it? How many socks are there?

Now count each pair of socks by counting in 2s. What do you notice?

Can you find any pairs of other things in your home (e.g. cutlery)? Draw them and count them in 2s.

Family comments:

Child comments:

Curriculum Link

Count confidently and recognise patterns in numbers including doubles, and odds and evens.

Squirrels

Family Maths Toolkit

Sammy squirrel found 20 nuts. He was very excited and took them to show his friends – Suzie, Simon and Samjah. They all jumped about excitedly and said, "Can we have some too?"
"No, no!" said Sammy, "I found them so they are mine."

What should Sammy do? What would be fair?

Helpful hints: Use toys and counters (or similar) to count and decide on the number of nuts each can have. Encourage your child to touch and move each 'nut' and check groups by counting. Talk about equal, fair, one more than and one less than. Talk about why it is fair (it does not have to be equal groups to be fair in this case – your child may decide Sammy should have the largest share; it is the talking and justification which is important).

Family comments:

Child comments:

Curriculum Link

Count to 20; recognise when one quantity is greater than, less than or the same as the other quantity.

Mad Hatter's tea party

Family Maths Toolkit

The Mad Hatter is throwing a tea party – he has invited Alice, the Dozy Dormouse, the White Rabbit and the Queen of Hearts.

How many knives and forks will he have to lay? How many spoons? How many cups?

Who else could he invite to his party? How many extra things will he need now? Draw a picture of the tea table – what else could you put on the table? How many do you need?

Helpful hints: Talk about how many more forks will be needed? Add items such as a teapot. Extend by talking about how many sugar cubes might be needed.

If your child is not familiar with this story, use a different one - for example, 'The Tiger who Came to Tea', or 'The Teddy Bears' Picnic'.

Family comments:

Child comments:

Curriculum Link

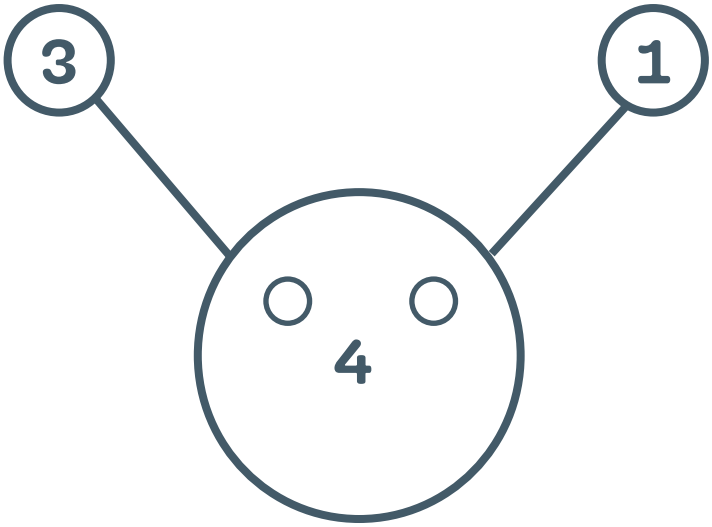
Compare quantities up to 10 in context; look for patterns.

Bugs

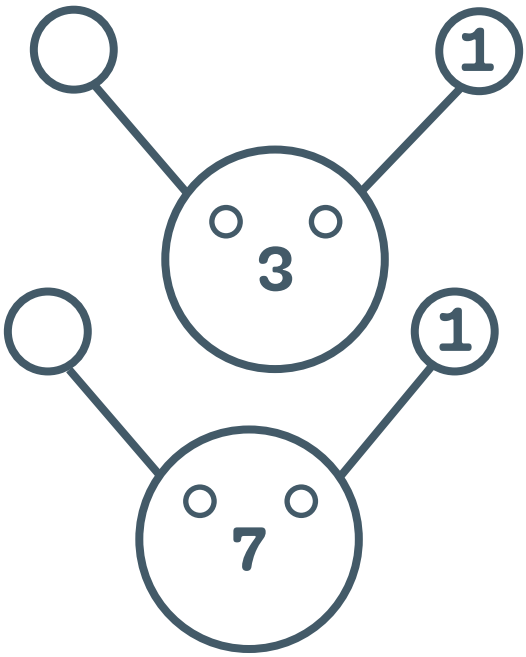
Family Maths Toolkit

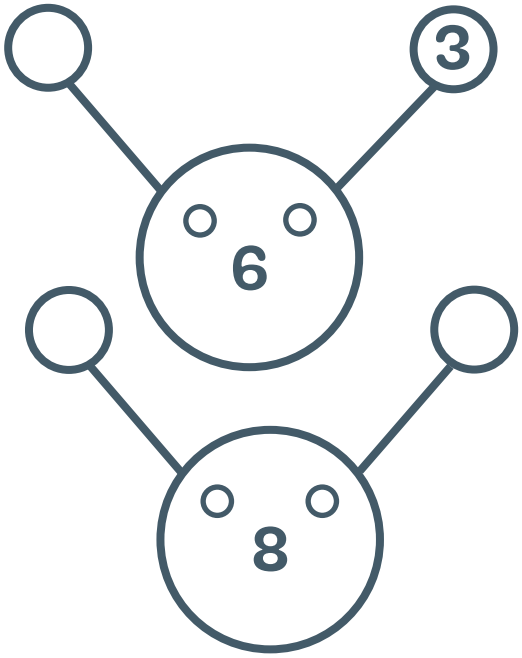
Each bug has two antennae.
The numbers in the antennae add up to the number in the bug's head.

Here is an example:

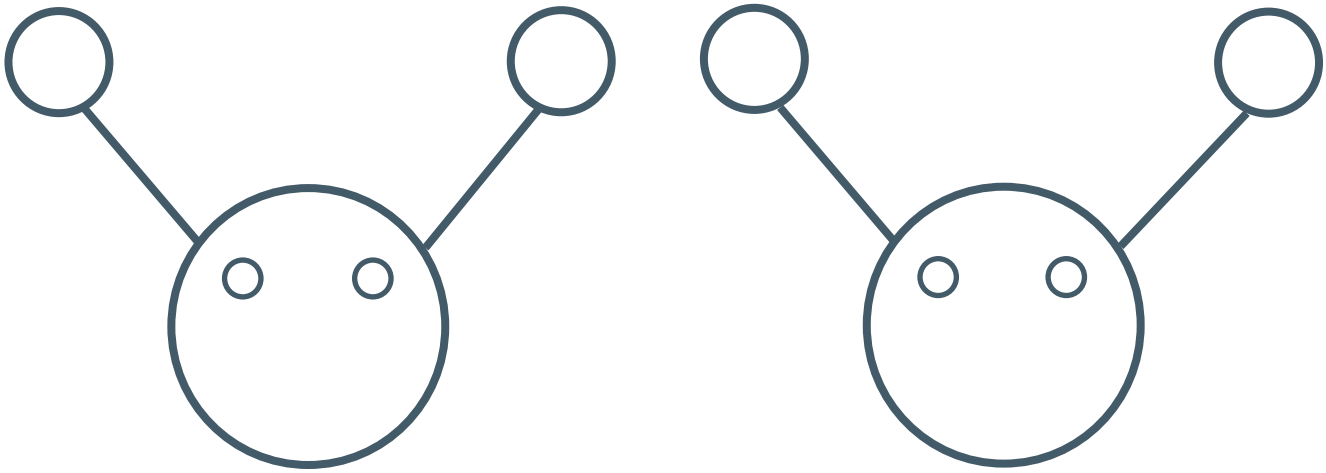


Can you complete these? (Use counters if you need to.)





Can you make some up for your family to complete?



Helpful hints: When your child is confident with adding the two numbers, talk about how 4-1 will give 3 and 4-3 will give 1. The bugs can be used for adding or subtracting.

If it is quite hard, put 4 counters (or raisins, pasta shapes) in the circle and take out 3 to put in a smaller circle. How many are left? Put the 1 in the other smaller circle. Talk about how it is still 4 but you have made parts of 4.

Family comment:

Child comment:

Curriculum Link

Number bonds to 10.

Seeing double

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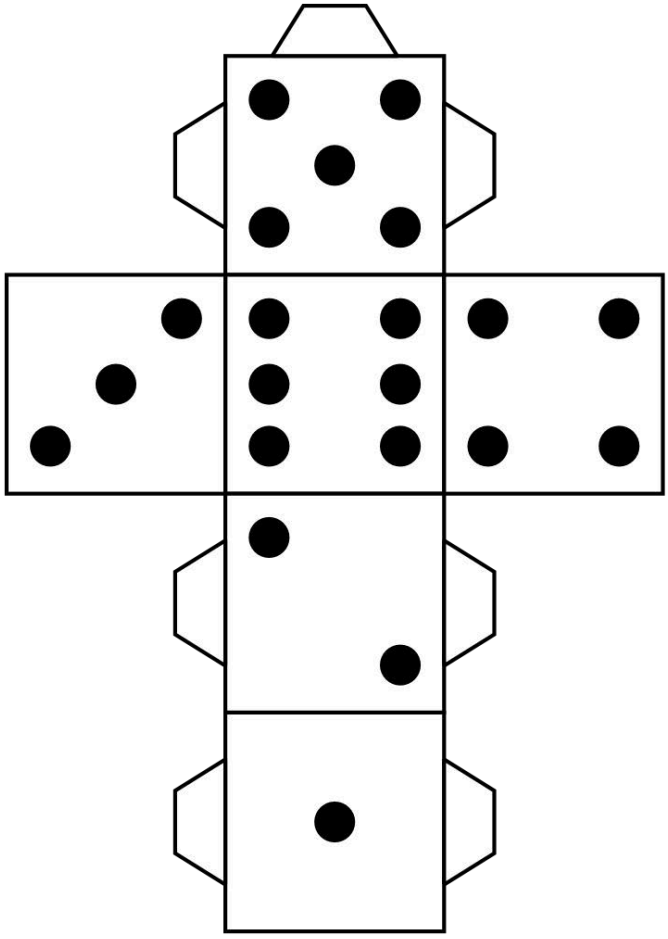
Take turns in rolling a dice twice (or roll two dice if you have them).

Every time one of you throws a double (ie, the same number twice), write the number down and draw a smiley face.

Who will be first to get 5 smiley faces?



Helpful hints: Develop confidence in recognising the number of spots without counting – talk about how five is always being represented this way on a dice. If unsure, help your child to touch each spot as they count. Talk about how many dots are on doubles – for example 3 and 3 makes 6 in total.

Family comments:

Child comments:

Curriculum Link

Subitising - recognise the pattern of dots without counting; recognise doubles.

Giraffes and hippos

Family Maths Toolkit

Look at the photograph of the giraffes. Without counting, can you estimate (guess) how many there are?

Now count by pointing at each giraffe – were you correct?

Here is a harder photograph of some hippos.
Try to estimate without trying to count.
Now count by pointing at each hippo. Did you get close to the right number?

Can you find any other picture or photo that you could estimate how many things there are?

Helpful hints: It is the estimation which is important.
With the giraffes, help your child to estimate by asking if they can see a group of two and a group of three.

With the hippos, it is the reasonableness of the response which is important, not the accuracy of the actual number. For example, if a child said '3', talk about the number of heads you can see.
If a child said '100', talk about what 100 dots looks like.

Family comment:

Child comment:

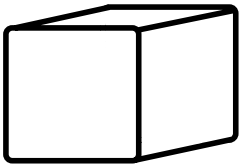
Curriculum Link

Subitise and talk about what they see; 'have a go' and talk about what they notice.

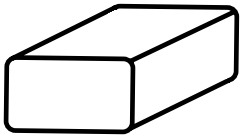
Building 3D shapes

Family Maths Toolkit

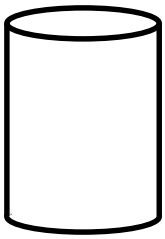
Can you find any objects around the house which are 3D shapes like these?



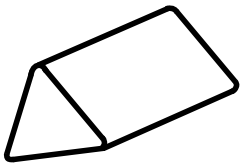
cube



cuboid



cylinder



triangular prism

How many did you find? What is the same? What is different?

Could you build a house, a castle or a temple with any of the shapes? Which shapes are good for building? Why?

Draw or take a photo of your house/castle/temple.

There is a 3D shape not shown – a sphere. A ball is a sphere. Do you think it would be good to build with?

Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape.

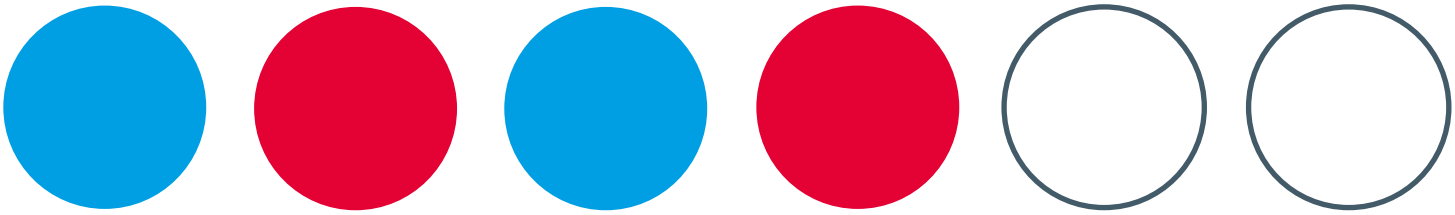
National Numeracy
Getting on with numbers

Easter egg patterns

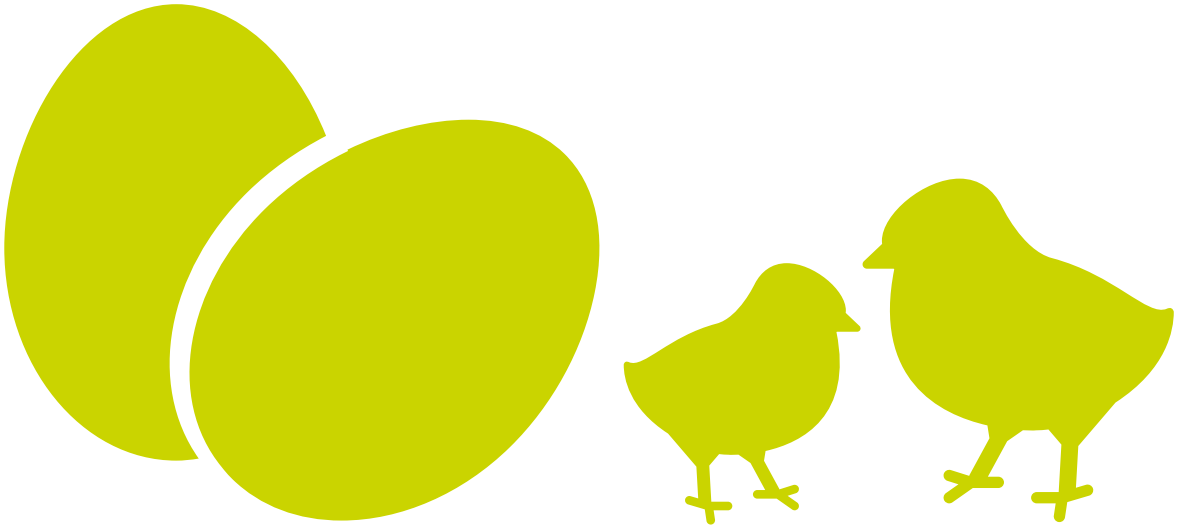
Family Maths Toolkit

Tom is making some patterns for Easter egg wrapping paper.

Can you continue these patterns?



Here is another harder pattern:

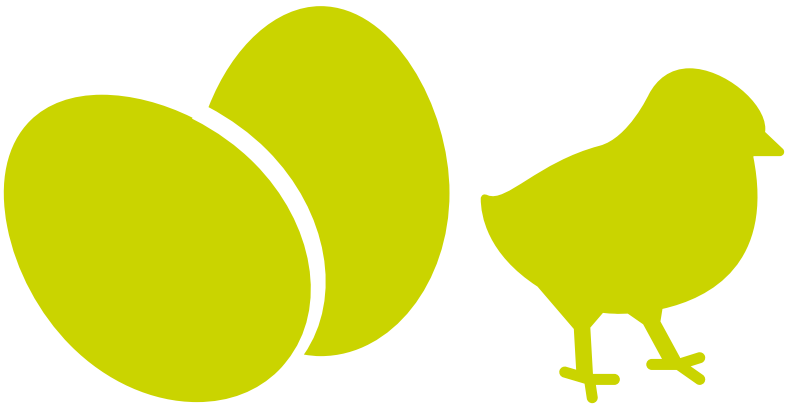


Then Tom wanted to use 3 colours and he tried this pattern:

Could you make a pattern and talk about it? Ask your family to make one too and choose which is the best.

Helpful hints: Talk about what comes next. Would it be the same pattern if a colour changed but not the shape? Use language like: next to, before, order, how do you know? Same, different.

Start with simple patterns, and go on to more complex ones if they are easily recognised.



Family comment:

Child comment:

Curriculum Link

Look for patterns and relationships.

National Numeracy
Getting on with numbers

Samosas

Family Maths Toolkit

Samosas are small pastries eaten in many parts of the world. They can be filled with spicy vegetables or meat.

Samosas are usually triangle shapes. They are made by folding pieces of pastry –

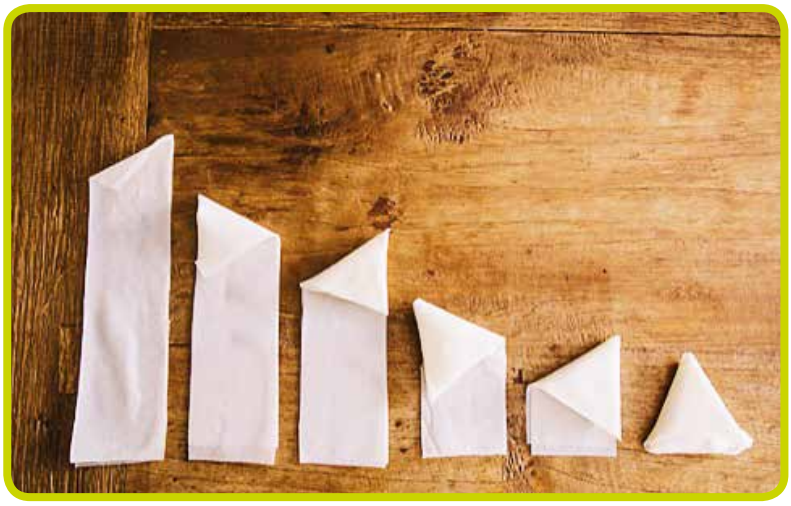


Image courtesy of Shaheen Hughes at Spice Mama

Cut a piece of A4 paper in half (A4 is the size of this scrapbook page) – how many triangles can you fold to make a pretend samosa?

Helpful hints: Talk about the rectangle you start with, discuss each triangle as you fold the paper – how do you know it is a triangle?

There are many simple samosa recipes online. It would be lovely to make some - or perhaps buy one or two.

Family comment:

Child comment:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape.

Goldilocks and the Three Bears

Family Maths Toolkit

Goldilocks went into the house of the three bears. She found three bowls of porridge.

One bowl was small and had half the porridge that was in the middle bowl.

One bowl was big – double the amount of the middle bowl.

Make a bowl of porridge (or similar). Can you split it so that the middle bowl has double the amount of porridge in the small bowl and the biggest bowl has double the middle bowl?

Do you have bears (or other soft toys) who could be the baby bear, mummy bear and daddy bear?

Helpful hints: Talk about half, double, twice as much, less, more. This activity is about estimating not exact measuring. You could use spoons and count, for example, 4 into the small bowl, then 4 and 4 again into the middle and so on.

Family comments:

Child comments:

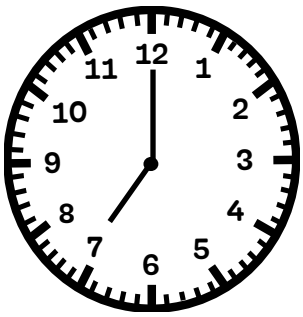
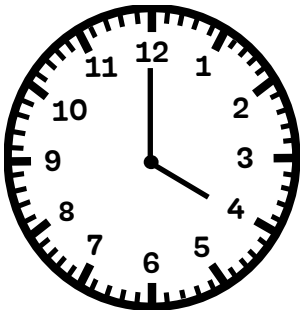
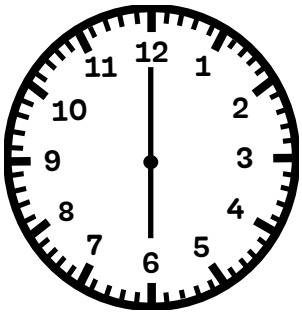
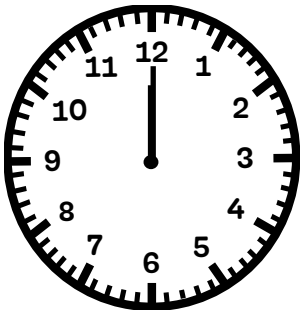
Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Time

Family Maths Toolkit

Look at the times on these clocks – what time do they say?

Can you draw the clocks and draw what you might be doing at that time of day?

Helpful hints: Talk about the times shown and discuss what your child might be doing - at home or at school. Talk about AM or PM times. For example, you might be getting out of bed at 7AM or going to bed at 7PM.

Family comments:

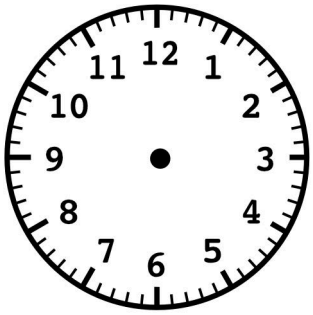
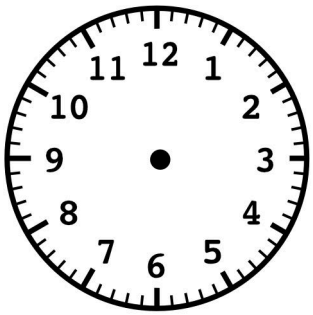
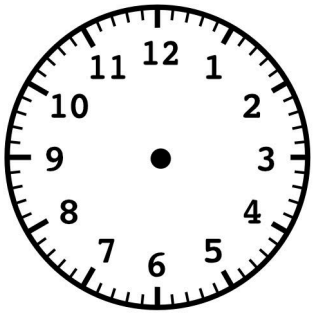
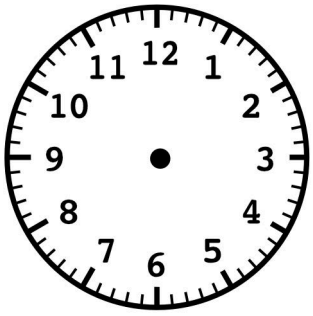
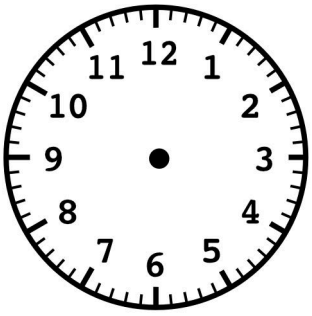
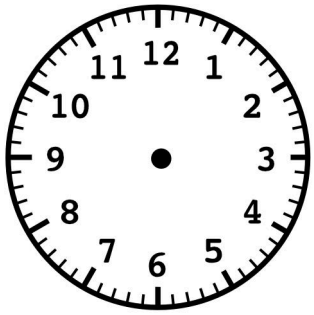
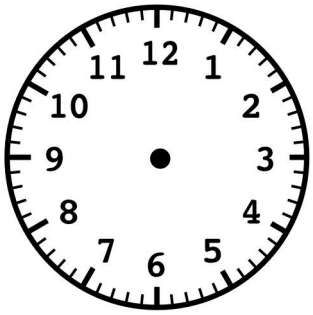
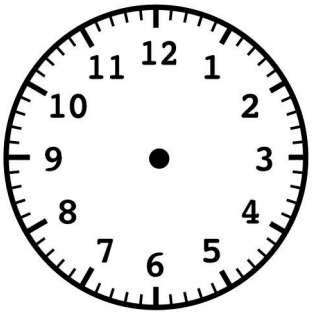
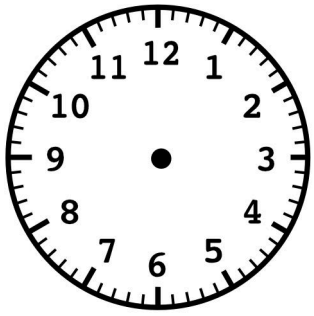
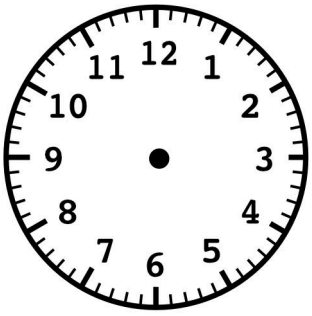
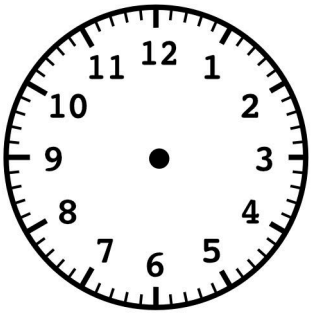
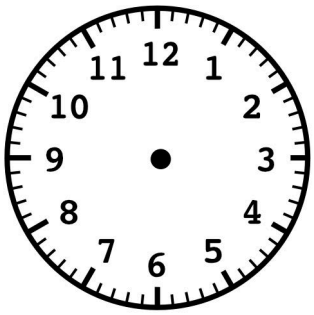
Child comments:

Curriculum Link

Use everyday language to talk about time.

Time

Family Maths Toolkit

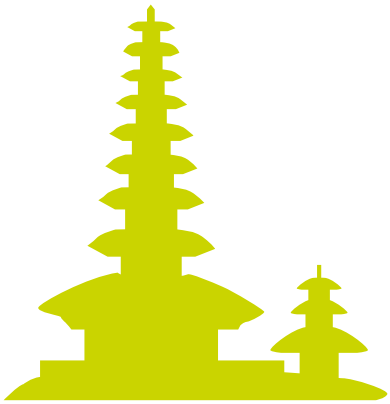













National Numeracy
Getting on with numbers

Chinese Lion Dance

Family Maths Toolkit

In China, there is a Lion Dance as part of the New Year celebrations. Dancers dress in big, red lion costumes. They dance and collect money in red envelopes. People think it will bring them good luck if they give the lion money.



These envelopes have pound coins in –

- How much is in each envelope?
- How much has the lion collected altogether?
- How much would he have if each coin was £2?

Helpful hint: Encourage your child to count each envelope separately first and ensure they can count accurately, then count all the envelopes moving on to counting in 2s if the child is ready.

Family comment:

Child comment:

Curriculum Link

Count to 20; recognise when one quantity is greater than, less than or the same as the other quantity.

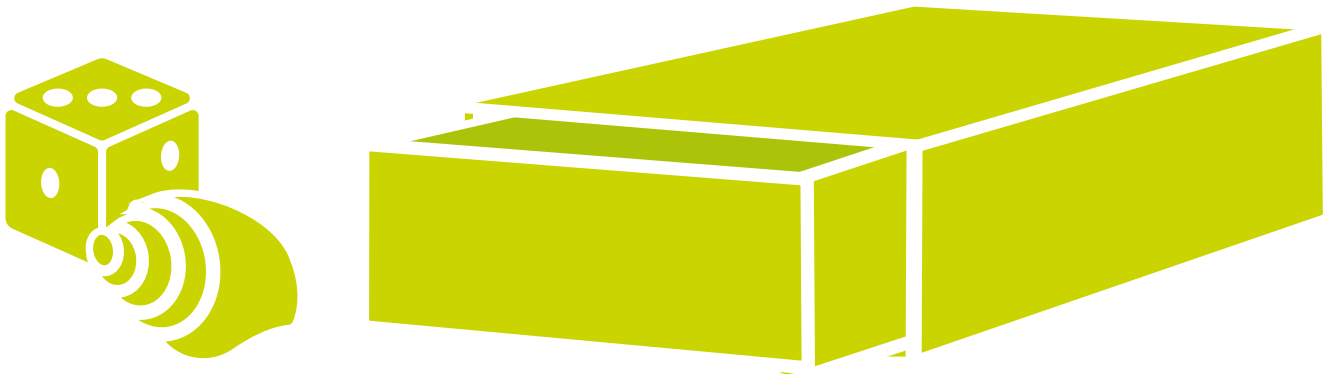
Counting challenge

Family Maths Toolkit

Find an empty matchbox, empty food container or similar. Estimate how many things you could fit inside.

Challenge each family member to find the most items.

Helpful hints: Talk about estimation of the number of things before you start to collect items. Decide whether they could all be the same or different. Check each other's boxes to increase the counting practice. Think about outside as well as indoor items.



Family comments:

Child comments:

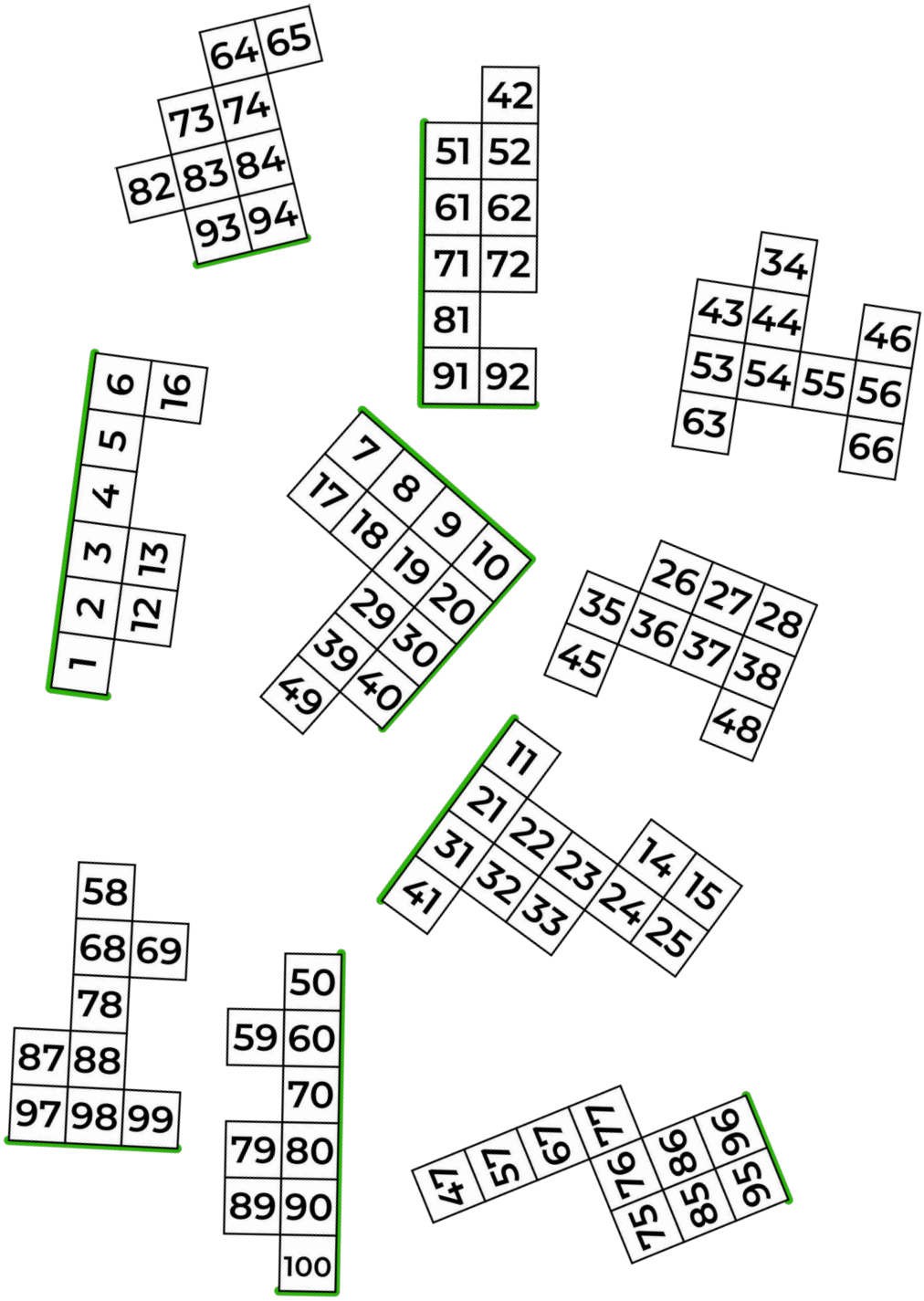
Curriculum Link

Count verbally to 20, and maybe beyond.

One hundred square puzzle

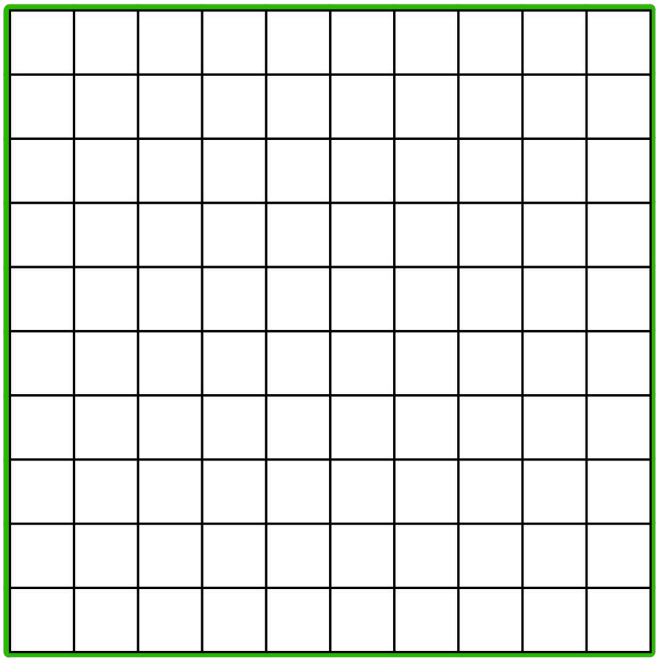
Family Maths Toolkit

Here is a number square from 1 to 100.
It has been cut up to make a puzzle.



National Numeracy
Getting on with numbers

Can you make the square again, putting the numbers in the right order?



Could you make your own to challenge your family and friends?

Helpful hint: Encourage talking about the number before, the one after, the patterns of going up or down in tens, how do we know that goes there?

Family comment:

Child comment:

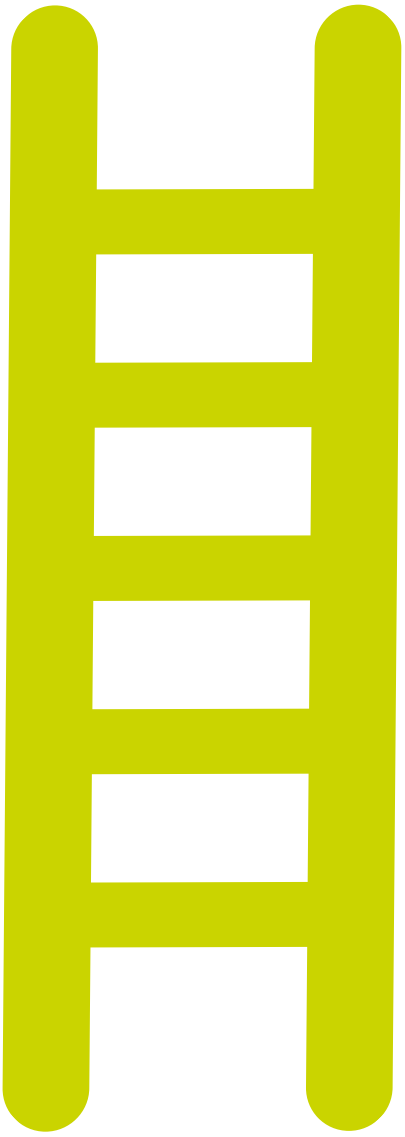
Curriculum Link

Verbally count beyond 20, recognising the pattern of the counting system.

Snakes and ladders

Family Maths Toolkit

You will need a dice and small counters or play people. Start at number 1 and take turns to throw the dice. Move your piece the number of places shown on the dice – if you land at the bottom of a ladder, you move up to the top. If you land on a snake's head, you move down to the tail.

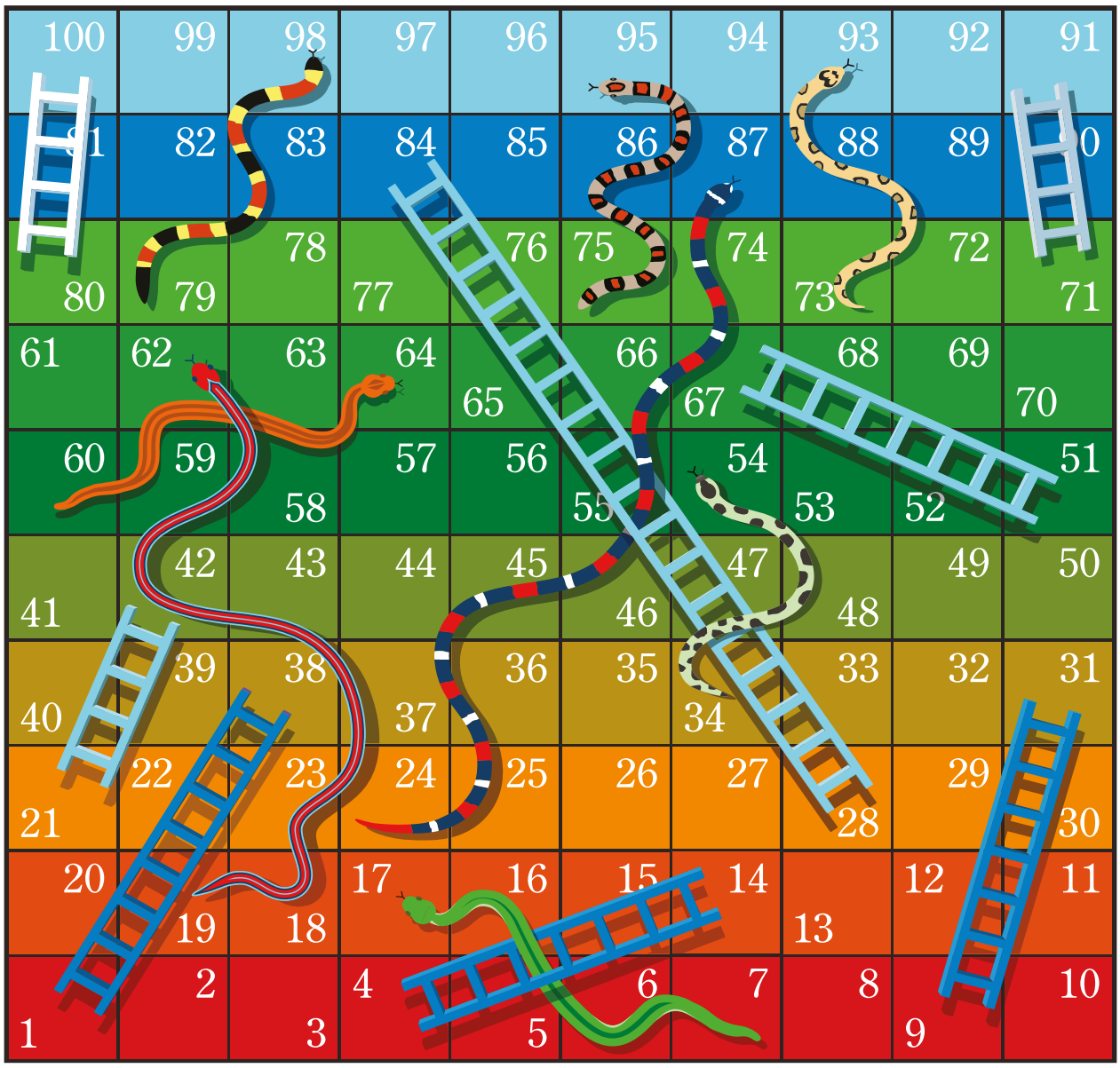


Who will reach 100 first?

Helpful hints: Talk about the moves as you play. For example, ask how many more spaces do you need to win? Can you count on 4 spaces?

Are you going up or down? Who is first now?

Which ladder is the longest? Which snake do we not want to land on? What happens if we count in 10s from 10 to 100? How far ahead are you?



Family comment:

Child comment:

Curriculum Link

Verbally count beyond 20, recognising the pattern of the counting system.

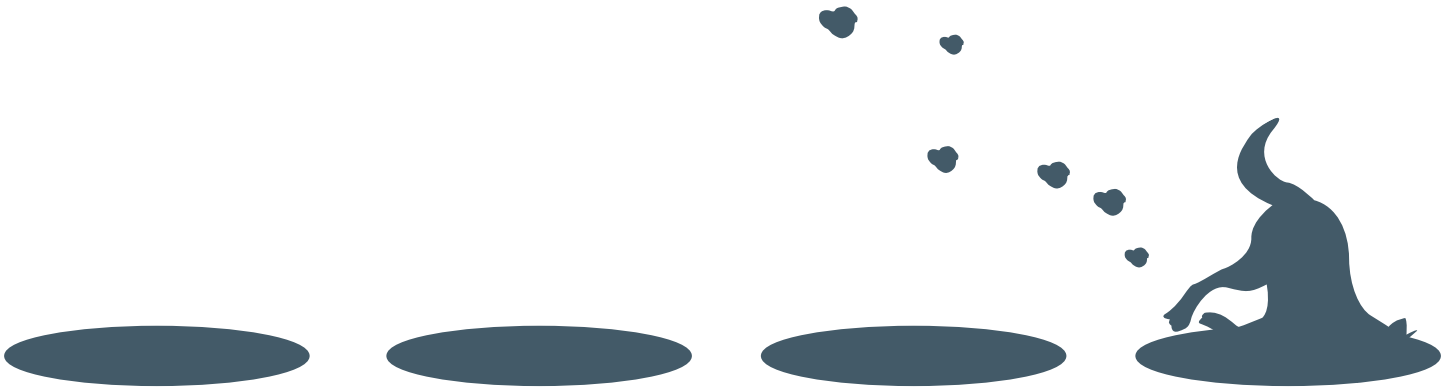
National Numeracy
Getting on with numbers

Burying bones

Family Maths Toolkit

Paddy the puppy has dug 4 holes in the garden to bury his favourite bones. There are 8 bones.

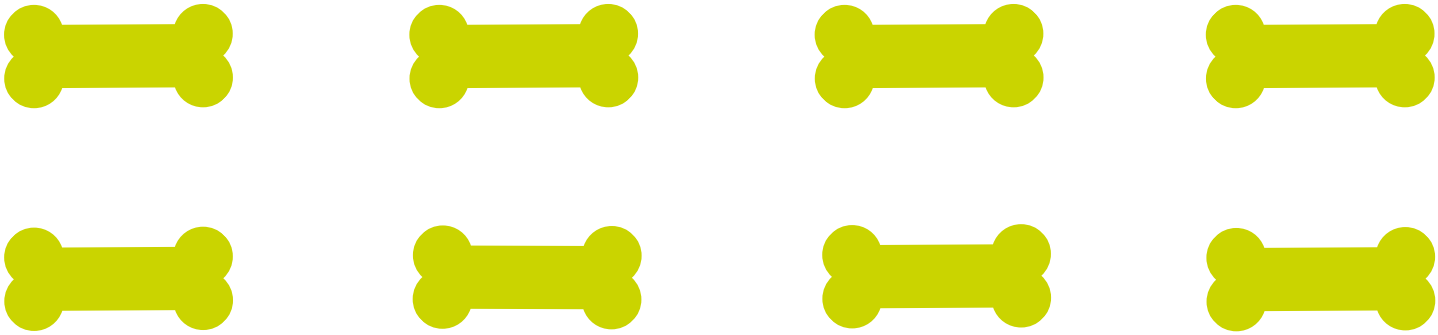
How many different ways can you find for him to bury his 8 bones? Is there a way all the holes could have the same number of bones?

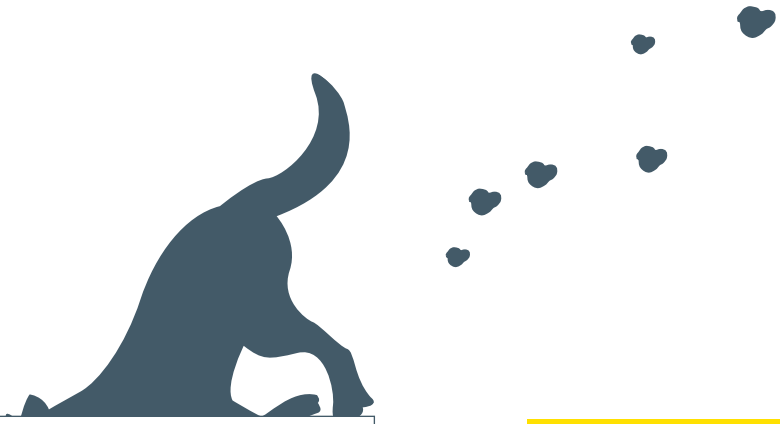


National Numeracy
Getting on with numbers

Helpful hints: Draw 4 holes and cut out the bones (or use the same number of counters) so your child can move them around and count. If equal groups are found, encourage counting in 2s.

There are many unequal possibilities but only one equal grouping. It is not the aim to find all possibilities but to experiment and talk about possible groups.





Family comment:

Child comment:

Curriculum Link

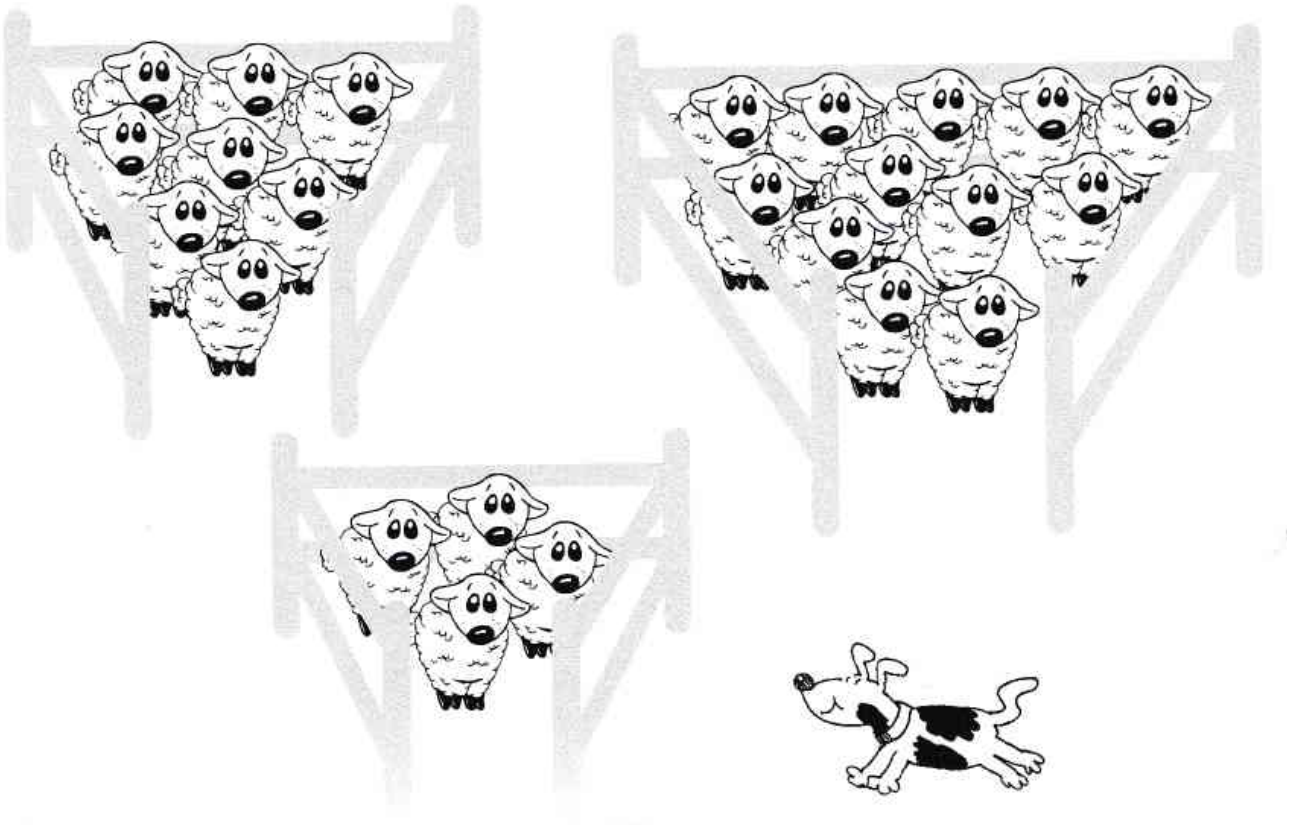
Number bonds to 10; compare quantities; explore how quantities can be distributed equally.

Sheepdog trials

Family Maths Toolkit

Paddy is a sheepdog. He must chase 12 sheep into 3 pens of different sizes.

Each pen must have a different number of sheep – the largest pen must have the most sheep and the smallest pen must have the fewest sheep. No pen can be empty.



How many sheep might Paddy try to get in each pen? Find as many different ways as you can.

Helpful hints: Use counters or pasta shapes to represent sheep and complete the activity practically to try out different combinations. Talk about more than and less than, talk about the value of zero if no sheep are in a pen. Record as drawings or as the child wants to (some may draw and some may write sums – it is the problem solving and talk which is important).

Family comment:

Child comment:

Curriculum Link

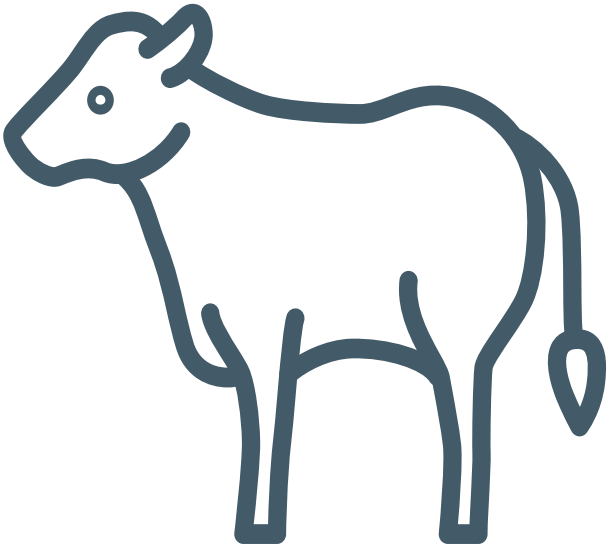
Count to 20; compare quantities; explore how quantities can be distributed; talk about what they notice and 'have a go.'

The farmer and his cows

Family Maths Toolkit

The farmer likes to put his cows in barns at night to keep them safe and warm.

He has 2 barns:



Use counters (or raisins, pasta shapes) to be the cows.

If the farmer has 6 cows, how could he share them equally between the 2 barns? Put your counters in the barns and count them – how many are in each barn?

What if he had 10 cows? 8? 14?

What would happen if the farmer had 9 cows?

Helpful hints: Use the vocabulary equal and talk about what it means, talk about how many cows you start with and how many are in each group – it is still the same number. Count as the 'cows' are placed in the barns. Talk about 3 and 3 as parts of 6. Talk about doubles, one more and one less.

Let your child decide what happens to the leftover cow.

Family comment:

Child comment:

Curriculum Link

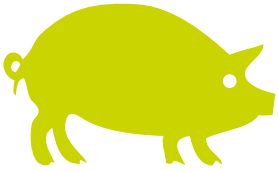
Compare quantities in different contexts, recognising when one quantity is greater than, less than or the same, including odds and evens.

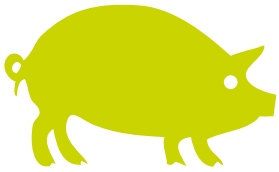
Three little pigs

Family Maths Toolkit

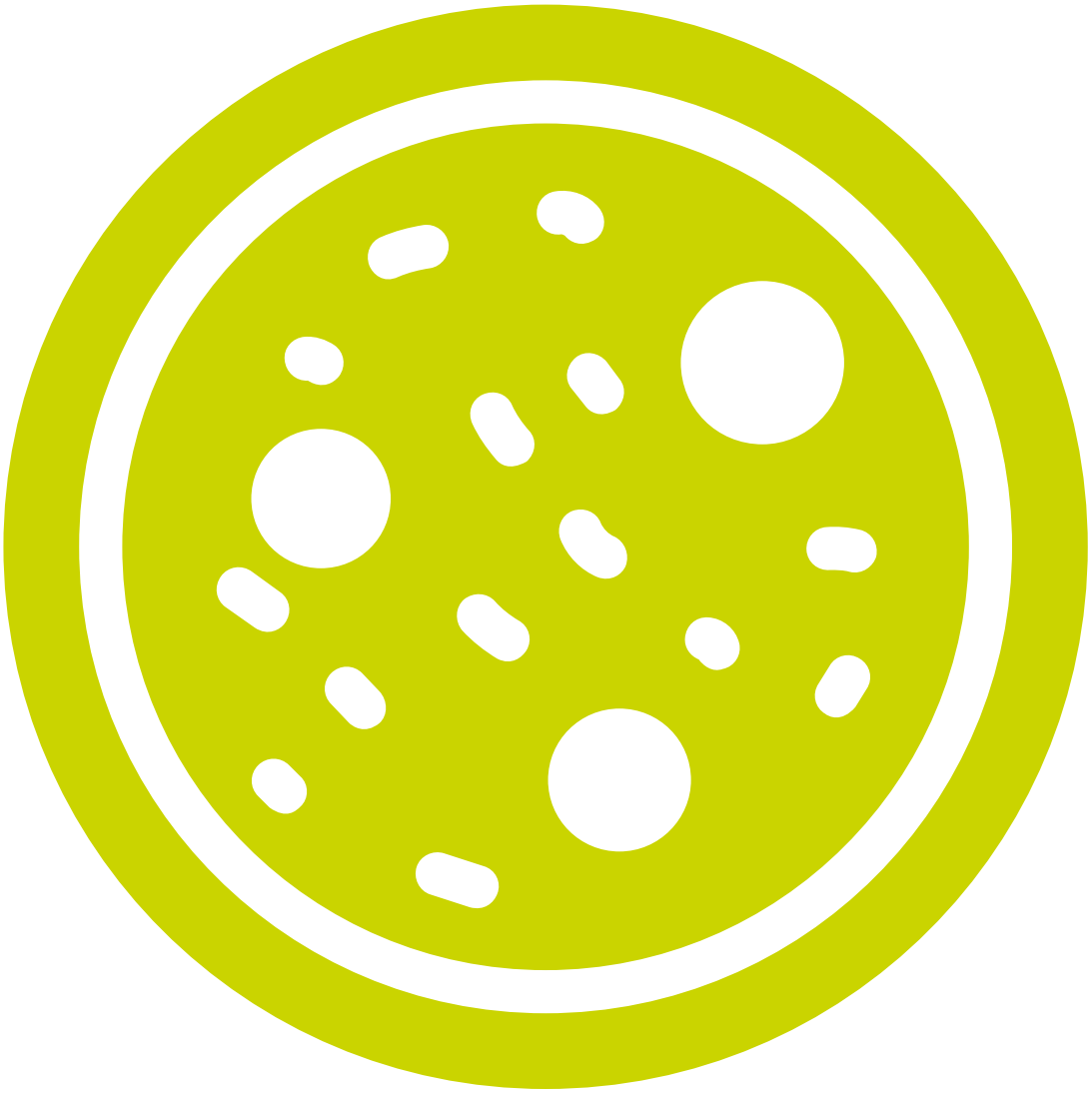
Two little pigs bought a pizza for a picnic.

How could they share it equally so each pig gets the same?



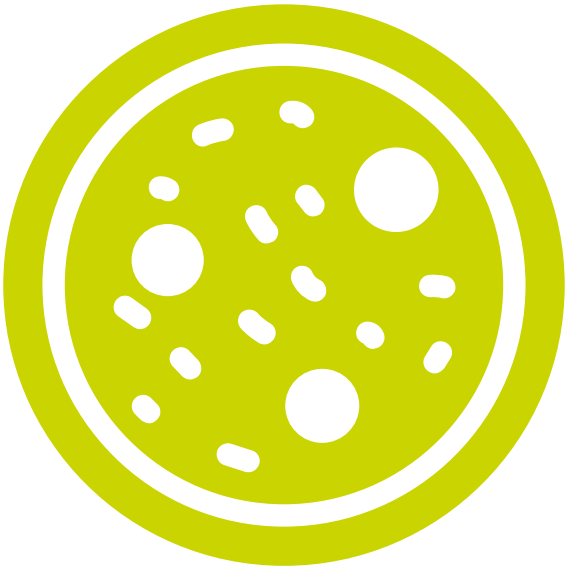


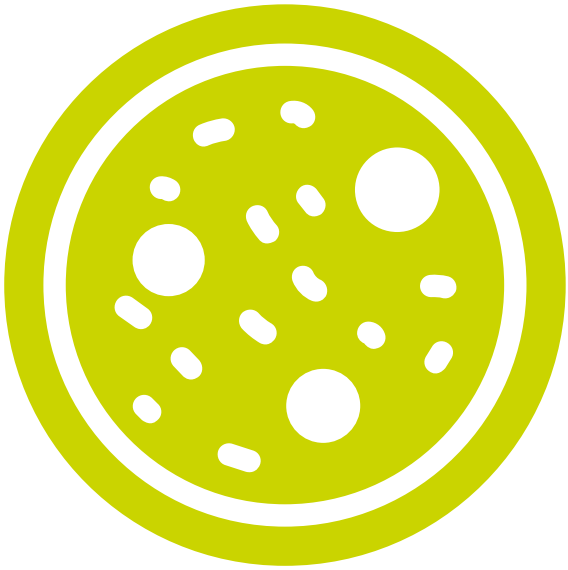
Draw a line on this pizza to show where they would cut it. How much would each one get?



Along came the other little pig and the big bad wolf. How could they share the pizza between the four of them?

They decide they have to buy two pizzas. How will they share two pizzas so that they all get an equal share?





The big bad wolf says he should get a bigger bit – what would you say to him?

Can you think of any food you have at home which needs to be cut into pieces?

Helpful hint: If you are not familiar with this story, you could use Goldilocks and the Three Bears.

Family comment:

Child comment:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Summer leaves

Family Maths Toolkit

Leaves are all different shapes and sizes.

Can you find a leaf longer than your hand?

Can you find one shorter than your finger?

Draw round them both. Can you now find a leaf which is in between?

A sycamore leaf always has 5 points –

Can you draw 5 sycamore leaves? How many points altogether?

Helpful hints: Talk about longer than, shorter than, using non-standard units to measure (such as hands or fingers), will it be different for each family member?

Encourage your child to point and touch as they count. Then encourage counting in 5s.

Family comments:

Child comments:

Curriculum Link

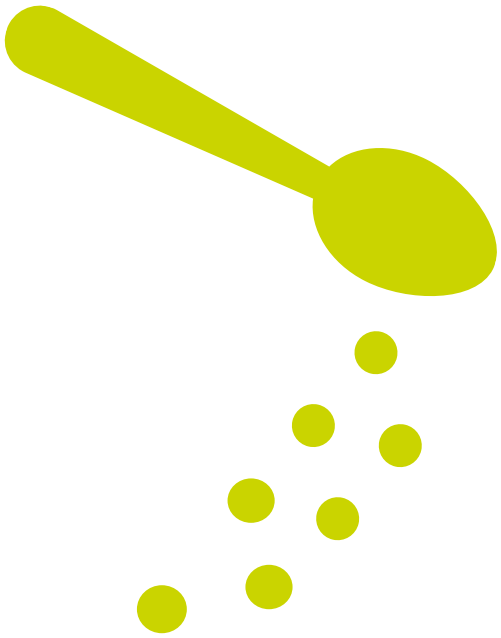
Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Biscuits

Family Maths Toolkit

Ingredients

- 2 cups* of plain flour
- 1 cup* of butter
- 1 cup* of brown sugar
- 1 small beaten egg
- 2 teaspoons of mixed spice
- Pinch of salt



For the icing:

- 1 cup* of icing sugar
- 1-2 tablespoons of hot water
- food colouring if desired

* the cup should hold around 4oz or 125g

Oven: 190°C/ 375°F/gas mark 5

Grease two baking trays

Beat the butter and sugar together until fluffy. Beat in the egg a bit at a time.

Sift in the flour, salt and spice. Mix everything well to make a ball of firm dough.

Sprinkle some flour on to a table and a rolling pin. Then roll the dough until it is about ½ cm thick (length of your little finger nail).

Cut the dough into shapes. Gather any dough left and roll it up again to make more shapes.

Put the biscuits on the trays. Bake them on a high shelf for about 15 minutes until light brown.

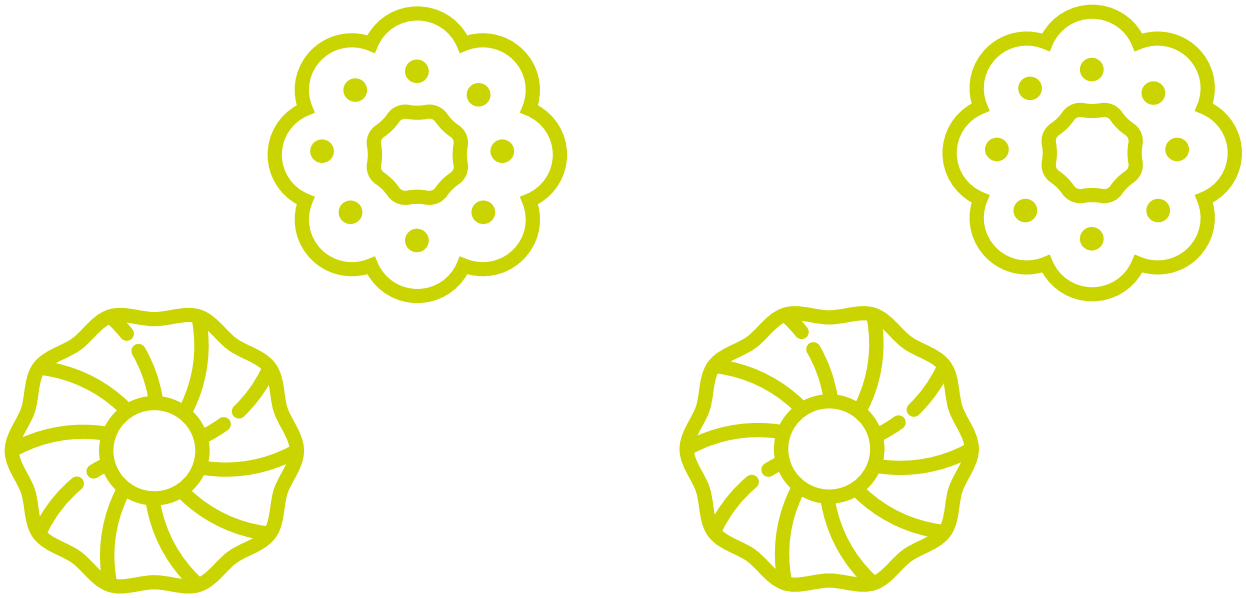
Put the biscuits on a wire rack to cool. Mix the icing sugar and hot water together until smooth. Add some colouring if liked.

When the biscuits are cool, spoon half a teaspoon of icing on to each one and spread it out evenly. They could be decorated with silver balls or anything else you like.

Enjoy your biscuits!

Helpful hints: Talk about the same as, different, more than, less than, equal to, double, what would happen if..., time, how long, hot, changes in dough – soft until cooked.

If it is not possible to make biscuits, share some other cooking with your child and talk about the quantities of ingredients.



Family comment:

Child comment:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of maths including measures; develop vocabulary from which mastery of mathematics is built.

Chetan's pocket

Family Maths Toolkit

Chetan has some coins in his pocket. He has 3 coins and each coin is either a 1p, 2p or 5p.

How much could he have altogether?

Helpful hint: Using real money will help your child; talk about the total value of the coins.

Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

Cost of an ice-lolly

Family Maths Toolkit

Matthew wants to buy an ice-lolly.

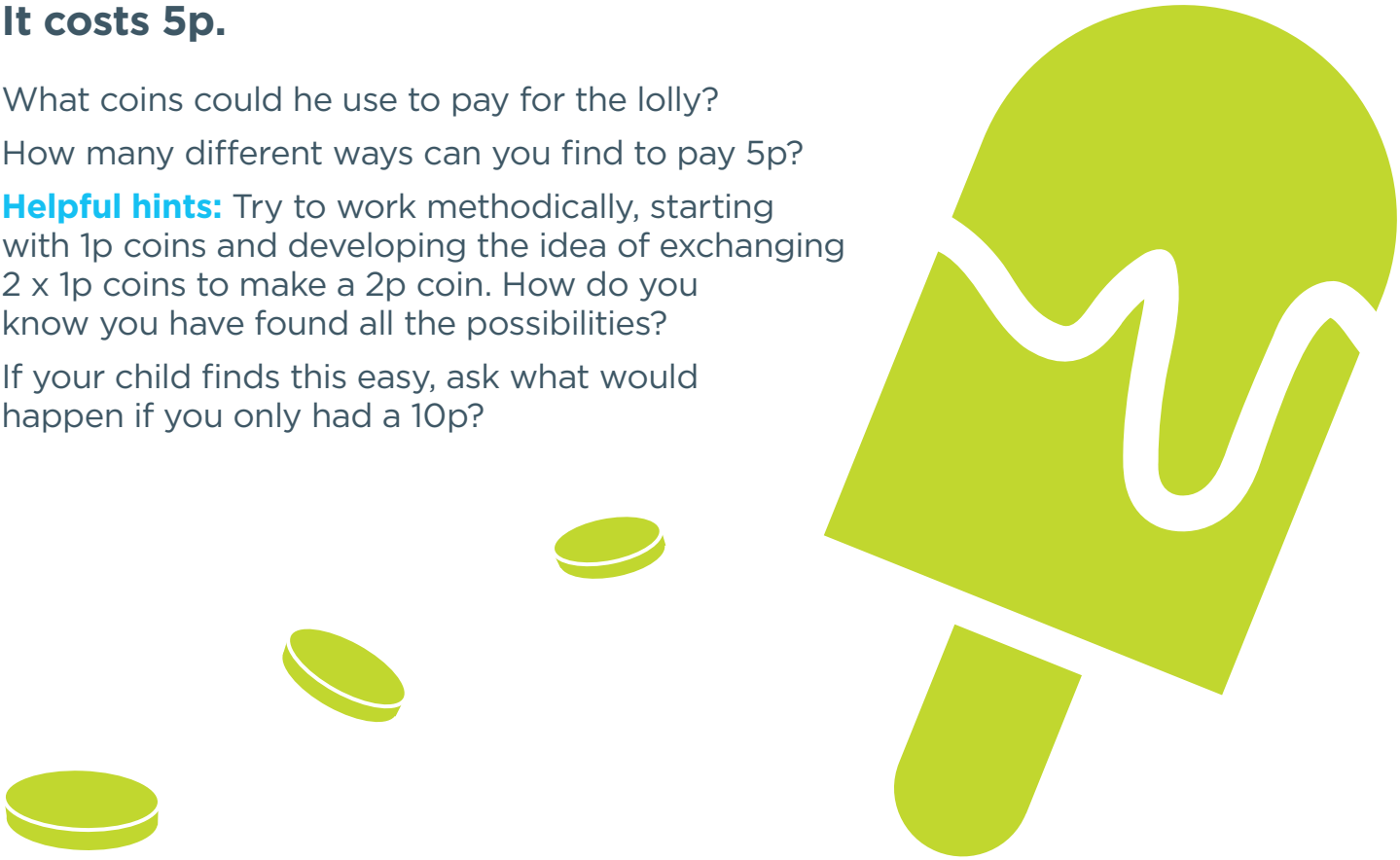
It costs 5p.

What coins could he use to pay for the lolly?

How many different ways can you find to pay 5p?

Helpful hints: Try to work methodically, starting with 1p coins and developing the idea of exchanging 2 x 1p coins to make a 2p coin. How do you know you have found all the possibilities?

If your child finds this easy, ask what would happen if you only had a 10p?



Family comments:

Child comments:

Curriculum Link

Opportunities for children to develop their spatial reasoning skills across all areas of mathematics including measures.

YR Autumn Activities answers

Family Maths Toolkit

Two dogs

2 tails; 2 noses; 4 ears; 1 ball; 8 legs.

YR Spring Activities answers

Family Maths Toolkit

Giraffes and hippos

There are 5 giraffes and 20 hippos.

Mad Hatter's tea party

5 'people' in total so 5 of everything – except teapot and sugar cubes.

Bugs

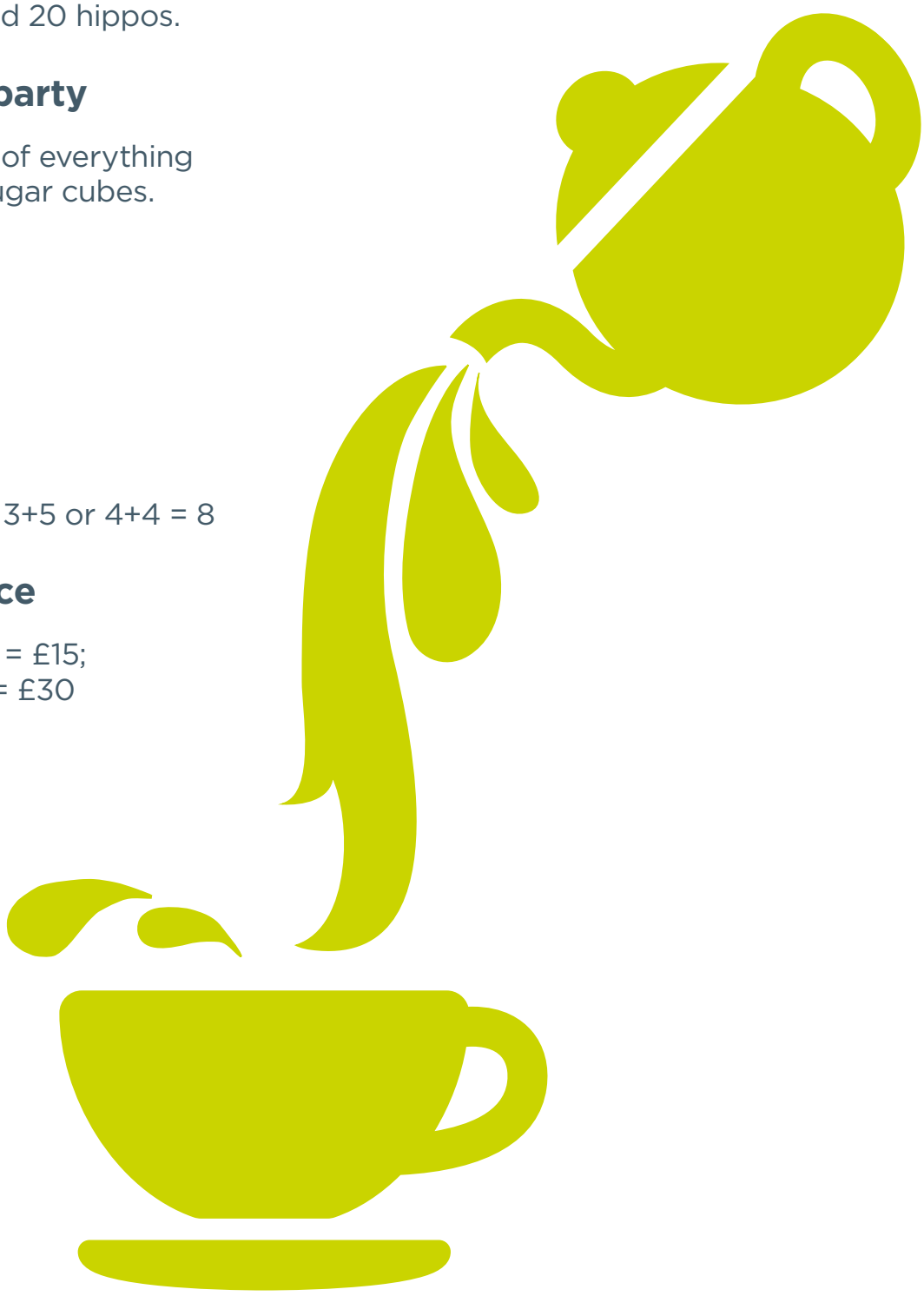
- 2+1 = 3
- 3+3 = 6
- 6+1 = 7
- 0+8 or 1+7 or 2+6 or 3+5 or 4+4 = 8

Chinese Lion Dance

£3; £2; £1; £4; £5 Total = £15;
if £2 coins used, total = £30

Pairs of socks

18 socks = 9 pairs



YR Summer Activities answers

Family Maths Toolkit

Chetan's pocket

10 different amounts possible:

5p/5p/5p = 15p; 5p/5p/2p = 12p;
5p/5p/1p = 11p; 5p/2p/2p = 9p;
5p/2p/1p = 8p; 5p/1p/1p = 7p;
2p/2p/2p = 6p; 2p/2p/1p = 5p;
2p/1p/1p = 4p or 1p/1p/1p = 3p

Burying bones

15 possibilities (13 unequal) but not expecting children to find them all – 4 groups of equal 2 is a good conclusion for this activity -

- 8000
- 7100
- 6200
- 6110
- 5300
- 5210
- 5111
- 4400
- 4310
- 4211
- 4220
- 3320
- 3311
- 3221
- 2222

Sheepdog trials

7 possibilities –

- 9, 2, 1
- 8, 3, 1
- 7, 4, 1
- 7, 3, 2
- 6, 5, 1
- 6, 4, 2
- 5, 4, 3

Cost of ice-lolly

4 possibilities – 5p; 2p,2p and 1p;
2p, 1p, 1p, 1p; 1p, 1p, 1p, 1p, 1p

Farmer and his cows

6 = 2x3; 8 = 2x4; 10 = 2x5;
14 = 2x7; 9 = 2x4 and 1 left over