Maths-*Whizz*®
by **whizz** EDUCATION

Making Maths Stick
End of year two
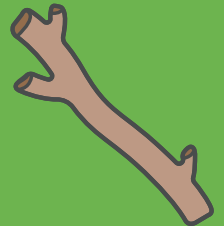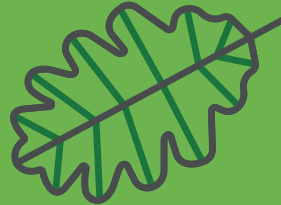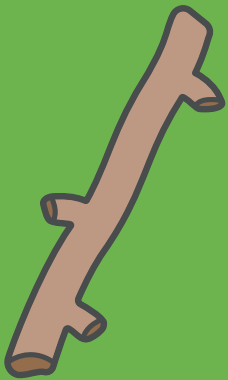
Maths-Whizz account details:

Username _____

Password _____

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🐦 @MathsWhizzTutor

Contents

Making Maths Stick

Did you know?

At Whizz Education, we've been examining our live learning data which shows that **children can lose 2.6 months worth of learning over a typical 6 week summer holiday!**

This is known as Summer Learning Loss and this year, we've decided to do something about it.

Overall summer learning loss
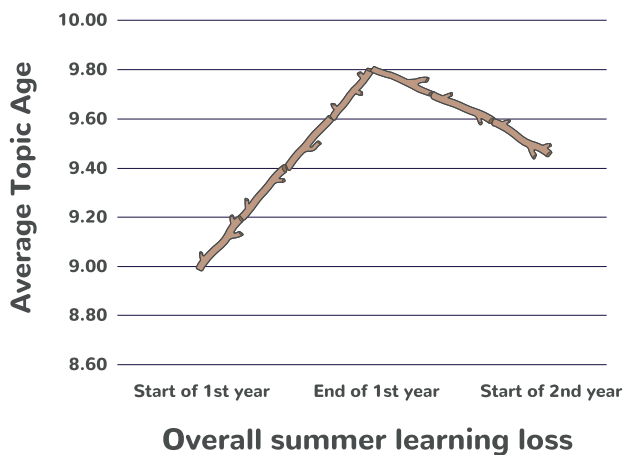
Reducing summer learning loss

We recommend children continue to use Maths-Whizz throughout the year, achieving at least 3 Progressions each week (that's likely to take between 45 and 60 minutes per week). So, over a 6-week summer holiday, not only will children be able to maintain their maths knowledge, they will also make additional progress as well. For such a small amount of time each week the gains are huge!

Making Maths Stick this summer

We've created a handy chart for you to stick up at home as a way of tracking the Progressions your child has made on Maths-Whizz over the holidays.

We've also created a fun activity pack, full of ideas, activities and games to bring the maths your children have been learning at school to life, and all inspired by the outdoors! The activities and games can be done at home, on holiday, while you're visiting friends, in the local park, the wood, at the beach or in the garden. Our activities involve a range of engaging, hands-on activities and games to suit all learning styles. Every activity aims to encourage enquiry, creativity and teamwork in making maths fun.

Getting started

Everything you need can be found outdoors or in cupboards at home, so you can be creative! For rainy days or if you want to stay indoors, you can use paper straws, spaghetti, pencils, beans or building blocks. If you're outside, remind children to be kind to the environment - be careful not to disturb or damage trees or plants, use what you find on the ground instead. And always wash your hands before handling food and drinks.

What's in the pack?

There are 12 activities, for each year group - have a look through and you can choose the pack that matches the year group your child has just finished or the year group they will join in September. Try to complete two a week throughout the holidays.

Connect with us!

Share what you have been up to with us through Twitter or Facebook - just search **@MathsWhizzTutor**. We will share the best of your posts with our followers each week! Most of all, have fun Making Maths Stick over the summer.

Name:

Weekly Progression chart

Maths-Whizz Progressions

Draw a tick over the stone for every Progression you make.
How many did you make in total this week? Write it in the box!

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Activities

Put a tick in the box when you have completed the
exercise in your 'Making Maths Stick' activity pack!

1	2	3
4	5	6
7	8	9
10	11	12

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Activity one - Counting stick

Key skills

- To be able to count forwards and backwards from zero or any given number.

- To count in multiples.

Have ready

- A stick, broom handle or pole at least a metre long, OR...

- Draw a chalk line on paving slabs, or even use the edge of a table and tape.

Activity

- Using the resources, make a counting stick (no longer than a metre) and with your child work out how to divide it into **10** equal parts.

- Mark each division with a pen, tape or tie string. This is now ready for all sorts of counting.

- Each mark/division can represent whatever you want it to. Point to the division as you count.
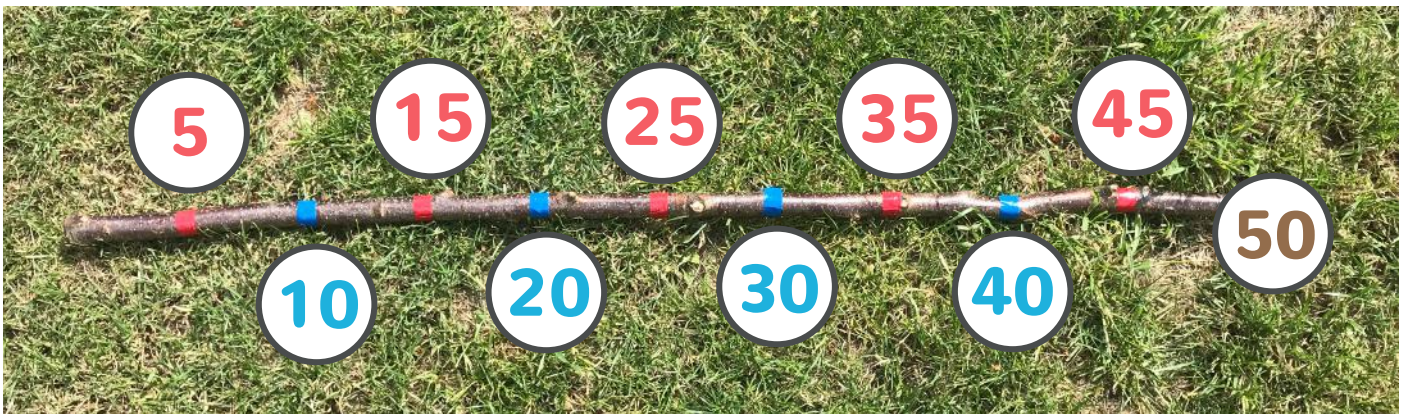
For example, you could count in ...

Ones – but start at 50 – 50, 51, 52, 53, 54 ....and so on

Twos - starting at zero or a different number

Tens & fives - starting at zero or a different number

Activity two - Race to 40

Key skills

- To regroup in tens and ones when adding.

- To exchange 10 ones for one ten.

Have ready

- Small sticks, straws or cocktail sticks. Group the sticks into ten and tie together to make one group. Repeat this so you have 8 groups of ten and 10 single sticks.

- You could play this with a big pebble that represents one group of 10 and smaller pebbles/stones that represent 1.

- A spinner or a dice (See resources).

Activity

- This is a game for two players. The winner of the game is first one to reach 40.

- Player one rolls the dice and picks up that number of sticks, then player two rolls the dice and also picks up that number of sticks.

- You are not allowed more than 9 sticks, so when each player has more than 9 sticks they have to exchange 10 single sticks for 1 group of 10 bundled sticks to continue. The winner will have 4 groups of ten sticks that make 40!

Activity three - Race to zero
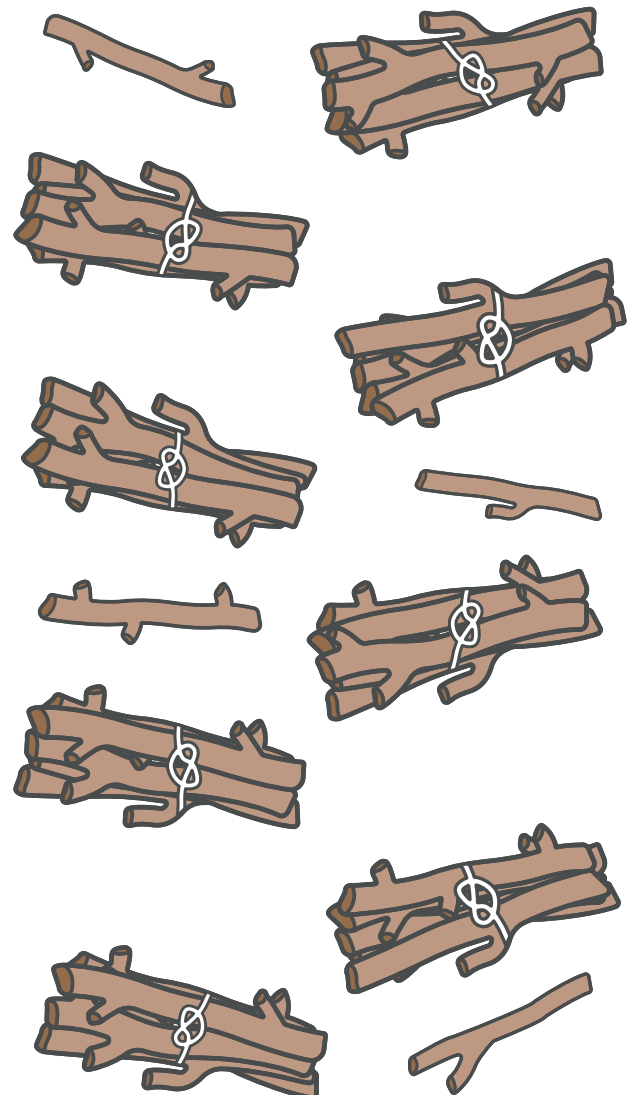
Key skills

- To regroup tens and ones when subtracting.

- To exchange one ten for ten ones.

Have ready

- Small sticks, straws or cocktail sticks. Group the sticks into ten and tie together to make one group. Repeat this so you have 8 groups of ten and 10 single sticks.

- You could play this with a big pebble that represents one group of 10 and smaller pebbles/ stones that represent 1.

- A spinner or a dice (See resources).
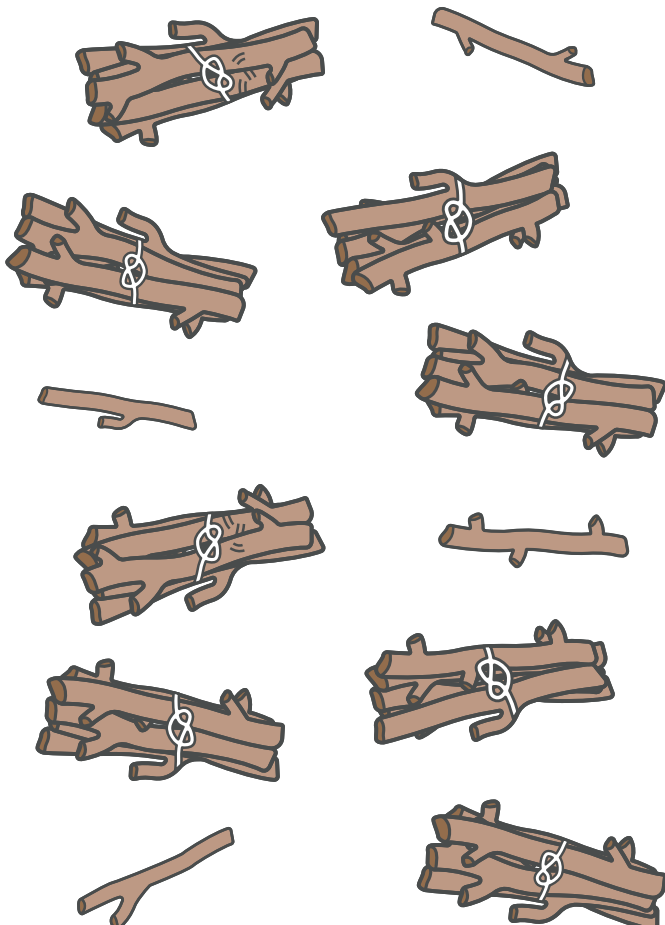
Activity

- This is a game for two players. The winner of the game is first one to reach zero.

- Same as activity two but this time you start with 4 groups of ten sticks.

- This time you will have to exchange a group of 10 sticks for 10 single sticks.

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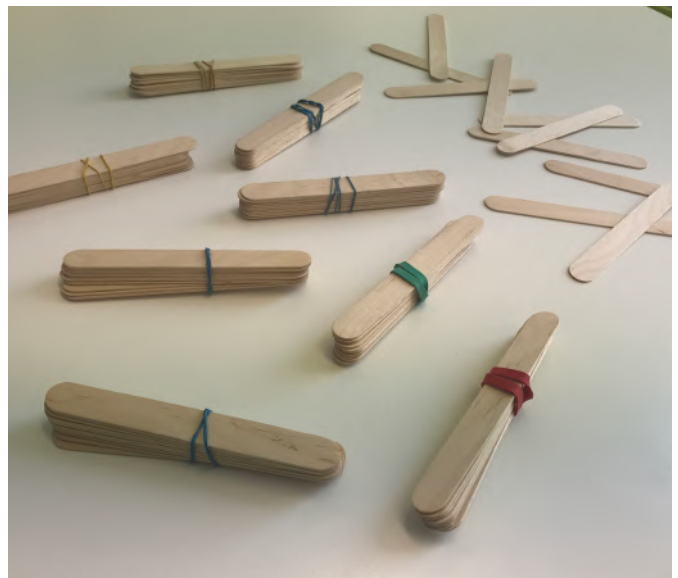
Activity four - Pebble arrays

- To practise multiplication and division facts using materials.

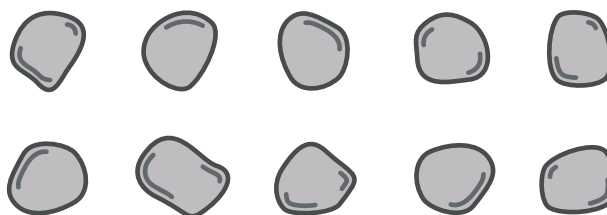- Lots of the same objects like pebbles, shells, pasta, beans, counters, toys.

- You are going to make an array. First decide how many objects you want in a row, for example, 5 objects. Arrange these 5 objects in a row evenly spaced out.

- Now decide how many rows you want. For example, here we have 2 rows of 5. We can also see 5 columns of 2.

- When children are making arrays they must make sure that each row has the same number, each column has the same number and they are evenly spaced. We can now link this to multiplication.

$$1 \times 5 = 5$$

$$2 \times 5 = 10$$

Or

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

- You can continue to keep adding rows.

- Children need lots of practice with making and describing their own arrays using the language explored in the example. This is an ideal way to practise multiplication and division facts.

Activity five - Follow the line

Key skills

- To create a pattern.

Have ready

- Pebbles, scrap paper cut into ovals/circles.

- Paint, chalk, pen, markers.

Activity

- This activity gives your child the opportunity to explore and be creative. You can ask questions related to shapes they make, length and direction.

    - Draw a straight line across some of the pebbles.

    - Draw two lines meeting to form a right angle.

    - Draw 3 lines forming to make a 'Y'.

    - Draw 2 lines forming to make a 'T'.

- Now let your child explore what they can make by joining the lines up. What can the lines make?

Need inspiration?
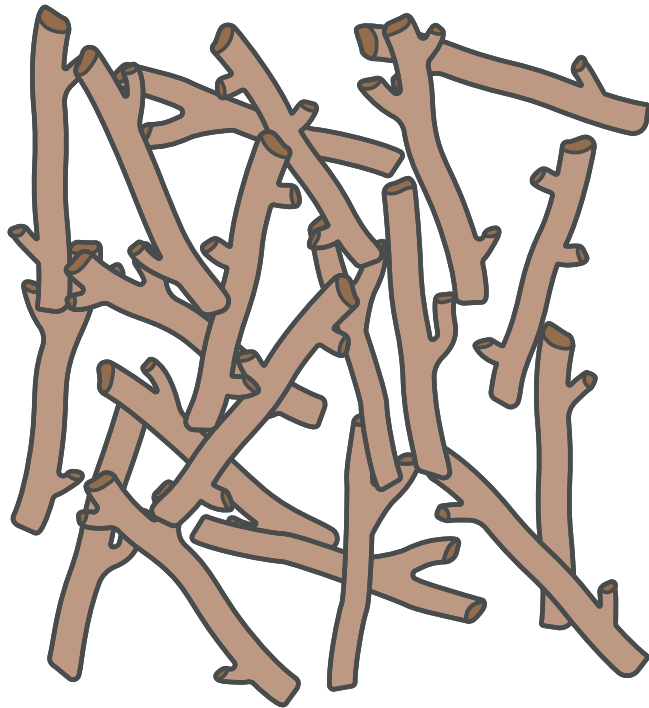### Why not try these…

Rectangle
House
Plus sign
Car
Your name

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Activity six - Pick up sticks

- To develop spatial awareness, fine motor control and develop mathematical vocabulary.

- About 20 sticks or alternatives.

- At least two players.

- Get about 20 sticks and drop them into a pile.

- Take it in turns to remove a stick without moving any others. You could ask what shapes you see when you look down at the pile.

Activity seven - What shapes can you make?

Key skills

- To identify and describe 2D shapes.

Have ready

- A selection of sticks.

Activity

- The challenge is to make as many different shapes as possible using the sticks.

- Talk about the properties of the shapes and see if your child can name some of the shapes - triangle, square, rectangle, quadrilateral, polygon.

- Take a number of sticks, for example, 15 – how many rectangles can you make with 15 sticks?

Activity eight - 3D shapes

Key skills

- To identify and describe 3D shapes.

Have ready

- Sticks.

- Playdough/string/ masking tape.

Activity

- Look around - what 3D shapes do you see?

- Using the sticks make a cube, cuboid or square based pyramid 3D shape.

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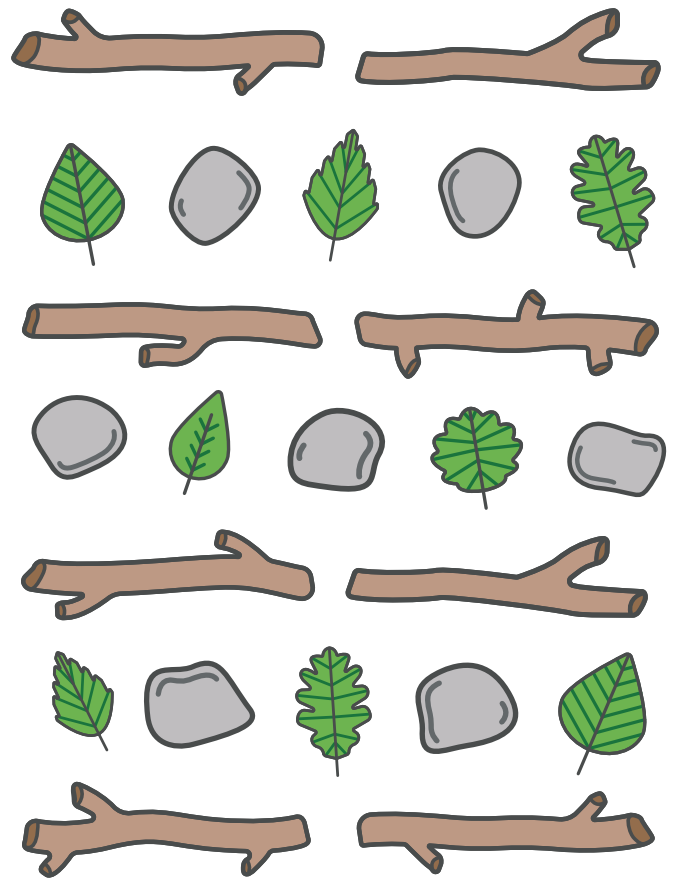by **whizz** EDUCATION

Activity nine - Patterns

● To copy, repeat and create a pattern.

Have ready

● A collection of different materials.

Activity

● Get your child to...

Copy a pattern you make.

Repeat the pattern you make.

Make their own pattern.

● How many times does the pattern repeat?

● What will the 10th object be?

● Make your own repeating patterns.

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# Activity ten - Dotty six (Nrich)

- To consolidate basic number facts combined with an element of strategic thinking.

Have ready

- You need a partner.

- 1-6 dice.

- Stones/dots.

- 3 x 3 grid (see resources). You could also draw this grid in the sand or draw with chalk on pavement.
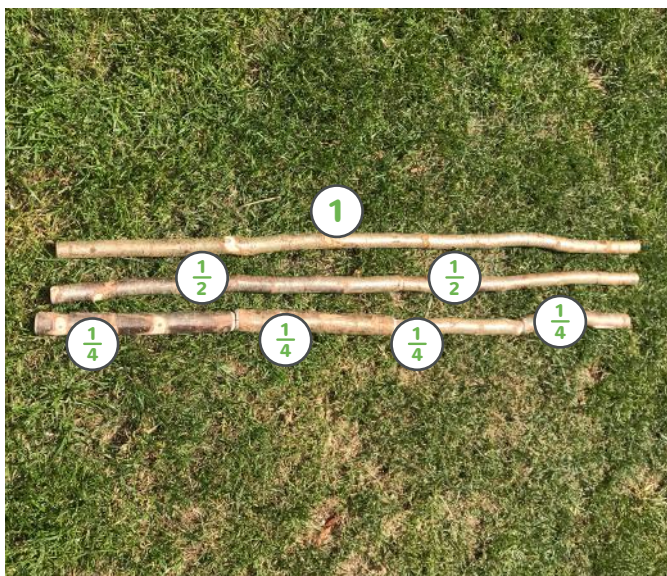
Activity

- Take turns to throw the dice and put the stones in the box.

- Each box totals **6** stones.

- You can put your stones anywhere but you have to put all of the stones for that throw in one box.

- You can add to stones already in a box.

- If there is nowhere to place the stones you miss a turn.

- Three boxes in a row, diagonal or column, each containing **6** stones, wins the game.
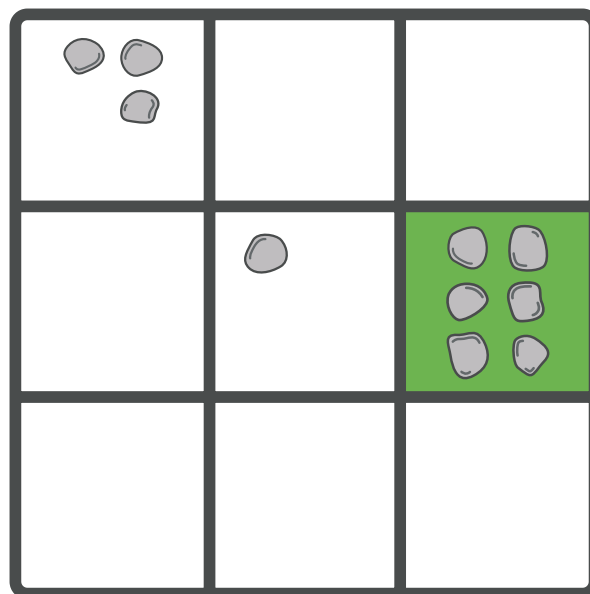
Now, can you change the game to make your own version? Perhaps change the total in each box, numbers on the dice, or try it with a 4 x 4 grid.

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Activity eleven - Fractions

Key skills

- To recognise, find and name fractions.

Have ready

- Sticks or alternatives.

Activity

- Using the sticks, make a fraction wall showing 1 whole, 2 halves, four quarters.

- Find half and quarter of quantities of leaves, acorns, conkers, sticks, vegetables, pebbles, seeds, berries, flowers etc.

- You could even place the materials on the fraction wall.

Activity twelve - A-maze-ing!

Key skills

- To describe position, direction and movement.

Have ready

- Sticks, or this could be drawn.

- A small toy.

Activity

- Use sticks to build a miniature maze and place the toy at the start.

- The child has to give directions to move the toy through the maze.

Possible vocabulary to use

- Right, left, forwards, backwards.

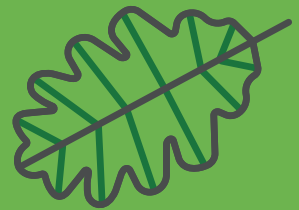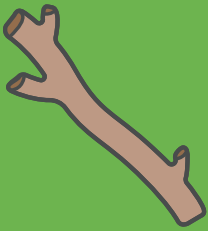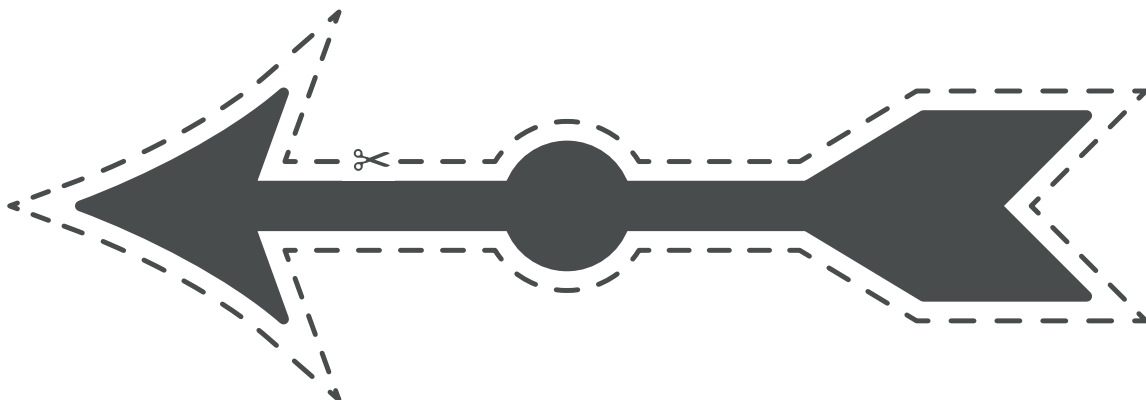- Whole turn, half a turn, quarter turn and three-quarter turn, clockwise.

Resources

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1 - 6 spinner

1 - 9 spinner
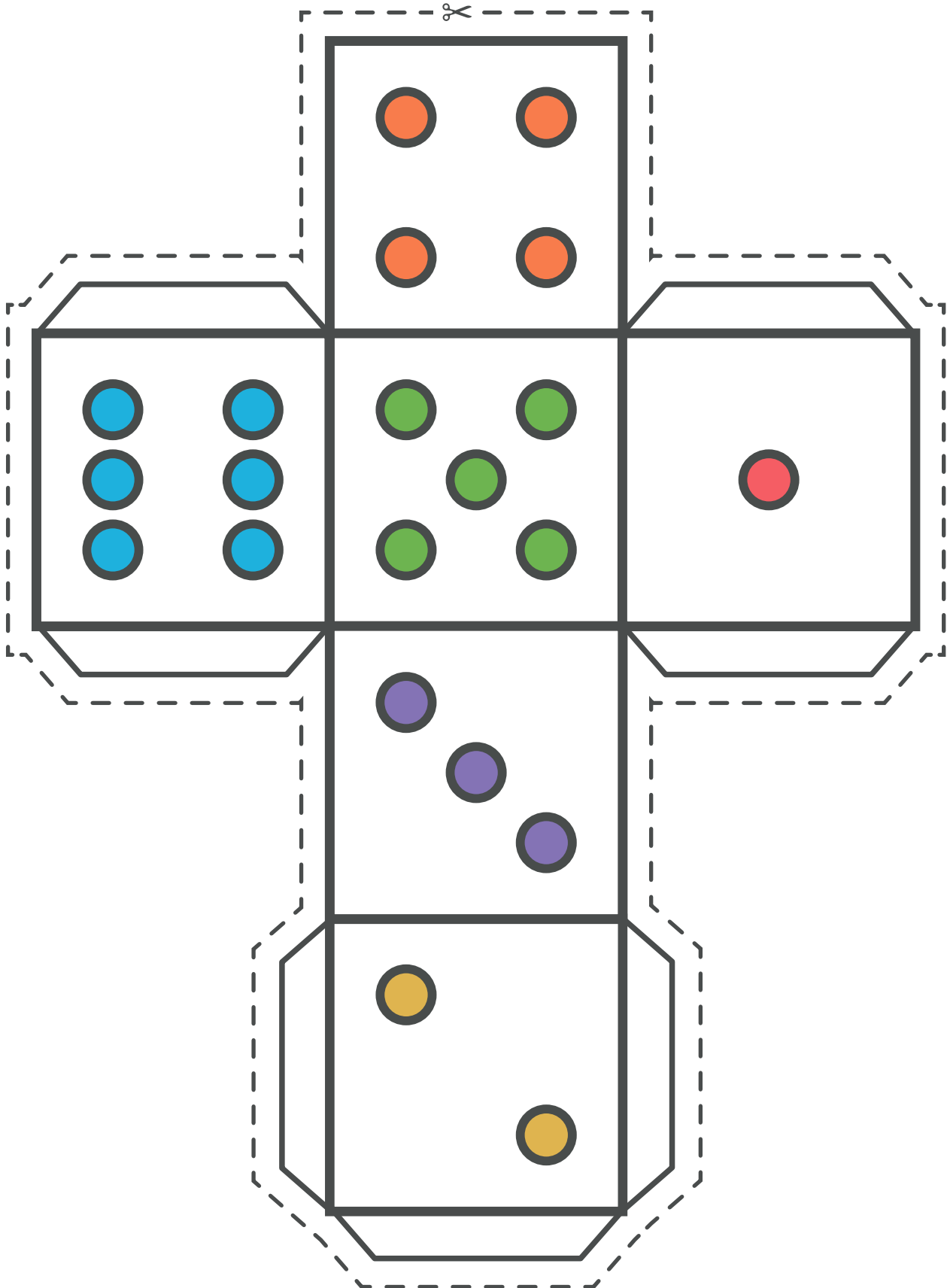
1 - 6 dice

3 x 3 grid

Glossary

Glossary
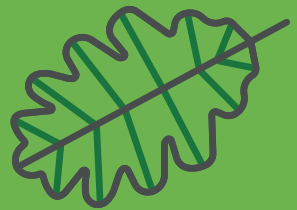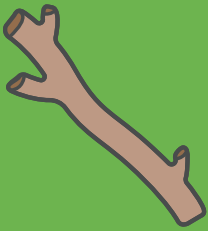
Acute angle
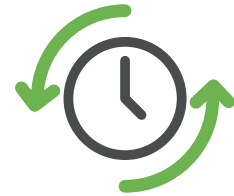
An angle smaller than a right angle. It is an angle between 0° and 90°.

Angle

An amount of turn. Angles are measured in degrees.
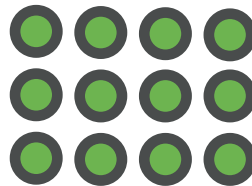
Anti-clockwise

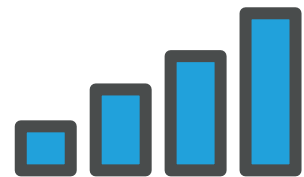Turning the opposite way to the clock.

Area

The area of a shape is a measure of how much surface it has.
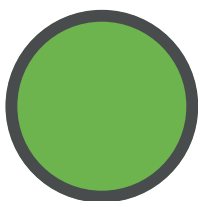Area = length x width

Array

A regular arrangement of numbers or objects. It has rows and columns usually in the form of a rectangle.

Ascending

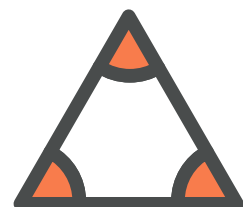Going up or increasing in order from smallest to largest.

Circle

A shape with every point at its edge at exactly the same distance from the centre.
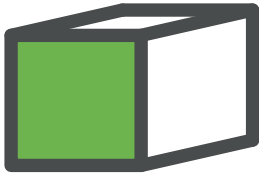
Clockwise

Turning the same way as a clock.

Corner

A corner is a point where two or more lines meet.

Glossary

Cuboid

Solid shape with six rectangular faces.
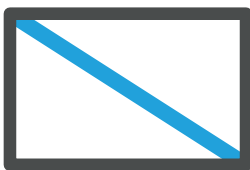
Denominator

$$\frac{1}{2}$$

The number below the line in a fraction.

Descending

Going down or reducing in size.

Diagonal

A straight line that joins any two corners which are not adjacent.

Diameter

A line that passes from one side of a circle through the centre to the other side.

Half

One of two equal parts. When something is divided into two equal parts, each part is one half.
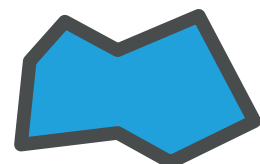
Hexagon

Any polygon with six straight sides.

Horizontal

Same direction as the horizon.

Irregular polygon

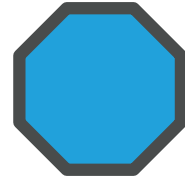Shapes that do not have all their sides the same length. They have different sized angles.

Glossary

Numerator

$$\frac{1}{2}$$

The number above the line in a fraction.

Obtuse angle

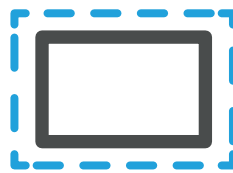An angle that measures between 90° - 180°.

Octagon

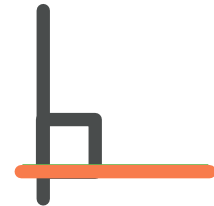Any polygon with eight straight sides.

Parallel lines

Lines that stay at the same distance apart.

Perimeter

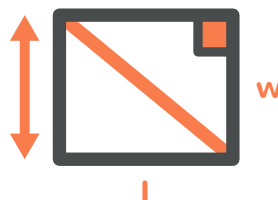The distance around the outside of the shape.

Perpendicular lines

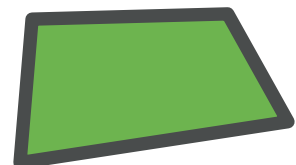One line is at right angles to another line.

Polygon

Any 2D shape with straight sides. Polygons can be regular or irregular

Property

w

l

A property of a shape is a particular fact or feature of it that makes it part of a group with the same properties.

Quadrilateral

Any polygon that has four sides. The four angles add up to 360°.
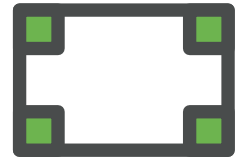
Glossary

Quarter
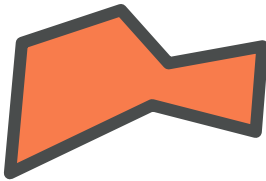
Is one of four equal parts.

Radius

Is the length of a straight line from the centre of a circle to its circumference.
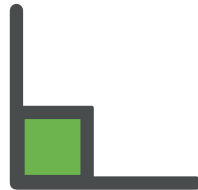
Rectangle

A four-sided flat shape. It has two pairs of opposite, equal parallel sides and each angle is a right angle.

Rectilinear

A rectilinear shape is a shape whose edges are all straight lines. All polygons are rectilinear shapes.

Right angle

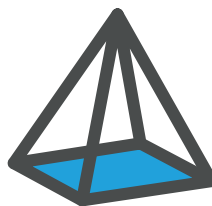An angle of 90°. It is a quarter turn.

Side

A side of a shape is the line that forms part of the edge or perimeter.

Square

A flat shape with four straight and equal sides. The angles in its corners are all right angles.
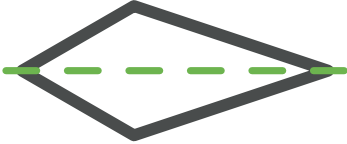
Square-based pyramid

Has a face that is square and the other four faces are triangles.

Straight lines

A straight line is half a turn. It is two right angles.
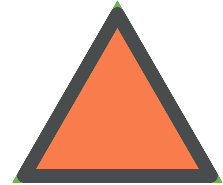
Glossary

Symmetry

The 'Line of Symmetry' is the imaginary line where you could fold the image and have both halves match exactly.
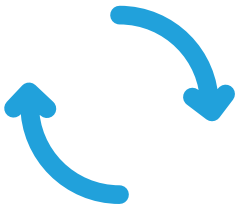
Three-dimensional shape

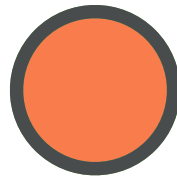Three-dimensional shapes are solid shapes.

Triangle

Any polygon with three sides. The angles of a triangle add up to 180°.

Turn

When something turns it spins, rotates, revolves, or whirls.

Two-dimensional shape

Two dimensionsal shapes are flat shapes.

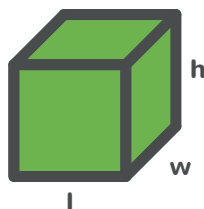## Unit fraction

$$\frac{1}{x}$$

Has a numerator of 1 and any number as a denominator.

Vertical

At right angles to a horizontal line.

Volume

Volume of an object is the amount of space it fills. To find the volume you multiply the length by the width by the height.

Volume = l x w x h