

Year 1 & 2

Parent Maths Pack

“... pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.”

The national curriculum in England, DfE (2014)

We all use maths every day, often without realising it. We believe that every child can develop the numeracy skills they will need, both at school and throughout their lives.





At Dog Kennel Hill School we follow the Maths Mastery Curriculum in Years 1 and 2. This scheme of work supports a mastery approach to teaching and learning and have been designed to support the aims and objectives of the new National Curriculum. In addition to knowing and applying basic number skills, pupils are also required to reason mathematically, solve problems using different strategies and communicate their understanding effectively. Parents help at home is essential in helping children develop and strengthen these skills. Here are some suggestions for parents helping at home:

- ✓ Talk to your children about everyday maths
- ✓ Play maths games with them
- ✓ Value mistakes as learning opportunities
- ✓ Recognise that there is more than one way to work things out
- ✓ Praise children for effort over outcome
- ✓ Avoid saying things like "I'm useless at maths"
- ✓ Encourage your children to solve problems with you.
- ✓ Help them identify different methods or strategies to use in finding solutions and resist the temptation to provide the answer or method. There is usually more than one way to solve a problem, and simpler strategies are often effective.
- ✓ Provide opportunities for your children to explain and justify their thinking.
- ✓ Connect mathematics to real life experiences. Emphasising the mathematics around us helps to make mathematics education relevant.
- ✓ Ask good questions of your children about their homework and be good listeners when your children respond.
- ✓ Encourage children to estimate answers before working out the answer.

Key vocabulary - addition and subtraction

Part Whole Ones: Tens:

Add/Addition Subtract/Subtraction Is equal to (=)

If I know...then I know What is known? What is unknown?

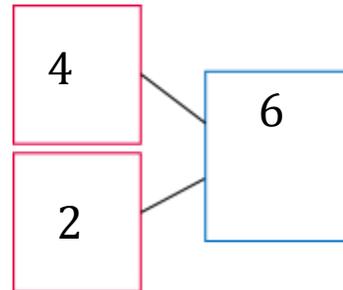
Equation: a mathematical statement where two values are equal indicated by the = sign. E.g. $12 + 4 = 16$ is an equation.

Number bonds: pairs of numbers that add together to make a different number. E.g. one number bond to 8 is 3 and 5.

Partition: to split a number into two or more parts e.g. we can partition 16 into 10 and 6.

The part-whole model

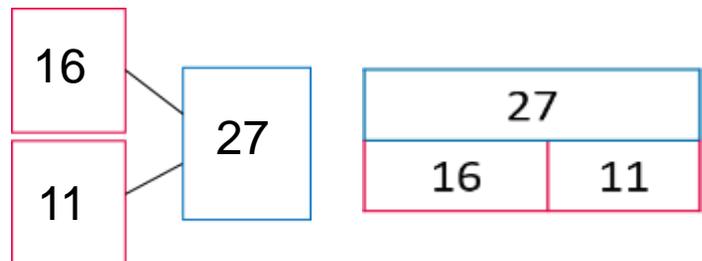
When calculating pupils use the language of the parts and the whole. For example, "the parts are 4 and 2, the whole is 6". Pupils use the part whole model (right) alongside formal equations.



$$4 + 2 = 6$$

Introducing the bar model

In Year 2 pupils continue to use the part-whole model and begin to use the bar model to interpret problems. This supports pupils in understanding the mathematical structure of the problems they are solving. The language of parts and whole continue to be used. "The parts are 16 and 11, the whole is 24."



$$16 + 11 = 24$$

Key vocabulary – Time:

before after next then first
o'clock half past minute hand
hour hand morning afternoon time
analogue clock

Key vocabulary – Fractions:

quarter equal
unequal part whole
divide quarter turn
half turn clockwise
anti-clockwise

Key vocabulary – Fractions:

1 → numerator

— → vinculum

2 → denominator

The **denominator** tells us the number of equal parts

The **numerator** tells us the number of equal parts highlighted.

Unit fractions – fractions where the numerator is one

Non-unit fractions – fractions where the numerator is greater than one

part whole half
quarter third

Key vocabulary – Shape:

Faces – One of the plane surfaces of a solid shape.

Edges – where two faces meet

Vertex or vertices – where two edges meet on a 3D shape or where two sides meet on a 2D shape (colloquially known as a corner.)

Sides - A straight line that forms part of the boundary of a shape. Shapes can have curved and straight sides

Right angle – an angle made by a quarter turn (90°)

Line of symmetry – an imaginary line that passes through the center of the shape or object and divides it into identical halves.

2D Shapes

circle triangle quadrilateral rectangle square oblong
pentagon hexagon heptagon octagon

3D Shapes

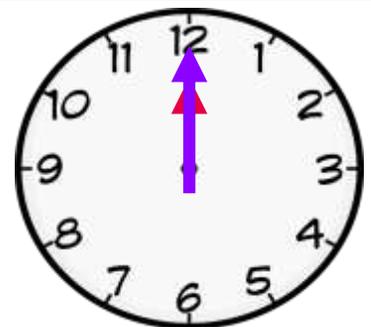
sphere cone pyramid cylinder cube cuboid

Try this at home

First to 12 O'clock

Players: This game is for two players

What you need: Geared clock or paper clock faces



To start set the clock to 6 o'clock.

Player 1 chooses to put the clock forward wither one hour or half an hour and moves the clock hands to that time.

Pass the clock for player 2's turn.

The winner is the player who moves the hands onto 12 o'clock.

Can you work out a winning strategy so that you can always beat your opponent?

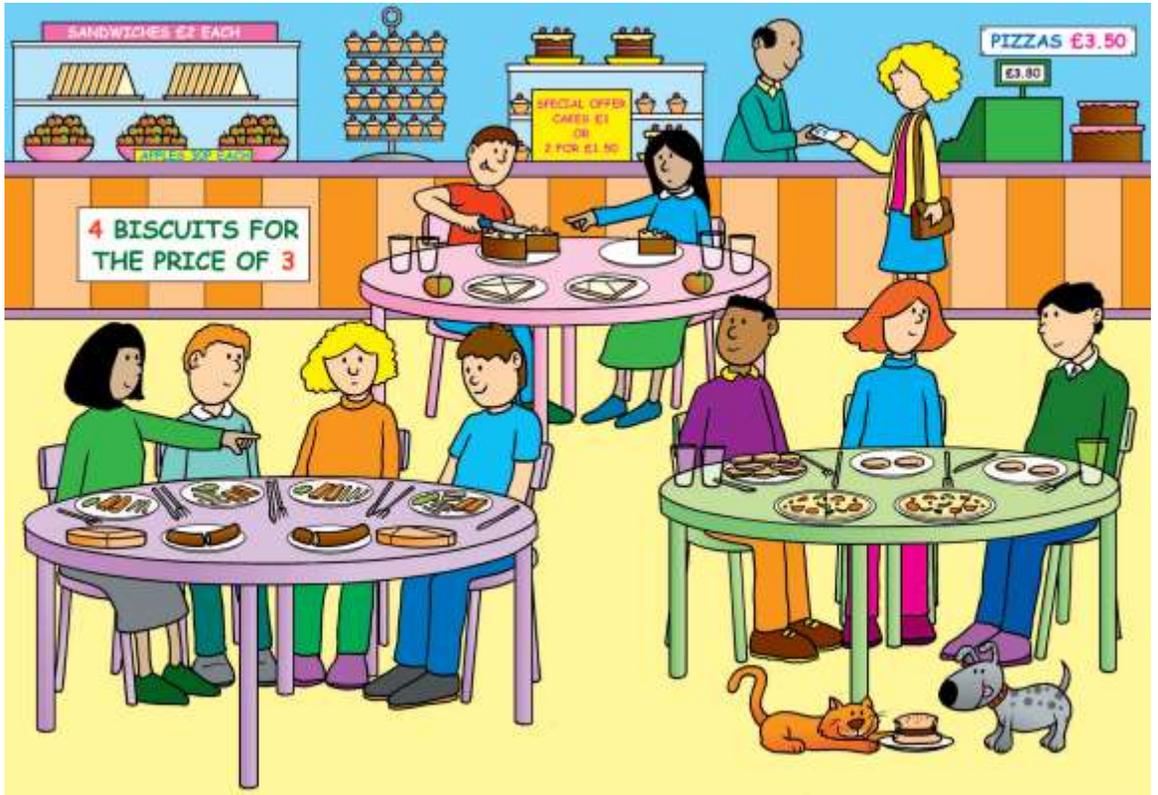
Big Pictures

What maths can you see? Discuss with your children at home using the key vocabulary from the previous page.



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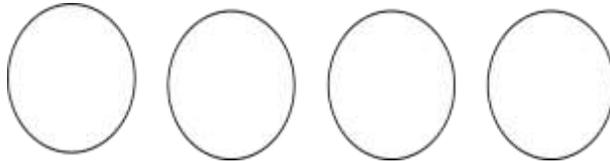


Try this at home – workshop games

Adding circles

For this game, you need dice, a pencil and paper.

- Each of you should draw four circles on your piece of paper.
- Write a different number between 2 and 12 in each circle.



- Roll two dice. (Or roll twice, if you only have one die). Add the two numbers.
 - If the total is one of the numbers in your circles then you may cross it out.
- The first person to cross out all four circles wins.

Part Whole Add Is equal to

Grab bag Subtraction

Choose a number of things to work with, and put that many objects into a bag.

- You can use crayons, coins, beans, buttons, etc.
- Grab a handful of the items and count them. Ask your partner how many items are now left. *“I started with ___ items. I’ve taken out ___. How many are left?”*
- Write down the calculation.
- Encourage counting up or back, use manipulatives e.g. counters if you need to.
- You get a point for getting each calculation correct.
- Let your partner have a turn.



Part Whole Subtract Is equal to Partition

Try this at home – workshop games

Make 100

For this game, you need dice, a pencil and paper.
Each player draws an addition grid like this:

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline \end{array} = \underline{\hspace{2cm}}$$

Take it in turns to roll the dice. After you have rolled the dice, you decide which box to place that number in. Once all four numbers have been placed, add your two 2-digit numbers to get your total. Closest to 100 wins.

Adapting: You can change the target total, or try using subtraction.

ones tens add subtract is equal to If I know...then I know...

Zero the hero

4	0	3	1
6	3	2	2
7	1	7	5
6	4	5	8

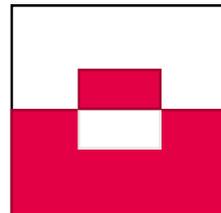
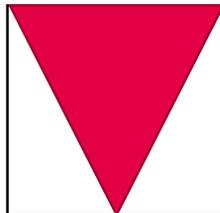
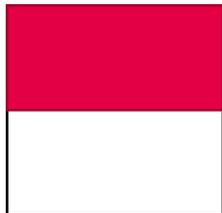
For this game you need the number grid, (or make your own filled with numbers under 10) two cubes/counters, a plastic cup and pencil and paper. Write 50 down as your starting score. Put two cubes into the plastic cup and roll them onto the grid. Add the two numbers together then subtract from 50. Take it in turns to do this. The first to reach zero is the winner.

ones tens add subtract is equal to If I know...then I know...

Try this at home – workshop games

Half a square

These images show a square that's been split in half. How do you know they are correct?



Investigate: How many other ways can you split a square in half?

Variations to try at home: Why not try and see how many ways you can split a square in thirds or quarters? What happens if we change the shape?

Half numerator denominator I know because equal parts divide

Shape Detectives (2+ players)

3 or more players

One person becomes the shape master. The shape master secretly chooses a shape (it could be either 2D or 3D). The rest of the players take it in turns to ask the shape master a question. The shape master can only answer yes or no. The first person to correctly identify the shape on their turn wins!

2 player version

If playing with 2 people try setting a limit on the amount of questions e.g. you can only have six questions. If you identify the shape then the detective wins, if you don't identify the shape, the shape master wins!



sides faces lines of symmetry quadrilateral 2D 3D edges vertices right angle

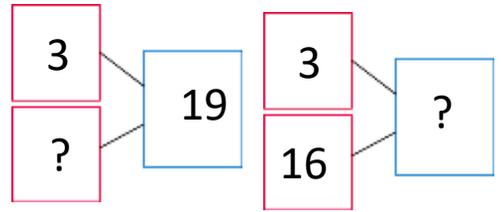
Try this at home – more ideas

Daily practice: number bonds

Challenge your children with missing number problems verbally.

Example

“The whole is 9. One part is 3. What is the missing part?”
Or “I think of a number, I subtract 3 and I am left with 6, what was my number?”



Dice games

Playing with dice can be a great way to support your children with number bonds. If you don't have a pair of dice, try these online dice:

<https://www.random.org/dice/?num=2>

Fact of the day/week

Have a 'fact of the day', e.g. $15 = 7 + 8$. Pin this fact up around the house. Practise reading it in a quiet, loud, or squeaky voice. Ask your child over the day if they can recall the fact.

Board games, sports and leisure

Board games and sports provide lots of opportunities to develop mathematical skills such as problem solving and strategy. Additionally lots of board games and sports also allow opportunities for addition and subtraction when totalling scores or finding the difference.

When playing, ask questions such as:

- “How many points do Amy and Mina have altogether?”
- “What's the difference between my score and yours?”
- “How much more does Charlie have compared to Ahmed?”
- “How many more do I need to win?”

Money, money, money

Allow children to have experience handling money. Some experiences could include:

- Counting amounts
- Regrouping – e.g. exchange ten 10 ps for 1 pound
- Finding a change
- Discussing prices in the supermarket and involving your children when paying
- Saving up pocket money for something. “How much more do you need?”

Try this at home – more ideas

Make your own bead string

Try using dried pasta and string to make a 0-10 or 0-20 bead string. You can paint or dye the pasta different colours to expose different mathematical concepts. E.g. coloured groups of 2, 5 or 10.



Ladybird cookies

Use red and black icing to decorate biscuits like ladybirds. Put one line down the middle and decorate the biscuits with chocolate buttons or chocolate chips on each side. Explore different number bonds. For example how many ways can we arrange the spots to make seven?



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Songs

Try singing this song with the actions to learn the number bonds to 10:

<https://www.bbc.co.uk/teach/supermovers/ks1-maths-number-bonds-with-martin-dougan/zf6cpg8>

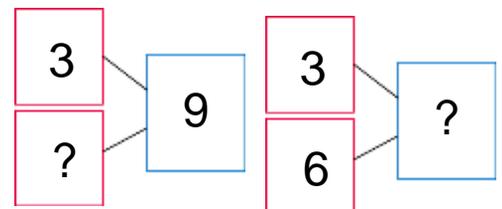
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Playing **Maths with Parents** is a great way for your child to show you what they have been learning and the practical activities are fun for the whole family.



Try this at home – more ideas

Finding Halves, thirds and quarters

- Try finding fractions in your daily routine at home. For example when sharing toys or food, “let’s have half each”, “how can I share this between the four of us?”.
- When preparing meals or baking show your children how to measure half a cup or half of a jug of something.
- Link this to time, "It has been half an hour since..." "We have half an hour until we get to go to grandma’s house."

Songs

Try singing this song with the actions about fractions:

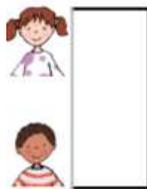
<https://www.bbc.co.uk/teach/supermovers/ks1-maths-fractions-with-joe-tracini/zmij2sg>

Exploring symmetrical shapes

With a partner take a piece of paper, each fold it in half and cut out a shape without crossing the fold.

Compare your shapes.

What’s the same? What’s different?



1. Fold a piece of paper



2. Cut out a shape (without cutting across the fold).



3. Open the shape so that you can see the line of symmetry.

Go on a shape hunt

Try seeing what 2D and 3D shapes you can spot around the house, in the garden or on your way to school!

Shape of the week

Select a shape to be the shape of the week. How many of these shapes can your child spot during the week, at home and when you are out?

Questions to support thinking

- What do you think would happen if....
- What’s the same? What’s different?
- How do you know that?
- Can you see a pattern? What would come next?
- What else could go in this set? What couldn’t?