Homework notes for Parents
Stage 3
Contents

Contents ........................................................................................................................................... 2
Helping your child ........................................................................................................................... 3
  Helping your child with the language of maths ........................................................................... 3
  What can you do at home to help children learn maths? .......................................................... 3
    Develop a positive attitude to maths ....................................................................................... 3
    Point out the maths in everyday activities .............................................................................. 4
    Take time to discuss problems and solutions ......................................................................... 4
What your child will be learning ..................................................................................................... 6
  Number ........................................................................................................................................ 8
    What your child will be doing this year .................................................................................. 8
    How this topic is taught at this level .................................................................................... 8
    Some ideas for supporting learning at this level .................................................................. 8
  Geometry ..................................................................................................................................... 10
    What your child will be doing this year ................................................................................ 10
    How this topic is taught at this level .................................................................................... 10
    Some ideas for supporting learning at this level ................................................................ 10
  Measure ...................................................................................................................................... 12
    What your child will be doing this year ................................................................................ 12
    How this topic is taught at this level .................................................................................... 12
    Some ideas for supporting learning at this level ................................................................ 12
  Data ........................................................................................................................................... 13
    What your child will be doing this year ................................................................................ 13
    How this topic is taught at this level .................................................................................... 13
    Some ideas for supporting learning at this level ................................................................ 13
Glossary ........................................................................................................................................ 14
Helping your child

The maths that your child is learning may be different from the maths that you did at school. This is because modern maths teaching aims to make maths meaningful to children and to engage them in practical, problem-solving activities designed to build on what they already know and to pave the way for what they will learn in the next level.

Helping your child with the language of maths

There are two main reasons why children need to understand mathematical language.

- Mathematical language is needed to answer questions in lessons, to make sense of the activities or tasks the teacher gives them and to understand the questions asked in tests.
- Mathematical terms are necessary for the development of mathematical ideas and for understanding concepts. You need to understand and use the correct vocabulary to make progress in different areas of mathematics.

Children can get confused by language in mathematics for different reasons:

- Some words used in maths have different meanings in everyday life and this can be confusing. For example, table, net, area and face mean different things in real life and in mathematics. Even simple words like ‘sum’ can be confusing. This word means ‘the answer to an addition’ in mathematics, but in real life people often use it to talk about any calculation.
- Children do not understand the instructions in activities or questions. For example, when children are asked to circle the correct answer or to show two ways of finding the answer they may not know what to do.
- Some children may not have heard special mathematical terms or know what they mean. For example, product, factor, divide, subtract, or find the sum of.

What can you do at home to help children learn maths?

There are many things that you can do at home to support what your child is learning at school and to help them develop skills and confidence in maths. Some general things you can do are outlined here and activities linked to maths strands are given on separate cards.

Develop a positive attitude to maths

- Be positive about your own maths knowledge and abilities. Children learn by listening and watching you. Try not to say thing like: ‘I never liked maths at school.’ Or ‘I was useless at school maths.’ Even if you don’t feel confident with maths, don’t voice this out loud. Be especially careful of suggesting that girls might not be as good at maths as boys.
- Tell and show children that everyone can learn maths and that maths is important and fun. Start by pointing out how you use maths in your daily life and then show
them how different people in the family and community use maths in their working lives.

- Encourage persistence – children need to learn that it is OK to try different approaches, especially if the first one doesn’t seem to solve the problem.
- Offer praise and encouragement for effort and achievement.

**Point out the maths in everyday activities**

- Counting and number activities can be found all around us. Point out numbers and talk about how they are used and ask children to name them to help with number recognition.
- As you go about your daily tasks, point out how you and others are using maths and encourage your child to tell you what maths he or she sees in daily activities. For example, the shopkeeper is counting the money, the tiler is putting shapes together and I am using this spoon to measure the correct amount of medicine to give you.
- Involve your child in activities that use maths – shopping, measuring ingredients, building, sewing, using public transport and gardening – all offer opportunities to talk about numbers, measures or shapes.
- Play games and do puzzles with your child – try to include number games and puzzles, logic and sorting puzzles and shape puzzles.
- Point out when you use ‘tools’ that can help with maths – for example, rulers and tape measures, a calculator, the calendar or alarm on your phone, measuring cups and containers and patterns or moulds.

**Take time to discuss problems and solutions**

Children will use different methods to solve problems. Encourage them to tell or show you how they worked out an answer. Talking about your ideas and listening to other people’s ideas helps to build understanding and teaches mathematical reasoning.

The maths your child is doing and the methods they are using to do things may be different from how you remember or were taught. Your child may also be doing less written work than you remember doing at that stage. Discuss any concerns you have with the teacher and be aware that things are done in a specific order for a reason. Teaching your child a different method of doing things before they are ready for it may in fact make things more difficult for them and prevent them from understanding and developing the concepts they need for success overall.
Your child’s teacher will introduce new words and teach the children what they mean. You can help your child learn these words by using them correctly yourself when you work through homework or do activities with your child. For levels 3 to 6, there is a glossary of key mathematical words at the back of your child’s book. You will find the Stage 3 Glossary at the end of these notes. Encourage your child to explain what the words mean while he or she does their work. Ask them questions to make sure they can use the words correctly and tell you what it means.

Asking your child questions about what they are doing can help them develop their thinking and understanding. Here are some examples of the things you could ask.

<table>
<thead>
<tr>
<th>Before your child starts an activity</th>
<th>While your child is working</th>
<th>If your child doesn’t know what to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ How are you going to do this?</td>
<td>✓ What have you done so far? What else do you need to do?</td>
<td>✓ Why don’t you tell me what you have done so far?</td>
</tr>
<tr>
<td>✓ What equipment do you need?</td>
<td>✓ Why did you choose this way of working?</td>
<td>✓ What did you do in class? How is this different?</td>
</tr>
<tr>
<td>✓ What are you trying to find out?</td>
<td>✓ Could you have chosen another way?</td>
<td>✓ Could you try this with easier numbers?</td>
</tr>
<tr>
<td>✓ What information is given?</td>
<td>✓ What does this mean?</td>
<td>✓ Have you tried using a number line?</td>
</tr>
<tr>
<td>✓ Will you add, subtract, multiply or divide to get the answer?</td>
<td>✓ Do you think this method would work with other numbers? Why?</td>
<td>✓ Do you know anything that could help you do this?</td>
</tr>
<tr>
<td>✓ Are you going to work mentally or using a written method?</td>
<td>✓ Is your answer correct? Is there a way of checking?</td>
<td>✓ Would it help to put things in a different order?</td>
</tr>
<tr>
<td>✓ What method will you use to solve the problem? Why?</td>
<td>✓ Do you think there is a faster way of doing this?</td>
<td>✓ Could you draw a picture to help you?</td>
</tr>
<tr>
<td>✓ How are you going to record your working?</td>
<td>✓ How did you get this answer?</td>
<td>✓ Would it help if you made a table?</td>
</tr>
<tr>
<td>✓ Do you need to estimate before you start working?</td>
<td>✓ Did you come across any new words in this activity? Which?</td>
<td>✓ What else could you try?</td>
</tr>
</tbody>
</table>
What your child will be learning

In primary school there is a focus on number skills (counting and place value) and number operations (adding, subtracting, multiplying and dividing) as these are important building blocks for other concepts. But maths is about more than just numbers and your children will also be learning about measures (length, mass, capacity, time and money), shapes (flat shapes and solids), position, patterns and graphs. Children will learn these things by:

- exploring and investigating
- thinking and talking about what they are exploring or investigating
- finding information and using it to solve problems
- explaining how they worked and how they reached their answers
- learning that there is more than one way to solve a problem.

You may find that your children do less ‘written number work’ than you did when you were their age. This is because research has shown that simply practising calculations (doing lots of the same types of sum, for example) does not teach people how to apply mathematics and use it to solve problems. The new approach to maths teaching aims to make sure that all children become able to think mathematically and to help make sure children develop positive feelings about maths.

The concepts and skills that children need to learn each year are carefully planned and organised so that:

- concepts and skills are introduced at the right time and at the right level
- each year builds on what the children already know.

The curriculum for each year is divided into five strands. These are:

- Number (number sense and counting, mental strategies and calculation methods)
- Geometry (shapes, position and movement)
- Measure (length, mass and capacity, money and time)
- Handling data (organising and sorting data and drawing diagrams and graphs)
- Problem solving.

Although problem solving is a separate strand it is not taught separately because it is built into all the other strands.
By the end of Stage 3 your child should be able to do the following:

<table>
<thead>
<tr>
<th>Number</th>
<th>Geometry</th>
<th>Measures</th>
<th>Data Handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Recite numbers 100 to 200 and beyond, read and write numbers to at least 1000</td>
<td>✓ Identify, draw, describe and classify 2D shapes using their features; identify right angles in 2D shapes</td>
<td>✓ Write money amounts correctly</td>
<td>✓ Collect, organise and interpret data to answer questions using:</td>
</tr>
<tr>
<td>✓ Count on and back in ones, tens and hundreds, count on and back in steps of twos, threes, fours, fives and tens and count on and back in ones and tens from a given number, and give sensible estimates of up to 100 objects (giving a range)</td>
<td>✓ Identify, describe, make and classify 3D shapes</td>
<td>✓ Use addition and subtraction with totals of 100 to find change</td>
<td>- tally charts and frequency tables</td>
</tr>
<tr>
<td>✓ Order and compare numbers, place them on number lines and use the symbols &lt; and &gt; to compare them</td>
<td>✓ Draw and complete symmetrical shapes and identify 2D and 3D shapes, lines of symmetry and right angles in the environment</td>
<td>✓ Choose and use the best units and instruments to measure and record measurements; read measurement scales that are numbered or partly numbered</td>
<td>- pictograms and bar charts</td>
</tr>
<tr>
<td>✓ Explain what each digit represents in three-digit number, partition numbers into hundreds, tens and ones and round numbers to the nearest 10 and 100</td>
<td>✓ Follow and give instructions involving position, direction and movement, including clockwise and anti-clockwise</td>
<td>✓ Know the relationships between kilometres and metres, metres and centimetres, kilograms and grams, and litres and millilitres</td>
<td>✓ Use Venn diagrams and Carroll diagrams to sort numbers or objects using two criteria</td>
</tr>
<tr>
<td>✓ Understand and use fraction notation including mixed fractions; recognise which fractions are equivalent and order and compare fractions</td>
<td>✓ Find and give the position of squares on a grid where the rows and columns are labelled</td>
<td>✓ Use a ruler to draw and measure lines in centimetres</td>
<td></td>
</tr>
</tbody>
</table>
Number

What your child will be doing this year

Your child will continue to count forwards and backwards in a higher range, counting in groups and ordering sets of numbers. They will develop their understanding of fractions and mixed numbers (such as 2 ½). At this level, the children are expected to memorise addition facts for all numbers to 20 as well as the 2, 3, 5 and 10 times tables. They will develop a range of new methods for calculating, and begin to solve problems in a higher number range.

How this topic is taught at this level

Students will learn how to use the number patterns, place value and facts that they already know to help them add, subtract, multiply and divide numbers in a higher number range. They will be encouraged to use number lines and jottings (their own methods of recording their work) to keep track of what they are doing.

Some ideas for supporting learning at this level

Demystify fractions. Talk positively about fractions and how we use them in everyday life. Use everyday objects to model fractions at home. For example, ask ‘Can you cut this sandwich into quarters please?’ ‘What fraction of this bottle is filled with water?’ ‘Can you fold this towel into half/quarters/thirds?’ ‘What does half time mean in a match?’

Link fractions to division. Use a group of buttons, counters, stones or beans. Count out a small number (12, 15, 16, 18, 20, 24 and 28 work well). Ask your child to find different fractions of the items, for example ‘Show me half of the beans’. Repeat with different fractions and different starting numbers. Encourage your child to tell you what thinking lies behind their decisions. You can also do this activity with everyday items, saying, for example, ‘Give me half of the onions please.’

Playing card pairs. Use playing cards with the picture cards removed. Deal out five pairs, face down. Let your child turn the pairs over and add the numbers on them. Time how long this takes and aim to improve the time with repeated practice. (This is a good way of reinforcing addition facts for all numbers to 20, as the highest pair a child can get is 10 + 10.) You can adapt this to play subtraction games. Choose a starting number (from 10 to 20) and deal out five single cards. As your child turns the cards, he or she should subtract the face value from the chosen number. Alternatively, make six pairs and let your child add them and find the difference between each pair and the next.

Play ‘guess the operation’ games in the car or while you are doing household chores. Ask your child to choose a number (tell them whether to choose a one, two or three-digit number). Do something mathematical to the number (add or subtract ten or 100, double it, halve it, multiply it by 10) and tell your child the answer. For example, your child chooses 123; you add 100 to it and get 223. Let your child say what you did to get to the new total. Take turns to choose and do the operations.
Choose a number range for the week. For example, choose numbers between 500 and 600. For the rest of the week, find numbers in that range and talk about them. For example, ‘that is bus number 575 – that is five hundreds, seven tens and five ones’; or ‘that costs $599 - that is one dollar less than 600’.
Geometry

What your child will be doing this year

This year the children will build on and formalise what they know about 2D and 3D shapes. They will need to use the mathematical names for parts of shapes and identify these on shapes and diagrams of shapes. They will extend their knowledge of symmetry and begin to work more formally with angles. They will continue to use the language of position and direction but will also start to use grids to describe the position of objects.

How this topic is taught at this level

Children will continue to make and draw shapes but they will also focus on recognising shapes and their properties from diagrams. They will learn how to use a set square to draw and measure a right angle. They will also play games and complete puzzles to learn how to use coordinates to find and give the position of items using a grid with the rows and columns labelled (using letters and numbers or just numbers).

Some ideas for supporting learning at this level

Make and break down boxes. Use cardboard boxes to show children how 3D shapes are built up from a flat sheet of cardboard. Cut the boxes open in different ways, open them out and look at the shapes you can see, count them and talk about how the flat card is folded along the lines to make the box. Let your child fold them up again to form the 3D shape.

Play visual discrimination games. Cut out shapes from magazines or use sets of plastic shapes. Show your child five shapes and let them pick the ones that are identical. Children find it quite difficult to tell whether a triangle is the same as another triangle if they are lying in different positions. Show your child how to put the shapes on top of each other to compare them. There are commercial games available for this and many children's television programmes will have activities to help children develop this important skill.

Play memory games using shapes or patterns. Show your child a shape or a simple pattern made from shapes. Let them look at it for a few seconds, then hide or cover it. Ask them to draw the shape or pattern from memory.

Talk about why some shapes are better than others for specific uses. For example, ‘Why are nuts usually hexagonal?’ (A hexagon allows you to grab it on opposite sides and to turn the spanner or wrench in small spaces.) ‘Why is a soccer ball made with hexagons and pentagons?’ (You need both shapes to cover the surface of a ball completely.)

Cut out symmetrical designs. Use a folded piece of paper or card. Draw a design or picture along the fold and then let your child cut around it (carefully!). Open out the design when it is cut out and compare both sides of the fold to show how they are mirror images of each other.
Play games on a grid. Make a small (5 x 5) block grid. Label the blocks across left to right from A to E and the boxes vertically from 1 to 5 (bottom to top). Use a counter or a small toy. Put it in a block on the grid. Let your child say what block it is in (for example it is in block A3). Move it around and give the new positions. Talk about what you are doing. For example, ‘If I move the counter one block up, where will it be then?’ Let your child guess the position before moving it and then move it to check. You can also find games like this online, but be careful to choose those that use only simple grids at this stage.
Measure

What your child will be doing this year

This year your child will continue to measure and compare objects using standard units. They will use a wider range of measuring instruments and marked scales. They will continue to use units of time and use them to measure and calculate time intervals. They need to tell the time to the nearest 5 minutes on an analogue clock, and to the nearest minute on a digital clock.

How this topic is taught at this level

At this level, the students will work with rulers, measuring tapes, scales (kitchen and bathroom) and measuring jugs to measure amounts accurately and read measurements from scales. They will also work with clocks and calendars to calculate time intervals and to consolidate the relationships between units of time (for example, they need to know that 30 minutes = ½ an hour, and 7 days are a week).

Some ideas for supporting learning at this level

Measure everyday items. Let your child measure items at home using whatever instruments you have. Try to stick to metric units, as this is what they need to know at school. For example, use a kitchen scale to measure ingredients for a recipe.

Keep a record of family weights. Start by estimating the weight of each person in your household in kilograms. Then weigh each person and record their weight in order from lightest to heaviest. Repeat this after two weeks. Talk about which weights have changed and how.

Measure how long it takes to do things. Ask your child to estimate (guess) how long it takes to do certain things (brush your teeth, tidy your room, pack your school bag, count to 50 in fives and so on). Time them and tell them how long it takes.

Use a calendar to work out time intervals. Use a large calendar to work out how long it is till/since different family events. Ask questions like, ‘How long is it till we go on holiday?’ ‘How many days have passed since we went to visit the zoo?’ ‘How long is it till your birthday?’ and so on. Show your child how to read the time intervals on the calendar, using months, weeks and days. You can use the calendar function on a mobile phone for this as well, if your child is technologically able to do this.

Work out change from a hundred. Find prices in the range of $1 to $99 (stick to whole numbers) as you go about your day. Ask your child, ‘How much change would we get from a hundred if we bought this item for $45?’, ‘This costs $40. Can we buy two with a $100?’, ‘If we bought two of these $20 books, how much change would we get from $100?’, and so on.
Data

What your child will be doing this year

This year children collect their own data and then sort and organise it to answer a question. They will record information in tables and graphs and sort items using Venn diagrams and special tables called Carroll diagrams.

How this topic is taught at this level

Children will physically count and record data, and sort items and arrange them in order to find information or to show results of a simple investigation.

Some ideas for supporting learning at this level

Make graphs and charts at home. Continue to make graphs and charts at home to record things such as how many times you watch TV during the week, how many portions of fruit or vegetables each person eats, how many books each person reads, and so on.

Use tallies to keep track of counts, for example, when you are driving, let your child tally the number of cars of different colours, or the number of trucks that you pass. Count up how many using the tallies. Remember your child should make a mark for 1 to 4 items and then score through those four every time he or she reaches five. You can then count the total items in fives. You could extend this to include a picture graph activity. Keep a record of, for example, how many trucks you pass in the car each day for a week, and then use the tallies to draw up a picture graph, with one symbol for every two trucks.

Collect charts and graphs. There are many examples of charts and graphs in everyday life. Encourage your child to look out for these and, where appropriate, talk about what they mean.
Glossary

B
Bar graph – a graph where bars are used to show numbers or measurements
Block graph – a graph where columns are in blocks, each block shows one thing

C
Centimetre (cm) – a unit of length, your thumb is about 1cm wide
Circle – a round flat shape
Cone – a solid shape with a pointed end and flat circle face
Cube – a solid shape with all its faces square
Cuboid – a solid shape with six faces; all the faces are rectangles
Cylinder – a solid shape with two circular end faces; a tin is a cylinder

E
Estimate – a guess, what you think an answer will be

F
Fraction – a part; one half, one quarter and one third are all fractions

G
Gram (g) – a unit of mass used for light objects

H
Half – when you share things equally into two parts, each part is one half

Hexagon – a six-sided flat shape
Hour – a measure of time; there are 60 minutes in one hour

K
Kilogram (kg) – a unit of mass used for heavy objects

L
Litre (l) – a unit of capacity, how much a container holds

M
Metre (m) – a unit of length used for larger measurements
Millimetre (mm) – a unit of length used for small measurements
Minute – a measure of time, there are 60 minutes in one hour

P
Pentagon – a flat shape with five sides
Pictogram – a type of graph where pictures are used to show information
Prism – a solid shape that is the same all the way through
Pyramid – a solid shape with a flat base and faces that meet at a point

Q
Quadrilateral – a four-sided flat shape
Quarter – one of four equal parts of a whole; when you divide something into four equal parts each part is one quarter
**Glossary**

**R**

**Rectangle** – a four-sided shape with four right-angled corners and opposite sides equal

**Right angle** – a quarter turn, like the corner of this page

**S**

**Second** – a unit of time, there are 60 seconds in one minute

**Sphere** – a solid round shape, a ball is a sphere

**Square** – a four-sided flat shape with all sides equal

**Subtract** – take away or minus

**Symbol** – a picture used to represent something on a pictogram

**Symmetrical** – able to be divided into two identical parts

**T**

**Tally** – a small mark used to count one object; every fifth mark is drawn across the previous four tallies

**Third** – a fraction, one of three equal parts; if you divide something into three equal parts, each part is one third

**Triangle** – a flat shape with three sides