UPTON
PRIMARY SCHOOL

Understanding how children learn to read, write and calculate at Upton.

Parent Homework Helper

Welcome to a guide that shows you how children at Upton Primary School progress in reading, writing and mathematics.

How to use this guide

You don't need to read it all at once…just use it when needed. For example

- your child could be asking you about long division as part of their maths homework, so you could go to the division page in the 'Learn to Calculate' section
- or, you could be worried about your child's writing progress, so would check the 'Stages of Writing' page in the 'Learn to Write' section'
- or you may want to help with your child read at home, so go to the 'Strategies to Help Read a Book' page in the 'Learn to Read' section

Got any questions?

If you have any questions concerning how your child learns at Upton, or don't fully understand our teaching methods, please do not hesitate to get in touch. We cherish each question, because it show you want to be involved in your child's education. So…ask away!

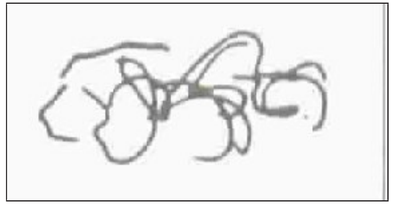
Learning to Write

Stages of Writing

Your child went through several necessary stages in the development of oral language: cooing, babbling, and playing with sounds. Similarly, written language development follows predictable stages. These are the stages your child will probably go through as he or she becomes a competent writer.

Stage 1: Emerging/Scribble

This is the beginning level at which your child scribbles. You may not be able to tell what the picture is about, but it's important to praise your child's beginning drawing.



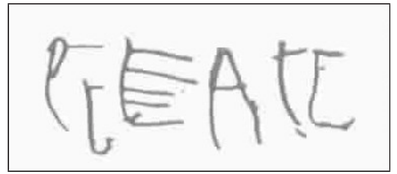
Stage 2: Pictorial

At this level, your child begins to draw a somewhat recognisable picture and may tell about it. He or she may also imitate writing.

The flower is growing.

Stage 3: Precommunicative

Your child may now be printing his or her own name or an occasional known word and may be writing strings of letter-like forms or a series of random letters. Sometimes he or she may attempt to read the message back, but you probably can't read it.



There are webs in Spidertown.

Stage 4: Semiphonetic

At this level, your child begins to use some letters to match sounds, often using one beginning letter to write a word. He or she usually writes from left to right but may reverse some letters.

I have a goldfish called Arielle.

Stage 5: Phonetic

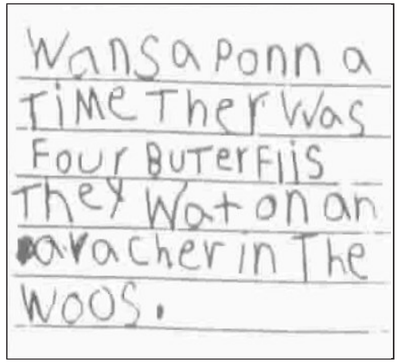
Now your child writes most words using beginning and ending consonant sounds and spells some frequently used words correctly. He or she may begin to add vowel sounds, but they are often not the correct ones. At this level, your child may begin to leave spaces between words. It's getting easier to read your child's writing.

I found a lamp and a genie came out.

Learning to Write

Stage 6: Transitional

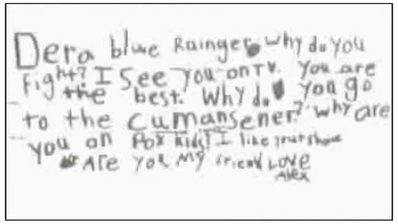
At this level, your child is writing words the way they sound, representing most syllables in words. He or she may sometimes be adding an extra silent e at the end of a word or doubling letters when they're not needed while trying visually to remember how spelling works. Now your child usually leaves spaces between words and is spelling many words correctly as he or she writes more than one sentence.



Once upon a time, there was (were) four butterflies. They went on an adventure in the woods.

Stage 7: Conventional

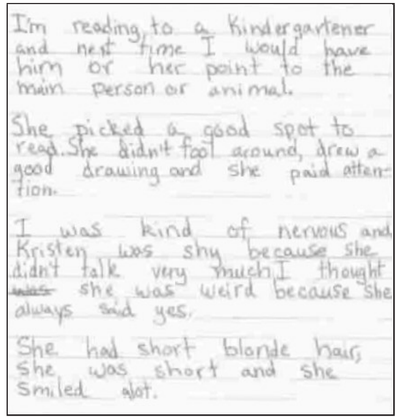
At this level, your child spells most words correctly, although he or she may use phonics-based spelling for advanced words. Remember, we can only expect children to correctly spell words they have already learned! Now your child is usually using capital letters, lowercase letters, full stops and question marks correctly.



Dear Blue Ranger, Why do you fight? I see you on TV. You are the best. Why do you go to the command center? Why are you on Fox Kids? I like your show. Are you my friend? Love, Alex

Stage 8: Traditional

Advanced writers use a rich, varied body of written vocabulary. They may still use phonics-based spelling for advanced words, but have mastered the spelling of commonly used words. At this level, your child uses inverted commas, commas, and apostrophes correctly and usually organises writing into appropriate paragraphs.



Our goal is for each child to enjoy writing and to begin little by little to understand how to become a better writer. Remember, your child learned to speak gradually, and you celebrated each attempt. Together, let's celebrate your child's attempts and gradual growth as a beginning writer! If you have any questions about how you might help at home, ask the class teacher.

Handwriting Policy

a b c d e f g h i j k

l m n o p q r s t u v

w x y z

Aa Bb Cc Dd Ee Ff Gg Hh Ii

Jj Kk Ll Mm Nn Oo Pp Qq

Rr Ss Tt Uu Vv Ww Xx Yy Zz

Ideas for encouraging mark making, writing and for developing phonic skill

Below are a list of ideas for promoting and practising both letter formation and phonics at home:

- Bending and forming playdough into letter shapes
- Painting letter shapes
- Large chalks on a chalk board or the ground outdoors
- Writing letters with your fingers in shaving foam, flour, sugar, sand
- Using foam letters or magnetic letters in the bath/on the fridge
- Finger painting to practise letter formation
- Using arms and hands to write huge letters in the air
- Making letters or cards to post to family members and friends
- Using a computer to practise phonics skills/finding capital letters
- Creating letters with our bodies on the floor and taking photographs
- Using everyday objects such as cutlery, shells, pebbles to make letters
- Practise letters learnt so far using taught songs and actions
- Play word recognition snap by writing words on cards and turning them over to match up and read them
- Playing simple games such as eye spy or ask children if they can see something beginning with a particular letter sound
- Use magnetic letters or flash cards to build and sound out words
- Put items in a box, as your child to pick one out and tell you what sound it begins with
- Think up different words that rhyme or words that begin with the same letter and make silly sentences together

Learning to Read

Reading is a vital skill that we must teach the children from a young age. At Upton we promote reading for enjoyment, therefore when you hear your child read at home, it must be a pleasurable experience rather than a chore!

At school we hear every child read at least once a week. They are taught the skills of reading by the class teacher during a 'guided reading' session, and are heard by another adult at least once a week.

In order for your child to make the most progress, we ask that they are heard by an adult at home at least 5 times a week, daily if possible. This need only be for 5 – 10 minutes, but it really does make a difference!

In school, we promote the enjoyment of reading by having a daily story session, where the class will listen to a story they enjoy.

Listening to stories is an important part of childhood. A bedtime story is always a great way to spend time with your child and will help to build an enjoyment of books.

Choosing a Book

Every child will be sent home with a reading book that is colour banded according to their ability.

The children may also have books at home they might want to read with you.

Reading the same book time and time again is a good thing. We want the children to really know stories well. This helps them build language and storytelling skills. When a child knows what a book 'says' they then have the confidence to read it without fear of getting it wrong.

Libraries are fantastic places to view a range of books, there is always a librarian on hand to help suggest a good book or let you know if something new has come in. The internet is a good way of finding out what new books have been released.

What Else Can Your Child Read?

- Comics
- Magazines
- Travel Brochures
- Recipes
- Instructions for games
- Letters from you, family or friends
- Newspapers
- Sports reports
- Shopping Lists

Creating the Perfect Reading Environment

Here is a list of things you can do to create the perfect reading environment for you and your child.

- Choose somewhere calm and quiet
- Sound excited and enthusiastic when talking about reading
- Have somewhere comfortable to sit next to each other. You will need to see what they are reading and they need to see what you are reading. This could be on their bed, on the sofa etc. Make sure the TV is OFF!!
- Talk about the book before, during and after reading it. (There will be suggested questions later in the booklet)

Be a Good Role Model for Reading

- To be a good role model you should:
- Handle books with care
- Let your child see you reading for pleasure
- Always stay positive and encouraging. Praise them, then help them.
- Continually use positive praise – "Well done, that was brilliant sounding out..."
- Always value time for reading.

Strategies to Help Read a Book

There are many ways we can help read a book, these are the 6 main strategies we use in school. We may not use all of them every time; it all depends on the text and the need of the child.

Making Sense of a Sentence

If a child can't read a word, it sometimes helps to leave the word and carry on reading to the end of the sentence. You can then go back and read it again, often the child will then be able to guess what the word is, especially if they look at the initial sound of the word. They could also look at the pictures to help.

Use of Phonics

Use the pure sounds the children are taught at school and blend together the letters / sounds they can see. Don't forget it's not always 1 sound for every 1 letter. Sometimes 2 or more letters make 1 sound. e.g. 'ea' makes the long 'e' sound. If you are unsure of this, ask your teacher for guidance. At Upton, we use Read Write Inc. as our phonics scheme.

Word Recognition

Some words you just can't sound out, these are called 'tricky words' or 'red words'. Each year group has a list of words they must learn. If you know the word is one they have learnt, ask your child to try and remember. If they can't, don't worry, tell them the word and see if they can remember it next time.

Rehearsing Reading

Rehearsing a page can help build a child's confidence in reading. Particularly in a more challenging book, try reading a page to them first, stressing any difficult words. When modelling the reading, use expression and different voices for different characters. Then give them a few minutes to read it to themselves, then they can read the page to you. The more you do this, the more words they will be able to recognise.

Questions to Ask When Reading

Before Reading

- What do you think this book is about?
- What does the picture on the front page tell you?
- Where is the title? What does it say?
- Discuss the author and talk about other books they have read written by the same author.

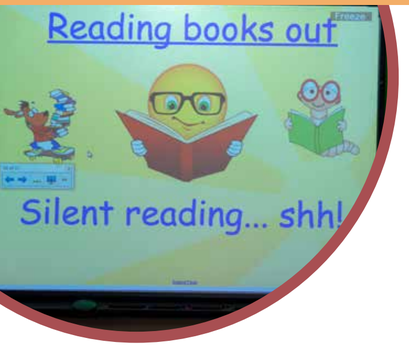
During Reading

- What is happening in the picture?
- Why did the character behave that way?
- Have you ever.....?
- Why did....?
- Where did....?
- Who did...?

Questions For Non-fiction Books

- What fact(s) did you enjoy learning about the most?
- Of the information you learned, which would you like to share with someone else?
- Would you like to read more books about this topic? Why?
- What else would you like to learn about this topic?
- What pictures or illustrations did you find interesting? Why?
- Is this book like any other book that you have read? If so, how are they alike? How are they different?
- Which did you like better? Why?
- What kind of research do you think the author had to do to write this book?
- What questions would you ask the author if you ever had the opportunity to meet him/her?
- How can you learn more about this topic?
- Would the book be different if it had been written 10 years ago?
- Did you discover anything that may help you outside of school?

Learning to Read



After Reading

- Who was your favourite character? Why?
- Did you like the book? Why?
- What was the most exciting part of the book?
- Would you choose that book again?
- Recall main events in the story

Reading Records

What to write in my child's reading record:

- It is important that reading records are completed at home as it gives the teacher an idea of how often they read and how well they are doing at home.
- The table below will give you a few ideas of what to write – try to keep your comments positive and factual. You are not expected to comment on each of the areas each time!
- How enthusiastic the child was about the choice of book
- How well the child was able to retell the story, showing their understanding
- What strategies they used to read unfamiliar words
- Interesting words discussed
- High Frequency words they recognised in the text
- How confident they were with reading new words
- Did they answer questions well?
- Was there a common mistake the teacher may need to pick up on in class?
- Did the child recognise when he / she had made a mistake? Did they correct themselves?
- How fluently they read
- How well they used expression

Useful Reading Websites

www.oxfordowl.co.uk –
free online Oxford Reading Tree resources

www.bbc.co.uk -
school section words and pictures phonic activities

www.phonicsplay.co.uk

www.literacytrust.org.uk

www.crickweb.co.uk/assets/resources/flash.php?&file=ww

www.woodlands-junior.kent.sch.uk/interactive/onlinestory.htm

www.bbc.co.uk/cbeebies/stories

www.snaithprimary.eril.net/rindex.htm - nursery rhymes

www.topmarks.co.uk/Search.aspx?subject=31

www.readingforlife.org.uk

www.bookstart.org.uk

In a Nutshell

Reading is one of the most important skills a child needs to learn, it is a vital part of every other school subject.

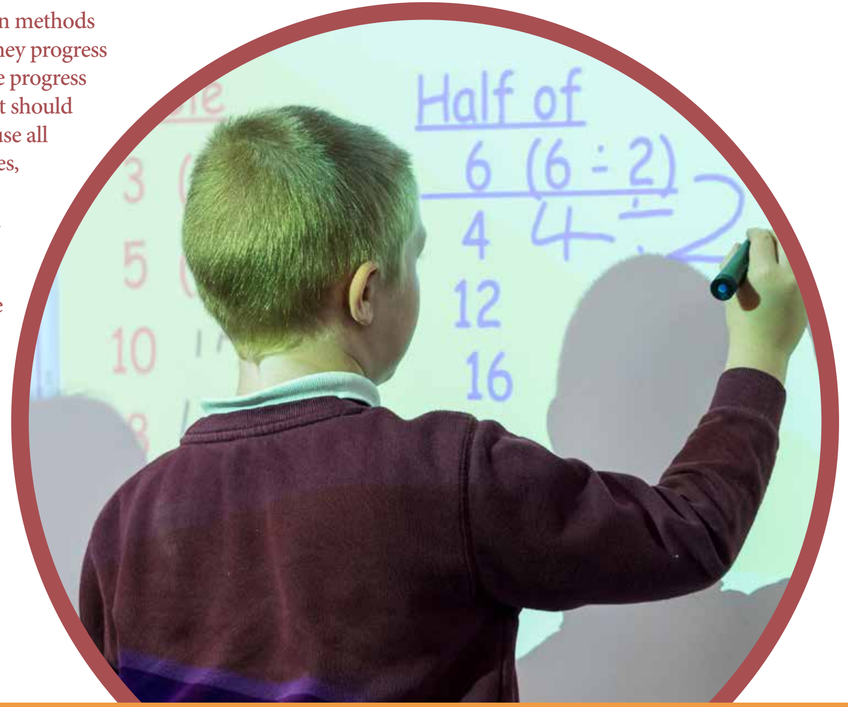
To help them at home:

- Try to read as often as possible with your child
- Create the right environment for reading
- Model a positive attitude and enthusiasm for reading (even if that is not how you really feel)
- Let your child choose a book they enjoy – they don't always have to read it to you!
- Don't forget, memorising a book isn't cheating, it builds confidence, helps them know the structure of a story and makes reading fun!
- Let the child hold the book
- Talk about the book as you read
- Support them in reading new words, don't jump in too quickly and don't get cross when they can't do it
- If your child is too tired to read to you – it's ok to read to them
- A bedtime story is the best way to get your child ready for sleep
- Most importantly – ENJOY TIME READING TOGETHER!!!

"A child who reads well is more likely to be successful in later life."

Calculation Policy

This policy outlines the mental and written methods children are taught at Upton Primary as they progress through school. It is organised to show the progress in each operation, rather than stating what should be taught in each year group. This is because all children learn and develop at different rates, teachers need to recognise when a child is ready for the next step and introduce each stage accordingly. When a new method is taught, it is important that we teach this alongside the current method children are using. This will help children to see the connections between each method.



It is important that children are able to calculate mentally and these skills are taught and developed from Foundation Stage through to Year 6. Written methods are also important, helping children to solve more difficult calculations and clarify thinking. Mental and written methods should be used in conjunction with each other, not treated as separate processes. **Children will always be encouraged to look at a calculation/problem and then decide which is the most efficient method to use. Children should use rounding in order to estimate their answers first.**

We recognise the value and important of practical equipment such as Numicon, Base 10, counters to aid children's understanding of calculation. As such, these will be used throughout school to support children's learning.

Mental Methods

Addition

Mental recall of number bonds
6 + 4 = 10
25 + 75 = 100

Use near doubles
6 + 7 = double 6 + 1 = 13

Addition using partitioning and recombining
34 + 45 = (30 + 40) + (4 + 5) = 79

Counting on or back in repeated steps of 1, 10, 100, 1000
86 + **57** = 143 (by counting on in tens and then in ones)
460 - 300 = 160 (by counting back in hundreds)

Add the nearest multiple of 10, 100 and 1000 and adjust
24 + 19 = 24 + 20 – 1 = 43
458 + 71 = 458 + 70 + 1 = 529

Use the relationship between addition and subtraction
36 + 19 = 55 19 + 36 = 55
55 – 19 = 36 55 – 36 = 19

Subtraction

Mental recall of subtraction facts
10 – 6 = 4 17 - ☐ = 11
20 - 17 = 3 10 - ☐ = 2

Find a small difference by counting up
82 – 79 = 3
starting from 79 and counting onto 82

Counting back in repeated steps of 1, 10, 100, 1000
86 - 52 = 34 (by counting back in tens and then in ones)
460 - 300 = 160 (by counting back in hundreds)

Subtract the nearest multiple of 10, 100 and 1000 and adjust
24 - 19 = 24 - 20 + 1 = 5
458 - 71 = 458 - 70 - 1 = 387
652 – 99 = 652 – 100 = 552 + 1 = 553

Mental Methods

Multiplication

Doubling and halving
8 x 4 is double 4 x 4

Using multiplication facts
Children should be able to utilise their tables knowledge to derive other facts.
e.g. If I know 3 x 7 = 21, what else do I know?
30 x 7 = 210, 300 x 7 = 2100 etc

Use closely related facts already known
13 x 11 = (13 x 10) + (13 x 1)
= 130 + 13 = 143

Multiplying by 10 or 100
Knowing that the effect of multiplying by 10 is a shift in the digits one place to the left.
Knowing that the effect of multiplying by 100 is a shift in the digits two places to the left.

Partitioning
23 x 4 = (20 x 4) + (3 x 4)
= 80 + 12 = 102

Division

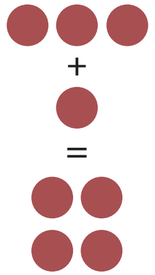
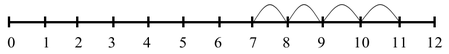
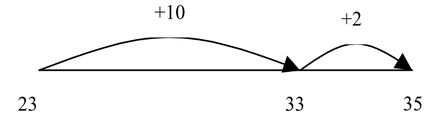
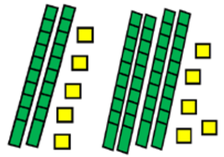
Halving
Use halving to divide by 2.

Deriving division facts
Children should be able to utilise their tables knowledge to derive division facts.
3 x 7 = 21
21 ÷ 3 = 7 21 ÷ 7 = 3
Given that 1.4 x 1.1 = 1.54
What is 1.54 ÷ 1.4, or 1.54 ÷ 1.1?

Dividing by 10 or 100
Knowing that the effect of dividing by 10 is a shift in the digits one place to the right.
Knowing that the effect of dividing by 100 is a shift in the digits two places to the right.

Progression in Addition

Vocabulary: **Add, addition, total, plus, more than, and, altogether, increase, equals, make, sum.**

Counting and adding with objects. Develop secure one-one correspondence and understanding of addition. Using practical apparatus and real objects.	**Using a number line and 100 square.** Number lines to help children count on from a number. The 100 square supports children to understand that when adding ten to a number the units stay the same. **The empty number line** The empty number line helps to record the steps on the way to calculating the total. Children will partition the number to do this. Practical apparatus will be used to support this process.	**Partitioning** Partitioning the numbers into tens and units before adding enables children to work with manageable parts, before recombining to find the answer. Use practical apparatus to support this.	**Column method** Using columns to add vertically, starting with units, then tens. Children start with straightforward examples and progress on to understanding that digits can be 'carried' into the next column. Children also use this method to add decimals. Use context of money and measures.
3 + 1 = 4 	**7 + 4 = 11**  0 1 2 3 4 5 6 7 8 9 10 11 12 **23 + 12 =**  +10 +2 23 33 35	 **25 + 46 =** **20 + 40 = 60** **5 + 6 = 11 60** **+ 11 = 71**	 + 2 5 / 4 7 / 7 2 / 1 + 4 2 9 / 1 4 3 / 5 7 2 / 1 + 1·3 6 9 / 4·0 5 3 / 5·4 2 2 / 1 1

Progression in Subtraction

Vocabulary: **Subtract, subtraction, take away, minus, less than, difference, decrease, leave, how many left.**

Counting backwards and subtracting with objects

Develop secure one-one correspondence and understanding of subtraction.

The number line and 100 square

Children use a number line to help them count backwards.

On a 100 square, when we take away 10 we can see that the units digit remains the same.

Finding the difference

Concept introduced early on by using language such as 'How many more?' and 'how much taller? Use Numicon and other apparatus to model the difference between two numbers.

Finding the Difference on a number line.

- Children can count up between the 2 numbers to find the difference and record steps on a number line.
- Teachers will use their judgement to decide which children need to be shown this method as some children may be ready to move on to a column method more quickly than others. We aim to move children on to short, efficient methods as soon as possible.

Stage 4

- Column method
- Using columns to subtract vertically, starting with units.
- Children start with straightforward examples then progress on to examples which involve borrowing. Children also use this method to subtract decimals.

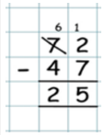
3 - 1= 2

- Early concept of difference
- How many more?
- Further examples in the appendix.

92 – 25 = 67

+5 +60 +2

25 30 90 92



Progression in Multiplication

Vocabulary: **Multiply, multiplication, multiple, times, lots of, "groups of" product.**

Hands on experiences, repeated addition and arrays.

Children put objects into groups. They solve multiplication questions through repeated addition and array diagrams.

Mental and informal written multiplication using partitioning.

- The number being multiplied can be partitioned, usually into tens and units. Each part is then multiplied with the answers then added together to find the final total. Arrays and practical apparatus can be used to support this step.

The grid method

- Children continue to use partitioning but record in a grid. This method will be shown and used for the children who need it. We will aim to move children on to more efficient methods as quickly as possible.

Short Multiplication (x single digit)

- The recording is reduced in this compact method. Any digits that need to be carried over should be recorded just on the top line. This method can also be used for decimals.

Long Multiplication (x 2 digits)

- Using columns to multiply vertically, starting with units, then tens, hundreds etc. Children can also use this method to multiply decimals.

An array to show 4 x 2 or 2 x 4: 4 groups of 2, or, 2 groups of 4:

E.g. 15 x 3 = 45

10 x 3 = 30

5 x 3 = 15

30 + 15 = 45

172 x 3 =

100 70 2

3 300 210 6

300 + 210 + 6 = 516

24 x 6 = 144

342 x 7 = 2394

124 x 26 =

124

x 26

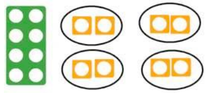
744

+ 2480

3224

Progression in Division

Vocabulary: **Divide, division, divided by, share, sharing, equal, equally, how many, remainder, factor.**

Practical activities involving sharing and grouping. Children use to practical apparatus to develop understanding of sharing and grouping. **Sharing 6 between 2.**	**Division on a number line.** Children record jumps on a number line to find the answer (see example below). This can also be used in questions with a remainder. E.g. 16 ÷ 3 = 5 r1 How many 3's make 16, how many left over? **Bigger jumps on a number line.** Children refine this method by recording larger jumps on their number line e.g. 10 groups, 5 groups etc.a		**Stage 4** **Short Division.** Standard short method works best for ÷ U e.g. HTU ÷ U but can be used for dividing by 2 digit numbers. It can also be applied to dividing by decimals e.g. HTU.t ÷ U. Remainders expressed as a number e.g. 432 ÷ 5 = 86 r 2	**Stage 5** **Long Division** If teachers feel children are ready, they can move on to long division. Children working at level 5 can express the remainder as a fraction. Some children may be able to express the remainder as a decimal.
Grouping 8÷2= 	18÷3 =6 	61 ÷ 4 = 15 r 1 10 x 4 5 x4 1 left over 0 40 60 61	See the next page for examples of short division.	See the next page for examples of long division.

Examples of Short Division (Taken from the new Primary National Curriculum)

98 ÷ 7 becomes

$$\begin{array}{r} 1\ 4 \\ 7\overline{)\,9\ 8} \\ \end{array}$$

Answer: 14

432 ÷ 5 becomes

$$\begin{array}{r} 8\ 6\ r\,2 \\ 5\overline{)\,4\ 3\ 2} \\ \end{array}$$

Answer: 86 remainder 2

496 ÷ 11 becomes

$$\begin{array}{r} 4\ 5\ r\,1 \\ 11\overline{)\,4\ 9\ 6} \\ \end{array}$$

Answer: $45\frac{1}{11}$

Examples of Long Division (Taken from the new Primary National Curriculum)

432 ÷ 15 becomes

$$\begin{array}{r} 2\ 8\ r\,12 \\ 15\overline{)\,4\ 3\ 2} \\ 3\ 0\ 0 \\ \hline 1\ 3\ 2 \\ 1\ 2\ 0 \\ \hline 1\ 2 \end{array}$$

Answer: 28 remainder 12

432 ÷ 15 becomes

$$\begin{array}{r} 2\ 8 \\ 15\overline{)\,4\ 3\ 2} \\ 3\ 0\ 0 \quad 15\times20 \\ \hline 1\ 3\ 2 \\ 1\ 2\ 0 \quad 15\times8 \\ \hline 1\ 2 \end{array}$$

$\frac{12}{15} = \frac{4}{5}$

Answer: $28\frac{4}{5}$

432 ÷ 15 becomes

$$\begin{array}{r} 2\ 8\cdot 8 \\ 15\overline{)\,4\ 3\ 2\cdot 0} \\ 3\ 0 \\ \hline 1\ 3\ 2 \\ 1\ 2\ 0 \\ \hline 1\ 2\ 0 \\ 1\ 2\ 0 \\ \hline 0 \end{array}$$

Answer: 28·8

The New Primary National Curriculum – Guidelines

The following is a summary of the expectations of the new curriculum for Mathematics. Some children may need to work on objectives below those of their year group, and some children may need objectives from the year above.

	Addition/Subtraction	Multiplication/Division
Year 1	• Read, write and interpret mathematical statements involving +, - and =signs. • Represent and use number bonds and related subtraction facts within 20. • Add and subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.	• Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

	Addition/Subtraction	Multiplication/Division
Year 2	• Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures. • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. • Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers, adding three one-digit numbers. • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • **Non Statutory Guidance** - Recording addition and subtraction in **columns** supports place value and prepares for formal written methods with larger numbers.	• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
Year 3	• Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. • Add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction. • Estimate the answer to a calculation and use inverse operations to check answers. • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. • Solve problems, including missing number problems, involving multiplication and division,

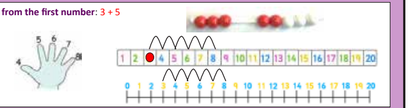
	Addition/Subtraction	Multiplication/Division
Year 4	• Add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate. • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. • Solve simple measure and money problems involving fractions and decimals to two decimal places.	• Recall multiplication and division facts for multiplication tables up to 12 × 12. • Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. • Solve problems involving multiplying and dividing.
Year 5	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers. Use rounding to check answers to calculations. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving number up to three decimal places. • Add and subtract decimals, including a mix of whole numbers and decimals.	• Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. • Multiply and divide numbers mentally drawing upon known facts. Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
Year 6	• Pupils practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of column addition and subtraction, short and long multiplication, and short and long division. They perform mental calculations, with mixed operations and large numbers. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	• Multiply numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. Multiply one-digit numbers with up to two decimal places by whole numbers.

Calculation Policy Appendix

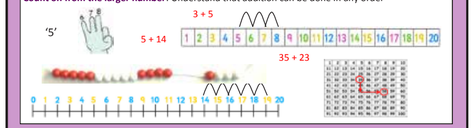
+ Addition +

Count all: 3 + 5 Count out three counters and then five counters and then find the total by counting all the counters

Count on from the first number: 3 + 5



Count on from the larger number: Understand that addition can be done in any order



Partitioning: Combining sets and exchanging where necessary.

25 + 46 =
20 + 40 = 60
5 + 6 = 11 60
+ 11 = 71

Vertical addition: Practically alongside recording.

Vertical addition:

Vertical addition: in the context of money

Vertical addition:

— Subtraction —

Partitioning sets: and learning number facts e.g. pairs that make 8, 9, 10 etc

Seeing 12 as made up of 5 and 7

Finding the difference (counting on):

Use of language such as 'How many more?' and 'How much taller?

The difference between 3 and 8

Counting back/take away/reduction:

5 - 3

13 - 5

12 - 5

74 - 27

47 - 23

Practical subtraction: 72 - 47 = exchanging where necessary

Vertical subtraction: Practically alongside recording

Vertical subtraction:

Vertical subtraction: in the context of money

Vertical subtraction:

Understand finding the difference as subtraction

X Multiplication X

Counting in equal steps: 2s, 3s, 5s, 10s

Repeated addition of groups:

3 + 3 = 6
Double 3 is 6
2 + 2 + 2 + 2 + 2 = 10
2 x 5 = 10
2 multiplied by 5
5 pairs
2 x 3 or 3 groups of 2

10p+10p+10p+10p+10p = 50p
10p x 5 = 50p
5 jumps of 10

Describing an array: taught with division facts

3 x 5 = 15 5 x 3 = 15
15 ÷ 5 = 3 15 ÷ 3 = 5

Partitioning: to mentally multiply

17 x 3 =
10 x 3 = 30
7 x 3 = 21
30 + 21 = 51

Splitting arrays:

13 x 4
10 x 4 3 x 4

Expanded grid:

13 x 4
10 x 4 3 x 4

Compact grid method:

X	40	3
6	240	18

Vertical multiplication:

Vertical multiplication:

Long multiplication: grid and vertical

÷ Division ÷

Sharing:

15 marbles shared equally between 5 children

17 ÷ 5 = 3 r2

Cut the pizza in half. How many pieces are there?

Grouping: e.g. 15 marbles put into groups of 3

How many 3s in 15?

17 ÷ 3 = 5 r2

Describing an array: taught with multiplication facts

15 ÷ 3 = 5
5 x 3 = 15
15 ÷ 5 = 3
3 x 5 = 15

Partitioning: to divide mentally

39 ÷ 3 =
30 ÷ 3 9 ÷ 3

Practical division:

Short division: Practically alongside recording

Short division: Recording remainders in different ways

Short division: Dividing a whole number by a small two digit number (using jottings to support)

Long division:

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