Year 4

Number and Place Value

I can statements:

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

All these examples are from Primary Frameworks Blocks

Count in multiples of 6, 7, 9, 25 and 1000

Children should be able to:

Explain how to work out the 6 times-table from the 3 times-table or the 9 times-table from the 3 times-table.

Know that 9 × 8 = 72 so that 72 ÷ 9 = 8 and deduce 720 ÷ 9.

Explain the relationship between 8 × 7 = 56, 6 × 7 = 42 and 14 × 7 = 98.

Find 1000 more or less than a given number

Children should be able to:

Answer questions such as, what is the missing number in the number sentence and how do you know? 5742 + ≤ = 9742

Count backwards through zero to include negative numbers

Children should be able to:

Create a sequence that includes the number –5 and then describe the sequence to the class.

Explain how to find the missing numbers in a sequence e.g. _ *–9, –5, –1,* _ and explain the rule.

Answer questions such as, What number can you put in the box to make this statement true? __ < –2

Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)

Children should be able to:

Give the value of a digit in a given number e.g. the 7 in 3 274

Write in figures a given number e.g. four thousand and twenty.

Recognise a number partitioned like this: 4 000 + 200 + 60 + 3 and be able to read and write the number.

Create the biggest and smallest whole number with four digits e.g. 3, 0, 6, 5

Find missing numbers in a number sentence e.g. _ +_ = 1249

Order and compare numbers beyond 1000

Children should be able to:

Find numbers that could go in the boxes to make these correct, □ + □ < 2000, 3000 > □ – □

Identify, represent and estimate numbers using different representations

Children should be able to:

Answer questions such as, which of these numbers is closest to the answer of 342 – 119: 200 220 230 250 300

Identify what the digit 7 represents in each of these amounts: £2.70, 7.35m, £0.37, 7.07m

Round any number to the nearest 10, 100 or 1000

Children should be able to:

Explain tips to give someone who is learning how to round numbers to the nearest 10, or 1000.

Answer questions such as, I rounded a number to the nearest 10. The answer is 340. What number could I have started with? Know what to look for first when you order a set of numbers and know which part of each number to look at to help you.

Solve number and practical problems that involve all of the above and with increasingly large positive numbers

Children should be able to:

Sort problems into those they would do mentally and those they would do with pencil and paper and explain their decisions. Answer questions such as, There are 70 children. Each tent can accomodate up to 6 children. What is the smallest number of tents they will need? The distance to the park is 5 km when rounded to the nearest kilometre. What is the longest/shortest distance it could be? How would you give somebody instructions to round distances to the nearest kilometre?

Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value

This is new content for the primary national curriculum in England. Suggestions for what children should be able to do include;

Know what each letter represents in Roman numerals and be able to convert from Roman numeral to our current system (Arabic) and from Arabic to Roman e.g. 76 = _ *in Roman numerals, CLXIX* = _ Arabic numerals.

Know that the current western numeral system is the modified version of the Hindu numeral system developed in India to include the concept of zero and place value.

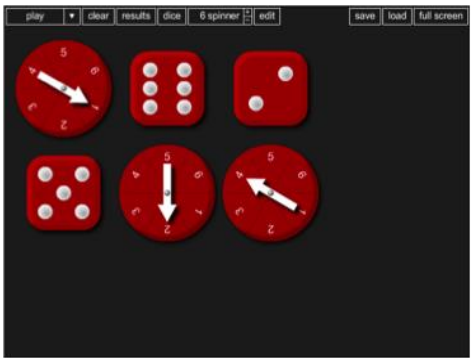
Activities

Programme of Study statements	Activity									
	A	B	C	D	E	F	G	H	I	J
Count in multiples of 6, 7, 9, 25 and 1000.										
Find 1000 more or less than a given number.										
Count backwards through zero to include negative numbers.										
Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).										
Order and compare numbers beyond 1000.										
Identify, represent and estimate numbers using different representations.										

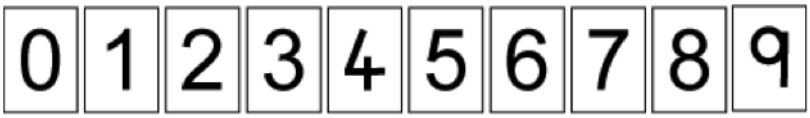
Round any number to the nearest 10, 100 or 1000.										
Solve number and practical problems that involve all of the above and with increasingly large positive numbers.										
Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.										

Activity A – Some games that may be nice or nasty NRICH

This a variety of activities that can be teacher led as a whole class or used in pairs or groups. Use dice or spinners to generate single digits to be placed on a place value grid to create four-digit numbers. Whoever has the larger four-digit number wins etc. Take the opportunity to randomly ask, “What is 1000 more?” or “What is 1000 less?”



Activity B - The Thousands Game NRICH



Children pull digits out of a bag to create 4 digit numbers and compete and compare. Take the opportunity to randomly ask, “What is 1000 more?” or “What is 1000 less?”

Activity C - Place Value KS2 KS3 NRICH

Children should be given a copy of one of the grids within the document and asked to place their digits in various positions. This activity can be made as simple or as complicated as required. Teachers can take the opportunity to randomly ask, “What is 1000 more?” or “What is 1000 less?”

Activity D - Clapping Times NRICH

This activity is similar to the traditional game Fizz Buzz and can be played as a whole class. In pairs or more, children take turns to count and clap in ones, clapping loudly on their chosen/assigned multiple, therefore practicing counting in selected multiples. This activity can be easily adapted for multiples of 6, 7 and 9.

Activity E - Music to My Ears NRICH

This activity can be teacher led or played in pairs or more. Clap and click a rhythm (or use musical instruments) using the selected multiples. Ask questions regarding what will come next, what will happen on the 100th beat? In pairs or more use different multiples and predict when there will be a clap at the same time etc.

Activity F - Count from a Random Number

This is a quick activity. Count forwards and backwards as a whole class e.g. “6, 12, 18, 24,

30, 36, now back again 30, 24, 18, 12, 6.”

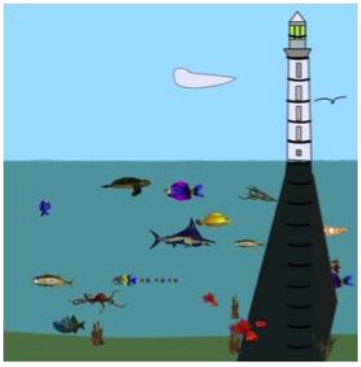
Generate a random number by asking a child or rolling a dice. Now count forwards and backwards. E.g. a child chooses 23 as the starting number and you all count in multiples of 6 so “23, 29, 35, now back again, 29, 23, 17, 11, 5, -1, -7”

Or you count in thousands so “ 23, 1023, 2023, 3023, 4023, 5023 now back again 4023, 3023, 2023” etc.

Roll a dice, get 3, then say “ 3, 4, 5 now back again, 4, 3, 2, 1 , 0, -1, -2, -3, -4, -5” Try to do it reasonably fast.

Activity G - Sea Level NRICH

The picture shows a lighthouse and many underwater creatures. If you know the markings on the lighthouse are 1m apart, can you work out the distances between some of the different creatures?



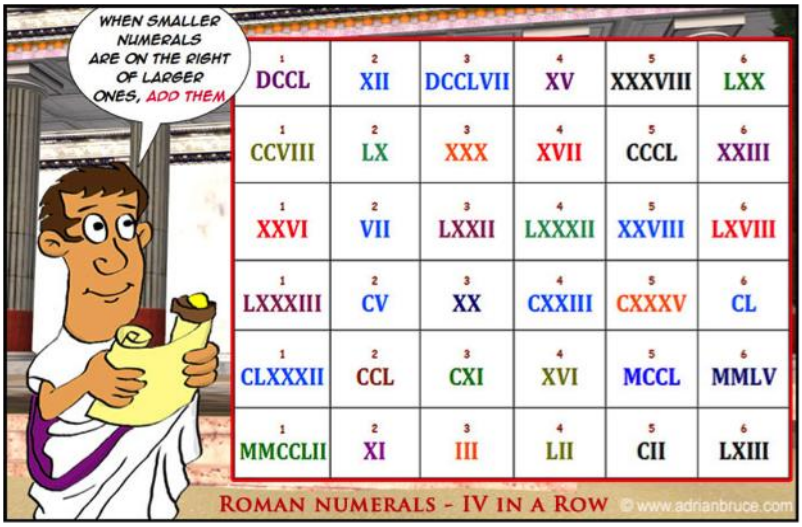
Activity H - Money Bags NRICH

An investigation involving money that begins: Ram divided 15 pennies among four small bags. This activity can be extended.

Activity I - Rounding Quiz NRICH

A motivational activity to practise rounding skills with multiple choice answers, which spell out a joke and punch line.

Activity J - Roman Numerals NRICH



A fun interactive activity to learn and use Roman numerals.

Useful Resources

Dice and spinners interactive

Counters, dice, digit cards including negative digits, money, place value grids, arrow place value cards, place value blocks or interlocking mats, percussion instruments, multiplication charts for 6, 7 and 9, multiplication square, **Multiplication tables ITP**, **Place value ITP**,**Thermometer ITP**.

(NB The three ITP resources above were produced for the Primary National Strategy, which was formally discontinued in 2011. However, the resources have the potential to complement teaching in line with the new 2014 mathematics curriculum)

Addition and Subtraction

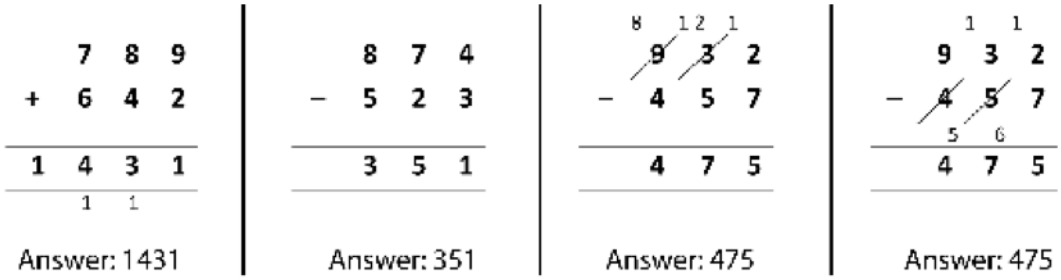
I can statements:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate



Estimate and use inverse operations to check answers to a calculation

Tina has read the first 85 pages in a book that is 150 pages long. Which number sentence could Tina use to find the number of pages she must read to finish the book?

A 150 + 85 = ☐

B ☐ – 85 = 150

C 150 ÷85 = ☐

D 150 – 85 = ☐

Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Children should be able to carry out practical tasks such as that represented here in an**Australian classroom**.

Children were asked to individually run the class market stall. They were told they could use mental strategies or the whiteboard provided to assist them in their calculations. The customer (their teacher) would come to purchase some items. Each child was asked to solve a transaction problem involving a single item (calculating change – subtraction) and then a transaction involving two items (adding together values and then calculating change or two subsequent subtractions). They were also asked to explain their thinking and asked how to give the change in a different way (representing money values in various ways).

Children should be able to solve problems such as:

- I have read 134 of the 512 pages of my book. How many more pages must I read to reach the middle?
- There are 8 shelves of books. 6 of the shelves hold 25 books each. 2 of the shelves have 35 books each. How many books altogether are on the shelves?
- I think of a number, subtract 17, and divide by 6. The answer is 20. What was my number?
- You start to read a book on Thursday. On Friday you read 10 more pages than on Thursday. You reach page 60. How many pages did you read on Thursday?

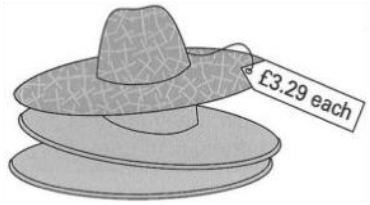
Amir and Lara buy some fruit.

grapes	pineapples	peaches
£2.50	£1.40	£1.99
for 1 kg	each	for a box

Amir buys 2 pineapples and a box of peaches.
How much does he pay?

Lara buys half a kilogram of grapes and one pineapple.
How much change does she get from £5?

A shop sells sun hats.



Ryan buys some sunglasses for £4.69 and a sun hat. How much change does he get from £10?

Activities

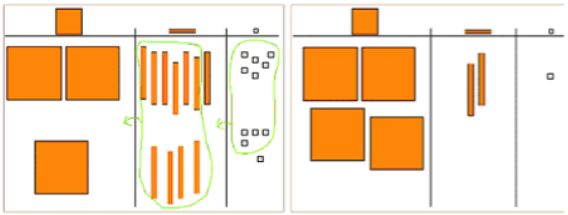
Programme of Study statements	Activity						
	A	B	C	D	E	F	G
Add and subtract numbers with up to 4 digits using the formal written methods of columnar							

addition and subtraction where appropriate							
Estimate and use inverse operations to check answers to a calculation							
Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why							

Pupils should be taught to:

Activity A - Interactive Base Ten Blocks NRICH

This software shows a clear, interactive version of the use of base ten blocks for addition of two 3-digit numbers. It clearly demonstrates regrouping, and has a useful focus sheet for pupils to guide their work.



Activity B – Twenty divided into Six NRICH

This task from Nrich requires children to arrange a pack of 20 cards numbered 1-20 into 6 unequal piles of the same total. A good activity for consolidating mental addition skills and encouraging children to discuss their approaches and ideas. Could it be extended to larger numbers?

Activity C - Images of addition and subtraction NRICH

This activity comes from the NCETM Secondary Magazine, and looks at the range of models and images used for addition and subtraction. Challenge the children to sort the cards and think about all the skills they are using.

Activity D – Models and Images

‘Slidey- box’ cards, number trios and the function blocks Interactive Teaching Programme (ITP) can all be used to support children in understanding the concept of inverse operations for addition and subtraction.

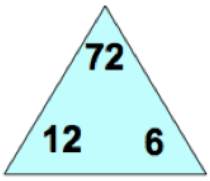
Slidey box cards

Create slidey box cards by writing calculations onto card and folding a strip of coloured paper to create a slider. Use the slider to cover a number. Ask children to explain what calculation they can do with the visible numbers to find the hidden number.

Number trios

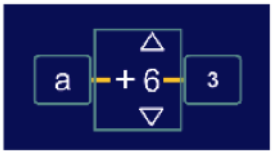
Ensure that children can give four calculations for every family of numbers. For example, for the multiplication and division family shown:

6 × 12 = 72 12 × 6 = 72
72 ÷ 12 = 6 72 ÷ 6 = 12



Function blocks ITP

Give children experience of using the output number and the inverse operation to work out what the input number must have been, for example:
a + 6 = 3
so 3 – 6 = **a** using the inverse operation, that is, **a** = –3



Activity E - Reach 100 NRICH

This activity from Nrich requires children to use their knowledge of addition and subtraction to add several two digit numbers to reach a target total.

Activity F – Estimating differences

In pairs, children take turns to circle two numbers from a grid such as this:

99	24	42	22
35	54	4	34
3	32	62	43
40	12	44	55
27	52	91	16

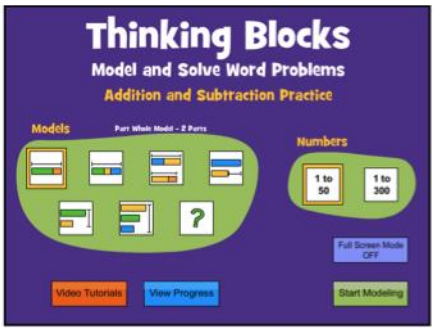
They agree a time period in which to estimate the difference between the two numbers and check the range in which the estimate falls on the chart below. Play continues until all of the numbers are used, and the player with the most points wins.

Total	0 to 10	11 to 29	30 to 49	50 to 69	70 to 89	90 or more
Points	1	2	3	2	1	0

- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why

Activity G – Bar Models NRICH

This resource provides a useful introduction to the bar model approach for calculating, with lots of ideas for problems to use in the classroom. Additional resources can be found at the**'Thinking Blocks' website**



Multiplication and Division

I can statements:

- 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

Recall multiplication and division facts for multiplication tables up to 12 × 12

Children should be able to:

Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.

e.g. One orange costs nineteen pence. How much will three oranges cost?

What is twenty-one multiplied by nine?

How many twos are there in four hundred and forty?

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

Children should be able to:

Pupils practise mental methods and extend this to three-digit numbers to derive facts, for example 200 × 3 = 600 into 600 ÷ 3 = 200.

e.g. Divide thirty-one point five by ten.

Ten times a number is eighty-six. What is the number?

Recognise and use factor pairs and commutativity in mental calculations

Children should be able to:

Pupils write statements about the equality of expressions (e.g. use the distributive law 39 × 7 = 30 × 7 + 9 × 7 and associative law (2 × 3) × 4 = 2 × (3 × 4)). They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations e.g. 2 x 6 x 5 = 10 x 6.

e.g. Understand and use when appropriate the principles (but not the names) of the commutative, associative and distributive laws as they apply to multiplication:

Example of commutative law 8 × 15 = 15 × 8

Example of associative law 6 × 15 = 6 × (5 × 3) = (6 × 5) × 3 = 30 × 3 = 90

Example of distributive law 18 × 5 = (10 + 8) × 5 = (10 × 5) + (8 × 5) = 50 + 40 = 90

Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Children should be able to:

Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

e.g. 185 people go to the school concert. They pay £l.35 each. How much ticket money is collected?

Programmes cost 15p each. Selling programmes raises £12.30. How many programmes are sold?

Activities

Programme of Study statements	Activity			
	A	B	C	D
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 .				
Recognise and use factor pairs and commutativity in mental calculations.				
Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.				
Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.				

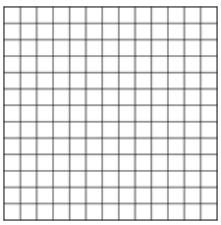
Activity Group A

Year 4 Statutory requirement: Recall multiplication and division facts for multiplication tables up to 12 × 12

Last Digit Patterns – A 'Teachers' TV' activity NRICH

Generating and using last digit patterns to explore and create patterns in a ‘clock face’. Fantastic activity for practising times tables facts, predicting and reasoning as to why some times tables share the same patterns on the ‘clock’.

12 x 12 Grid Patterns – Exploring arrays, multiples and factors



Resources required: Blank 12 x 12 (half or a whole sheet of A4) grid and write in numbers 1-12 along the horizontal and vertical to create a multiplication grid.

Start with a number such as 12 and use cubes to create all of the possible arrays (e.g. 1 x 12, 12 x 1, 2 x 6, 6 x 2 etc) Place these cube arrays in the multiplication grid to show that 2 x 6 = 12 because we have a 2 by 6 array and therefore 12 cubes. Children can see that the 2 x 6 array could be 2 across and 6 down or 6 across and 2 down etc.

Now we should be able to place a cube everywhere 12 would be on the 12 x 12 grid. How many 12’s will there be and why? Do you notice anything about where the cubes are when you’ve finished? Can you explain why this is? (Commutative Law)

Repeat this with other numbers and focus upon predicting where the cubes will be placed and reasoning why e.g. How many times will ‘7’ appear on this grid and why? Will it be more or less times than 12?

Explore larger numbers such as 24 where two of the factors will not appear on this particular grid (1 x 24 and 24 x 1) ask the children to discuss which factors won’t appear and why and how they can use the factors of numbers like 20 to determine the factors of 40 and 80 etc.

Linking Division and Multiplication Facts Quiz

Children work in pairs.

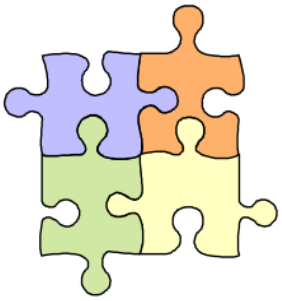
Ask children to choose a times table to practice e.g. 7. One child writes down a vertical list of multiples of this number (up to and beyond 12 x 12 to apply partitioning skills when appropriate)

Version 1: Child passes this list to partner and asks them to say how many 7’s are in this particular multiple. Their partner must explain how they are working it out (if it is not a known fact) and emphasis is placed upon efficient use of known facts to generate derived facts e.g. ‘Well I know that 5 x 7 is 35 so 6 x 7 will be 7 more so that’s 42’.

Version 2: Child passes paper over and partner works against the clock. Jottings are allowed (and encouraged) whilst working with more challenging multiples.

Multiplication Square Jigsaw NRICH

Complete the multiplication grid using cut out interactive ‘jigsaw’ pieces



Activity Group B

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

Multiplying and Dividing with Straws

Resources required: Straws in bundles (see below)

Give children straws which have been halved and ask them to bundle them into single colour groups of 10. Then bundle 10 groups of 10 to form hundreds. Create sets of hundreds, tens and units straws for pairs of children to use. *(These are an excellent resource for teaching columnar calculation methods and other aspects of place value and fractions too, so well worth making).*

Look at a series of calculations such as 6 x 3, 60 x 3 and 600 x 3. Ask children to talk about what this calculation means and model it using their bundles of straws. Discuss in pairs and small groups what they have found out and reason why the patterns they are seeing exist.

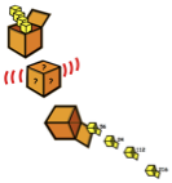
Ask children to create their own series of calculations and model them using straws.

Ask children to generalise the rules regarding multiplying by 1, 10 and 100 and apply this to other calculations of their own creation. If ‘add a zero’ comes up in discussion explore what would happen if the zero/s were not there and help children see zero as a ‘place holder.’

Use straws to repeat activity but using division by 1, 10 and 100.

Use straws to explore multiplying and dividing by 0 and discuss what happens and why.

What’s in the Box? NRICH



What has the large box multiplied the numbers by to get the numbers which come out at the end? (And just to get us really thinking….we don’t know what the numbers were that went in at the beginning: only those that came out after they’d been multiplied!)

Activity Group C

Year 4 Programme of Study: Recognise and use factor pairs and commutativity in mental calculations

Abundant Numbers

48 is called an abundant number because it is less than the sum of its factors (without itself). Can you find some more abundant numbers?

Factors and Multiples Game NRICH

A game which helps children derive, practise and use their knowledge of factors and multiples. Can you block your opponent?

Sports Practice

Work in pairs and use cubes or counters to explore and build mathematical models and support conjecture.

Your teacher is running an after school club. Some weeks the number of children who turn up make it really easy to divide everyone up into equal groups for all different kinds of games. Some weeks the number of children who turn up makes it almost impossible!

Explore which totals would make life easier and which would cause problems. Explain why some numbers are ‘better’ than others in this context. Explore models which show all of the possible solutions and link this to arrays, commutability, square numbers, prime numbers and factor pairs. Explore which totals have an odd number of factors and explain why. Use explorations to predict which larger numbers could be divided in many ways and which would cause problems.

Activity Group D

Year 4 Statutory requirement: Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects."

Resources required: Interlocking cubes or straw bundles (see activity group A)

Build 14 x 4 using cubes (14 multiplied 4 times)

Ask children how they would calculate this total. Most likely response is 10 x 4 = 40, and 4 x 4 = 16. Then 40 + 16 = 56

Record this model as a grid to link children’s method and use of distributive law to multiply 2 -digit by 2-digit numbers.

Use straw bundles to make 124 x 3. Record model as a grid to show use of distributive law to multiply 3- digit by 2-digit.

Repeat these activities and similar activities using place value counters (see video below) instead of cubes/dienes and straw bundles.

Using grid method as a formal written method Lower Key Stage 2 NCETM video: **Using manipulatives (place value counters)**

Real-life Connections: Regularly link these calculations to real life, meaningful problems relating to familiar situations such as shopping and cooking. For example:

My brother is working part time in the supermarket in the evening stacking shelves. He needs to stack the boxes 7 high and 15 across. How many boxes will he need?

The people in the stadium are sitting in rows of 36 and there are 9 rows in each sections. What is the capacity of each section? If there are 40 sections in the stadium what is the total capacity? (Using multiplication by 10 as well as grid method).

(See also upper Key Stage 2 video moving from grid method to formal written method – 2- digit by 2-digit long multiplication)

Upper Key Stage 2 NCETM video example discussing **grid method and its relationship with long multiplication**

Exploring Wild and Wonderful Patterns! NRICH

EWWNP means Exploring Wild and Wonderful Number Patterns Created by Yourself! Investigate what happens if we create number patterns using some simple rules.

Exploring Number Patterns You Make NRICH

The Amazing Splitting Plant NRICH

Can you work out how many flowers there will be on the Amazing Splitting Plant after it has been growing for six weeks?

Scaling Recipes NRICH

Find the recipe proportions needed by scaling up the ingredients.

Harry Potter's Portions (Ratio and direct proportion) NRICH

Can you work out how to scale the recipe to make 'Snape Sponge' for everyone?

Lengthy Journeys NRICH

Use the data to describe the journeys as proportions of each other e.g. Norwich to Cambridge is 105 km and Norwich to Oxford is 272 km so we could say that the first journey is just over a third of the second and the second is approximately two and half times further.

Use a mapping website to research distances which have greater meaning to the children and make similar comparisons using appropriate written methods to justify answers.

(Also use this activity for other areas of maths such as difference)

Sports Mega-Facts

Research the capacity of sports stadia around the world and link to geography to locate on a world map. Collect as data and make comparisons as above in terms of fractions and scaling.

Once Upon a Time NRICH

Can you work out the height of Baby Bear's chair and whose bed is whose if all the things the three bears have are in the same proportions?

Useful Resources

- Interlocking cubes
- Place value counters
- Counters
- Blank 12 x 12 grids
- Straws
- White boards and pens

Fractions

I can statements:

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to ¼, ½, ¾
- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- round decimals with one decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.

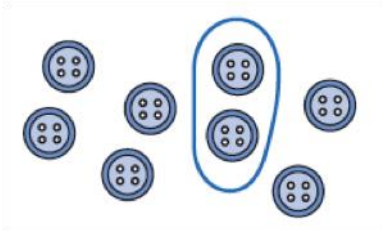
Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

Recognise and show, using diagrams, families of common equivalent fractions

Recognise that five tenths ($\frac{5}{10}$) or one half is shaded.

Recognise that two eighths ($\frac{2}{8}$) or one quarter (¼) of the set of buttons is ringed

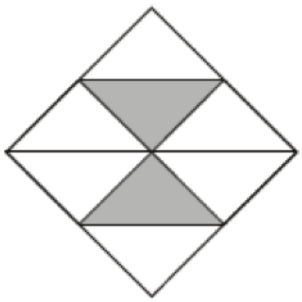


Recognise that one whole is equivalent to two halves, three thirds, four quarters… For example, build a fraction ‘wall’ using a computer program and then estimate parts.

Recognise patterns in equivalent patterns, such as:

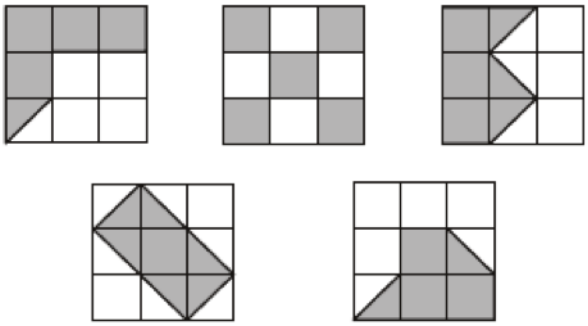
$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = \frac{7}{14}$ And similar patterns for $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{10}$.

Here is a square.



What fraction of the square is shaded?

Here are five diagrams. Look at each one.
Put a tick (✔) on the diagram is exactly ½ of it is shaded. Put a cross (✗) if it us not.



Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten

Respond to questions such as:

What does the digit 6 in 3.64 represent? The 4? What is the 4 worth in the number 7.45? The 5?

Write the decimal fraction equivalent to:

two tenths and five hundredths; twenty-nine hundredths; fifteen and nine hundredths.

Continue the count 1.91, 1.92, 1.93, 1.94 ...

Suggest a decimal fraction between 4.1 and 4.2

Know how many 10 pence pieces equal a pound, how many 1 pence pieces equal a pound, how many centimetres make a metre.

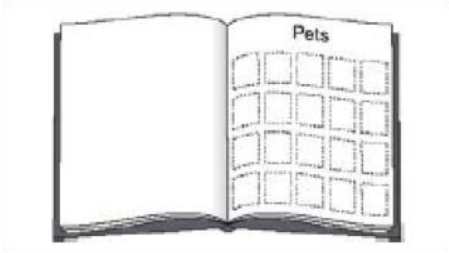
Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number

What is one-fifth of twenty-five?

Write the missing number to make this correct.

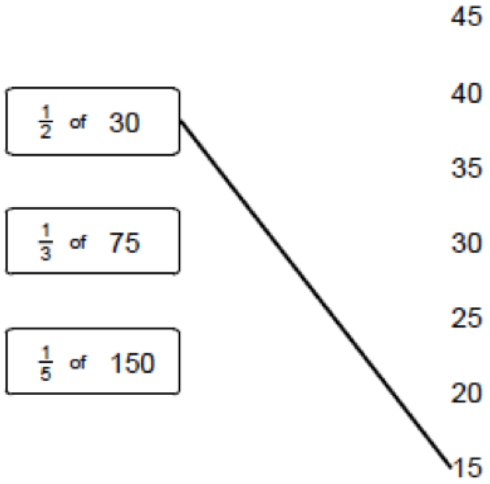
$$\frac{1}{4} \text{ of } 24 = \frac{1}{2} \text{ of } \square$$

Mary has 20 pet stickers to go on this page.



¼ of them are dog stickers. ½ of them are cat stickers. The rest are rabbit stickers. How many rabbit stickers does she have?

Match each box to the correct number. One has been done for you.



Add and subtract fractions with the same denominator

For example:

$\frac{1}{2} + \frac{1}{2}$, $\frac{1}{4} + \frac{3}{4}$, $\frac{3}{8} + \frac{5}{8}$, $\frac{3}{5} + \frac{4}{5} + \frac{1}{5}$, $\frac{7}{10} + \frac{3}{10} + \frac{5}{10} + \frac{8}{10}$, $\frac{3}{4} - \frac{1}{3}$, $\frac{6}{7} - \frac{4}{7}$, $\frac{9}{10} + \frac{4}{10}$, $-\frac{3}{10}$

Recognise and write decimal equivalents of any number of tenths or hundredths

Recognise that, for example:

0.07 is equivalent to $\frac{7}{100}$ 6.35 is equivalent to 6 $\frac{35}{100}$

Particularly in the contexts of money and measurement

Respond to questions such as:

Which of these decimals is equal to $^{19}/_{100}$? 1.9 10.19 0.19 19.1 Write each of these as a decimal fraction: $^{27}/_{100}$ $^{3}/_{100}$ 2 $^{33}/_{100}$

Recognise and write decimal equivalents to ¼; ½; ¾

Know that, for example

0.5 is equivalent to ½, 0.25 is equivalent to ¼, 0.75 is equivalent to ¾, 0.1 is equivalent to$^{1}/_{10}$

Particularly in the context of money and measurement.

Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths

Understand that:

When you divide a number by $^{1}/_{100}$, the digits move one/two places to the right.

Write a two-digit number on the board. Keep dividing by 10 and record the answer. Describe the pattern.

26
2.6
0.26
0.026

Respond to oral or written questions such as:

How many times larger is 2600 than 26?

How many £1 notes are in £120, £1200?

Divide three hundred and ninety by ten.

Write in the missing number

$\square \div 10 = \dot{2}\dot{0}.$

Round decimals with one decimal place to the nearest whole number

Round these to the nearest whole number. For example:

9.7, 25.6, 148.3

Round these lengths to the nearest metre:

1.5m, 6.7m, 4.1m, 8.9m

Round these costs to the nearest £:

£3.27, £12.60, £14.05, £6.50

Compare numbers with the same number of decimal places up to two decimal places

Place these decimals on a line from 0 to 2:

0.3, 0.1, 0.9, 0.5, 1.2, 1.9

Which is lighter: 3.5kg or 5.5kg? 3.72kg or 3.27kg? Which is less: £4.50 or £4.05?

Put in order, largest/smallest first:

6.2, 5.7, 4.5, 7.6, 5.2, 99, 1.99, 1.2, 2.1

Convert pounds to pence and vice versa. For example: Write 578p in £.

How many pence is £5.98, £5.60, £7.06, £4.00? Write the total of ten £1 coins and seven 1p coins (£10.07)

Write centimetres in metres. For example, write: 125 cm in metres (1.25 metres)

Solve simple measure and money problems involving fractions and decimals to two decimal places. These are the prices in a shoe shop

How much more do the boots cost than the trainers? Rosie buys a pair of trainers and a pair of sandals. How much change does she get from £50?

A box of four balls costs £2.96. How much does each ball cost? Dean and Alex buy 3 boxes of balls between them. Dean pays £4.50. How much must Alex pay? KS2 Paper B level 3

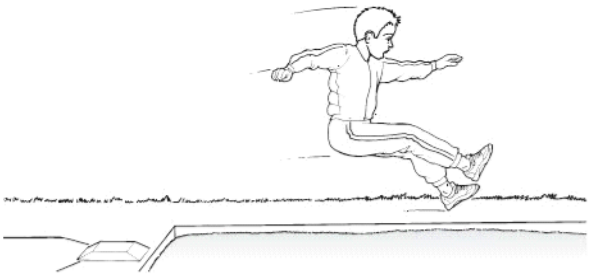
A full bucket holds 5½ litres. A full jug holds ½ a litre. How many jugs full of water will fill the bucket?

Harry spent one quarter of his savings on a book. What did the book cost if he saved: £8…£10…£2.40…?

Gran gave me £8 of my £10 birthday money. What fraction of my birthday money did Gran give me?

Max jumped **2.25 metres** on his **second** try at the long jump.

This was **75 centimetres** longer than on his **first** try.



How far in **metres** did he jump on his **first** try?

Activities

Programme of Study statement	Activity						
	A	B	C	D	E	F	G
Recognise and show, using diagrams, families of common equivalent fractions.							
Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.							
Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number							
Add and subtract fractions with the same denominator.							
Recognise and write decimal equivalents of any number of tenths or hundredths.							
Recognise and write decimal equivalents to ¼; ½; ¾.							
Round decimals with one decimal place to the nearest whole number.							

Compare numbers with the same number of decimal places up to two decimal places.							

A range of web based interactive programmes, aimed at providing practice and consolidation for pupils exploring equivalent fractions. All sites noted below can be accessed via the NCETM site.

Of course, concrete materials and activities are the best way to teach children about fractions and enable them to build strong concepts.

Activity A – interactive programmes

1. **Game matching pictures and equivalent fractions**

Activity B – Tenths and Hundredths

1. A **resource pack of materials** including an interactive place value grid to teach tenths and hundredths, activities on key vocabulary and terms, reference material and animations and three differentiated worksheets on tenths and hundredths
2. **A series of activities to introduce and use hundredths**
3. Make a hundred square of pennies in the classroom and talk about one hundredth of a pound and a tenth of a pound. Consider how, for example, 23p is written as a decimal. How would we write four pound and eighty-two pence? What would it look like in our coins?
4. **Interactive matching of decimal notation to a shaded 10x10 grid representation**

Activity C – fractions to calculate quantities

1. **Game for one or two players required to match the answer to the unit fraction of amount requested**

Activity D – adding and subtracting fractions

1. **Game practising adding two or more fractions with the same denominator**
2. **Online adding and subtracting fractions activities written as word problems. Some useful ideas.**

Activity E – decimal equivalents

1. **Excellent ‘splat’ game accessible at several different levels, requiring children to match the fraction (in tenths or hundredths) to the decimal representation**
2. **‘The Decifractor’. A flexible resource demonstrating equivalences between fractions and decimals.**
3. **Pelmanism-style game , matching fractions to decimals.**
4. **Arcade type game, where ‘Fraction Man’ has to defeat the decimals (by matching them).** Note – this does get challenging! find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths

Activity F – dividing by 10 and 100

1. **Interactive Teaching Program – ‘Moving Digits’. A good modelling program to show how digits move when multiplied or divided by 10 or 100.**
2. **Interactive game where children are required to find the calculation that matches the answer given… to help them cross the river.**

Activity G – rounding and comparing decimals

1. **Rounding decimals activity – uses one and two decimal places.**
2. **Practise rounding numbers to one decimal place.**
3. **Spreadsheets ‘Rounding’ and ‘Rounding Decimals’**
4. **Arrange the decimals in order from lowest to highest.**

Activity H – solve problems involving fractions and decimals

1. **Pelmanism-style game. Match the coin pictures to the correct fraction of amount.**
2. **BBC skillswise activity focusing on money amounts as fractions.**
3. **Fractions of amounts interactive word problems.**

Measurement

I can statements:

- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence
- read, write and convert time between analogue and digital 12- and 24-hour clocks
- solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

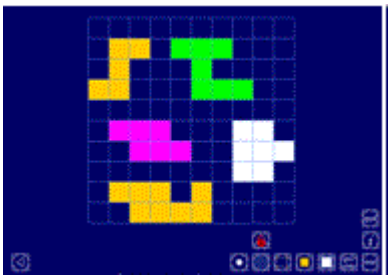
Convert between different units of measure [for example, kilometre to metre; hour to minute]

- Learn the relationships between familiar units of measurement. They learn that kilo means one thousand to help them remember that there are 1000 grams in 1 kilogram and 1000 metres in 1 kilometre. They respond to questions such as: A bag of flour weighs 2 kg. How many grams is this? They suggest suitable units to measure length, weight and capacity; for example, they suggest a metric unit to measure the length of their book, the weight of a baby, the capacity of a mug. They suggest things that you would measure in kilometres, metres, litres, kilograms, etc.
- Record lengths using decimal notation, for example recording 5 m 62 cm as 5.62 m, or 1 m 60 cm as 1.6 m. They identify the whole-number, tenths and hundredths parts of numbers presented in decimal notation and relate the whole number, tenths and hundredths parts to metres and centimetres in length.

Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres

- Measure the edges of a rectangle and then combine these measurements. They realise that by doing this they are calculating its perimeter. Given the perimeter of a rectangle

they investigate what the lengths of its sides could be. They work out the perimeter of irregular shapes drawn on a centimetre square grid, e.g. using the ITP ‘Area’.



Find the area of rectilinear shapes by counting squares

- For example, they draw irregular shapes on centimetre square grids, and compare their areas and perimeters.

Estimate, compare and calculate different measures, including money in pounds and pence

Draw on their calculation strategies to solve one- and two-step word problems, including those involving money and measures. They use rounding to estimate the solution, choose an appropriate method of calculation (mental, mental with jottings, written method) and then check to see whether their answer seems sensible. They throw a beanbag three times and find the difference between their longest and shortest throws. After measuring their height, they work out how much taller they would have to grow to be the same height as their teacher. They solve problems such as:

- Dad bought three tins of paint at £5.68 each. How much change does he get from £20?
- A family sets off to drive 524 miles. After 267 miles, how much further do they still have to go?
- Tins of dog food cost 42p. They are put into packs of 10. How much does one pack of dog food cost? 10 packs?
- A can of soup holds 400 ml. How much do 5 cans hold? Each serving is 200 ml. How many cans would I need for servings for 15 people?
- I spent £4.63, £3.72 and 86p. How much did I spend altogether?
- A string is 6.5 metres long. I cut off 70 cm pieces to tie up some balloons. How many pieces can I cut from the string?
- A jug holds 2 litres. A glass holds 250 ml. How many glasses will the jug fill?
- Dean saves the same amount of money each month. He saves £149.40 in a year. How much money does he save each month?

Read, write and convert time between analogue and digital 12- and 24-hour clocks
solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

- Solve problems involving units of time, explaining and recording how the problem was solved. For example: Raiza got into the pool at 2:26 pm. She swam until 3 o’clock. How long did she swim? They count on to find the difference between two given times, using a number line or time line where appropriate and use the 24-hour clock to measure time.

Activities

Programme of Study statements	Activities			
	A	B	C	D
convert between different units of measure (e.g. kilometre to metre; hour to minute)				
measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres				
find the area of rectilinear shapes by counting squares				
estimate, compare and calculate different measures, including money in pounds and pence				
read, write and convert time between analogue and digital 12 and 24-hour clocks				

solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days				

Activity set A

(i) You could copy **these units** onto card and cut them out to give to the children to match:

1kg 750g	1l 224ml	1km 500m	2550g	1245cm	10050l
1m 10cm	25mm	6kg 75g	1.75kg	1.224l	12m 45cm
103mm	1500m	2.65l	2l 650ml	2cm 5mm	1750g
2.55kg	6.075kg	10l 50ml	6075g	12l 450ml	2l 650ml
12450ml	10.05l	12.45m	1.45l	1.5km	1.10cm
2.5cm	10.3cm	1.1m	1224ml	2kg 500g	10cm 3mm

(ii) You could ask the children to work in groups of 4 or 5. Each child will need a piece of modelling clay or plasticine. Time them for 30 seconds while they roll their plasticine into the longest ‘worm’ that they can. After 30 seconds, they place their ‘worms’ in order from shortest to longest. They estimate the shortest worm and write their estimate down in both centimetres and millimetres, e.g. 54mm, 5.4cm. Then they measure it, write that down in centimetres and millimetres and then work

out the difference between their estimate and the actual measurement. They use this measurement to estimate the length of the next worm. Then measure it and so on for all the 'worms'.

Activity set B

You could give the children problems similar to these:

- Sophie would like to build a rectangular patio in her garden. She wants the area of her patio to be $24m^2$.

  What to do:

  - Think about the possible sizes that Sophie's patio could be. Write these down.
  - Draw some designs using these sizes.
  - Draw these to a scale of 1cm = 1m.
  - Use another piece of paper if you need more room.
  - Measure accurately using your ruler. Label the measurements
  - Once you have drawn your rectangles, check to make sure the areas are correct.
  - Work out the perimeters of each shape using the formula 2(a x b).
- Sam has been given a large area of land. He would like to build a stable for his horse on part of it. He wants it to be rectangular with a perimeter of 50m.

  What to do:

  - On paper work out some of the possible areas for Sam's stable. Write them down.
  - On a piece of squared paper, sketch some designs using these sizes.
  - Use the scale of 1cm = 1m. Remember to label them.
  - Once you have drawn your rectangles, check to make sure the perimeters are correct.
  - Work out the areas of each shape in the most efficient way you can.

You might like to give the children the **'Area and Perimeter'** problem from Nrich which asks them to create shapes with different areas and perimeters.

Or this one: **'Numerically Equal'** which asks the children to draw a square with the same numerical values for its perimeter and its area

Activity set C

(Firstly, ensure that you, yourself, are very clear about the difference between volume and capacity. It is important that you are able to explain clearly and model use of the language correctly.)

You could ask the children to work in groups of four and carry out this activity

- Collect 4 different containers from around the classroom. They all need to look different.
- As a group estimate the capacity of one of your containers.
- Write your estimate on paper in litres and also millilitres.
- Measure the amount you estimated into a measuring jug and see if it fills the container.

- If your estimate was not correct. Find out how the actual capacity of the container. Add this information to the table.
- Repeat this for the other 3 containers.

You could give groups of children some sand, weighing scales, a book and some plastic bags and ask them to try out this activity:

- Sara says: I can make three different masses using bags of sand. These will help me estimate the mass of a dictionary.
- What do you think?
- How are you going to find out?
- Do you agree with Sara?

You could ask the children problems within the context of money. Ask them to estimate their answers first by rounding the money to the nearest pound. For example:

- Leona saved £50. She wants to buy a music player for £23.48. She also wants to download music from the internet. This will cost £9.67. Does she have enough money left to buy some headphones at £8.96?
- Paul and Lisa were making a list of food they would like to buy for their party. This is their list so far with the prices for the amounts they need:

Food	Price
French Sticks	£4.45
Doughnuts	£9.99

Tubs of ice cream	£15.25
Pizzas	£42.80
Samosas	£4.50
Cheese sticks	£10.75

They have £75. How much more money do they need to buy everything on this list?

- Billy had 10 coins. They totalled £4.50. What coins could they be? How many possibilities can you find?

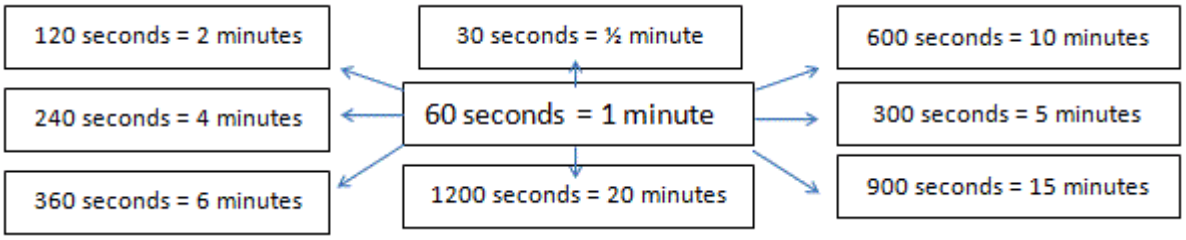
Activity set D

You could give the children problems similar to these and ask them to solve them using a number line:

- Cherri went strawberry picking. She began at 10:20 and was picking strawberries for 2 hours 45 minutes. When did she finish?
- Adnan spent 1 hour 55 minutes at the gym. She left at 16:30. When did she get there?
- The twins went to the beach. They arrived at 11:50 and left at 17:15. How long were they at the beach for?
- Zeina and Mona left for school at 07:15. They spent the day working hard. They got home at 17:05. How long were they away from home?
- Brent and Chris were gardening. They started at 13:25. Brent finished at 15:55. Chris carried on for another hour and ten minutes. For how long was Chris gardening?

Next, ask the children to make up and solve some problems of their own.

You could give the children opportunities use their mental calculation skills of, for example, addition, subtraction, multiplication, doubling and halving to deduce new information about units of time:



You could repeat this for days in different numbers of weeks, months in different numbers of years and so on.

.

Geometry: Properties of Shapes

I can statements:

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

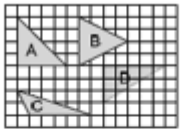
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes

Pupils should be able to complete this sentence:

All equilateral triangles have …

Identify acute and obtuse angles and compare and order angles up to two right angles by size

Here are four triangles drawn on a square grid.

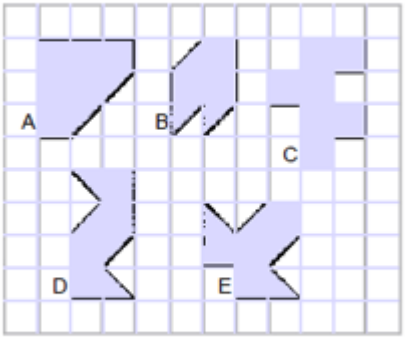


Write the letter for each triangle in the correct region of the sorting diagram. One has been done for you.

	has a right angle	has an obtuse angle	has an acute angle
is isosceles	A		
is not isosceles			

Identify lines of symmetry in 2-D shapes presented in different orientations

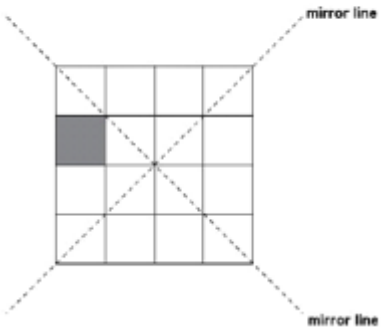
Here are five shapes on a square grid.



Write the letters of the two shapes which have a line of symmetry.

Complete a simple symmetric figure with respect to a specific line of symmetry

Here is a shaded square on a grid. Shade in 3 more squares so that the design is symmetrical in both mirror lines.



Activities

Programme of Study statement	Activity				
	A	B	C	D	E
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	●	●	●		●
Identify acute and obtuse angles and compare and order angles up to two right angles by size.		●			●
Identify lines of symmetry in 2-D shapes presented in different orientations.	●	●	●		

Complete a simple symmetric figure with respect to a specific line of symmetry.					

Activity A - Stringy quads

Using a loop of string and three friends to investigate the symmetrical properties of quadrilaterals.

Activity B – National Flags

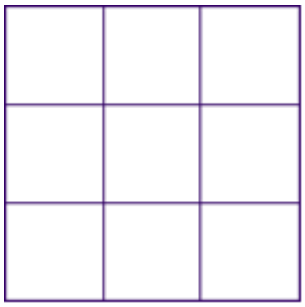
Many national flags were displayed during the 2012 Olympics Games in London. This activity investigates the properties of flags, e.g. lines of symmetry, and the properties of specific shapes within each flag.

Activity C – Shape and Space activities (The National Numeracy Strategy)

Short mathematical imaginings (on p3, 4 and 5) particularly No. 2, 3 and 11 encourage children to visualise and mentally manipulate 2D shapes.

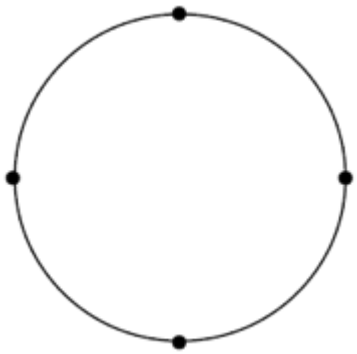
Activity D - Symmetry Challenge

Systematically explore the range of symmetric designs that can be created by shading whole squares of a 3 x 3 grid.



Activity E – Triangles All Around

Using a circular pegboard with four, six or eight evenly spaced pegs, how many different triangles can you make? What are their angles?



Useful Resources

Sets of 2D and 3D shapes, Polydron, mirrors, pegboards, pinboards, rulers, dot isometric paper, 2-D shape dice, string.

Geometry: Position and Direction

I can statements:

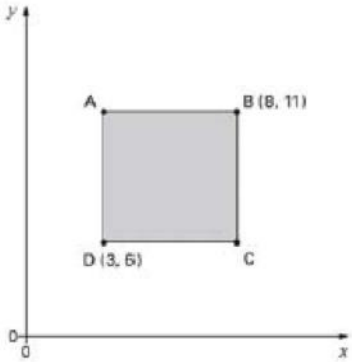
- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

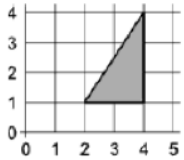
Describe positions on a 2-D grid as coordinates in the first quadrant

Here is a shaded square.

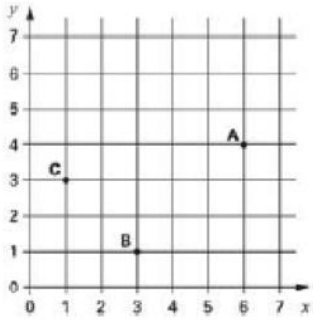


Write the coordinates for point A.

Describe movements between positions as translations of a given unit to the left/right and up/down



Plot specified points and draw sides to complete a given polygon



A, B and C are three corners of a rectangle. What are the coordinates of the fourth corner?

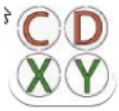
Activities

Programme of Study statements	Activity		
	A	B	C
Describe positions on a 2-D grid as coordinates in the first quadrant	●	●	●
Describe movements between positions as translations of a given unit to the left/right and up/down			●

Plot specified points and draw sides to complete a given polygon		●		

Activity A - Coordinate Challenge

- **NRICH Activity**
  Position letters according to clues on a grid. Also supports symmetry.



Activity B – A Cartesian Puzzle

- **NRICH Activity**
  Plot coordinates given and identify missing coordinates to create particular shapes.

Activity C - Translation or Destination 1

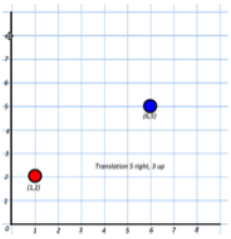
Resources – large grids or chess boards numbered on two axes, counters, two dice, Counter with T (translation) on one side and D (destination) on the other.

Children work in pairs using a large grid or chess board and counters.

They roll the dice to get starting coordinates and place one counter on the board at the starting coordinates. Roll the dice again. Toss the coin.

If T then use dice to give the translation up/down and left/ right. Children establish which directions are possible given the size of the board. Place a second counter at the new position.

If D then use the second roll of the dice as the new coordinates and children describe the translation taking place between the two sets of coordinates using the language up/down left/right.



Statistics

I can statements:

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Exemplification

Examples of what children should be able to do, in relation to each (boxed) Programme of Study statement

Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

- Collect data, measuring where necessary. They work with a range of data, such as shoe size and width of shoe across the widest part of the foot, the number of letters in children's names, the width of their hand spans, the distance around their neck and wrist, data from nutrition panels on cereal packets, and so on.
- They decide on a suitable question or hypothesis to explore for each data set they work on. For example, 'We think that…boys have larger shoes than girls', '…our neck measurements are twice as long as our wrist measurements', '…girls' names have more letters than boys' names' or '…children in our class would prefer to come to school by car but they usually have to walk'.
- Children consider what data to collect and how to collect it. They collect their data and organise it in a table. They choose a Venn or Carroll diagram, or a horizontal or vertical pictogram or bar chart to represent the data. Where appropriate, they use the support of an ICT package. They justify their choice within the group so that they can present it.
- They understand that they can join the tops of the bars on the bar-line chart to create a line graph because all the points along the line have meaning.

Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

- Undertake one or more of three enquiries:
    - What vehicles are very likely to pass the school gate between 10:00 am and 11:00 am? Why? What vehicles would definitely not pass by? Why not? What vehicles would be possible but not very likely? Why? What if it were a different time of day? What if the weather were different?
    - Does practice improve estimation skills? Children estimate the lengths of five given lines and record the estimate, measured length and difference. They repeat the activity with five more lines to see whether their estimation skills have improved after feedback.
    - What would children in our class most like to change in the school? Children carry out a survey after preliminary research to whittle down the number of options to a sensible number, e.g. no more than five.
    - Children identify a hypothesis and decide what data to collect to investigate their hypothesis. They collect the data they need and decide on a suitable representation. In groups, they consider different possibilities for their representation and explain why they have made their choice.
    - In the first enquiry, children use tallies and bar charts. In the second, they use tables and bar charts to compare the two sets of measurements. In the third, they use a range of tables and charts to show their results, including Venn and Carroll diagrams. They use ICT where appropriate.

Activities

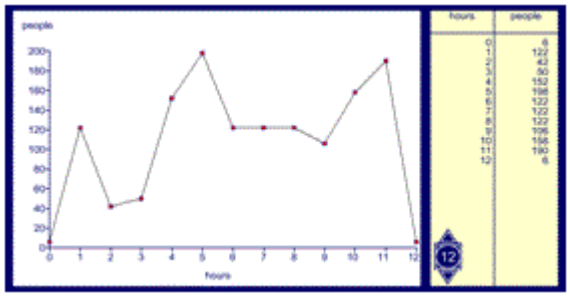
Programme of study statements	Activities	
	A	B

interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	●	
solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs		●

Activity set A

Show the available data on the **Data Handling** or the **Line Graph** ITP and ask the children to interpret what they can see.

Show a time graph like the one below and ask the children to make up a story about it:



You might like to ask the children to explore **'You Tell the Story'** from NRICH which asks the children to create a story that describes the movement of man and his sheep.

Activity set B

As a class create a problem to solve, such as Mr Pike is going to open a pet shop. He wants to know which pets he should stock. He only wants to stock 5 to begin with. Write a selection of possible pets on the board. Take a survey of the pets the children in the class would choose and use the ITP **Data Handling** to enter this data. Display it as a bar chart. You could then ask the children to make up questions from the chart for the rest of the class to answer and conclude from the information which five pets Mr Pike should stock.

Carry out a human bar graph activity. Think of a scenario such as favourite foods. Give each child a sticky note and ask them to draw their favourite food onto it – no words, just pictures. Next ask them, in small groups, to stick the notes on the board to make a bar chart. As they do this, listen to what they say. Someone might wonder what one of the drawings is and this can lead into a discussion about the importance of labels. You could then ask some of the children to write labels for the different foods and add them to the board to form a horizontal axis. Once all the post it notes are on the board, discuss the best scale size for the vertical axis. If you decide to go up in steps of two, double up the post it notes for all the foods and then ask some children to write the appropriate numbers and add these to the bar chart. When you have done that discuss why a title would be useful and add this. The children could then draw the bar chart on paper and write some statements about the information it shows.

You might like to work through **'Class 5's Names'** from NRICH which asks the children to explore different charts to identify which member of the class was away.