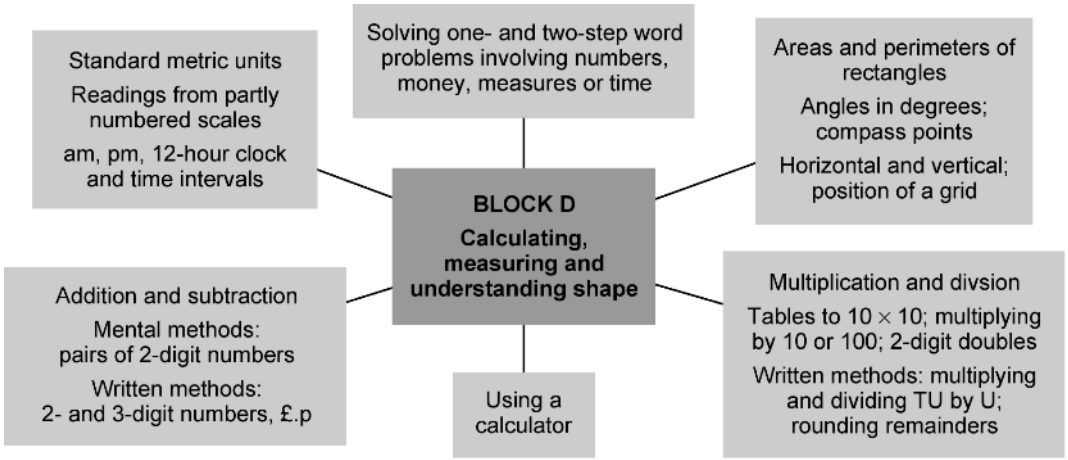
Year 4: Block D — Three 2-week units

Calculating, measuring and understanding shape



Objectives	Units		
End-of-year expectations (key objectives) are highlighted	1	2	3
• Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate	✓	✓	✓
• Add or subtract mentally pairs of two-digit whole numbers (e.g. 47 + 58, 91 – 35)	✓		
• Refine and use efficient written methods to add and subtract two-digit and three-digit whole numbers and £.p		✓	✓
• Derive and recall multiplication facts up to 10 × 10, the corresponding division facts and multiples of numbers to 10 up to the tenth multiple		✓	
• Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g. 15 × 9, 98 ÷ 6)		✓	
• Use decimal notation for tenths and hundredths and partition decimals; relate the notation to money and measurement; position one-place and two-place decimals on a number line		✓	✓
• Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.3 m or 0.6 kg)	✓	✓	✓
• Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit	✓	✓	✓
• Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables	✓		✓
• Draw rectangles and measure and calculate their perimeters; find the area of rectilinear shapes drawn on a square grid by counting squares		✓	✓
• Know that angles are measured in degrees and that one whole turn is 360°; compare and order angles less than 180°		✓	✓

Objectives End-of-year expectations (key objectives) are highlighted	Units 1	 2	 3
• Recognise horizontal and vertical lines; use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares	✓	✓	

Speaking and listening objectives for the block

Objectives	Units 1	 2	 3
• Listen to a speaker and take notes on the talk	✓		
• Take different roles in groups and use the language appropriate to them, including roles of leader, reporter, scribe, and mentor		✓	✓

Opportunities to apply mathematics in science

Activities		Units 1	 2	 3
4a	Moving and growing: Measure and record relative sizes of bones; discuss changes over time. Pupils to suggest what measurements to make.	✓		
4b	Habitats: Investigate organisms; use a grid of squares to plot habitats where organisms were found in a survey, e.g. of the school grounds.		✓	
4e	Friction: When investigating parachutes, use rectangular canopies. Calculate their areas and perimeters and measure time to fall.			✓

Key aspects of learning: focus for the block

Enquiry	Problem solving	Reasoning	Creative thinking
Information processing	Evaluation	**Self-awareness**	Managing feeling
Social skills	**Communication**	Motivation	Empathy

Vocabulary

problem, solution, answer, method, explain, predict, reason, reasoning, pattern, relationship

calculation, equation, decimal, decimal point, decimal place, add, subtract, multiply, divide, order, compare, sum, total, difference, plus, minus, product, remainder, calculator, pound (£), penny/pence (p)

measure, estimate, metric unit, standard unit, length, distance, perimeter, area, mass, weight, capacity, ruler, measuring tape, balance, scales, measuring cylinder/jug, angle, right angle, set-square, units of measurement and abbreviations: kilometre (km), metre (m), centimetre (cm), millimetre (mm), kilogram (kg), gram (g), litre (l), millilitre (ml), square centimetre (cm^2), degree (°)

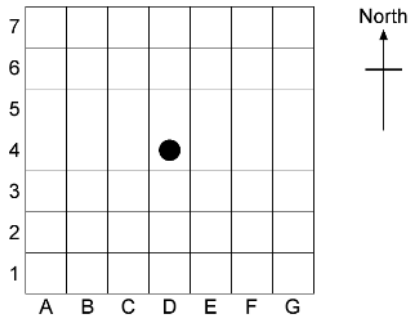
time, am, pm, digital, analogue, timetable, arrive, depart, hour (h), minute (min), second (s)

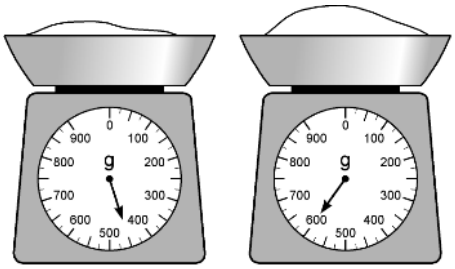
position, direction, north-east (NE), north-west (NW), south-west (SW), south-east (SE), clockwise, anticlockwise, horizontal, vertical, grid

Building on previous learning

Check that children can already:

- recall the relationships between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres
- read, to the nearest division and half division, scales that are numbered or partially numbered
- read the time on a 12-hour digital clock and to the nearest five minutes on an analogue clock; calculate time intervals and find start or end times for a given time interval
- use a set-square to draw right angles and to identify right angles in 2-D shapes; compare angles with a right angle; recognise that a straight line is equivalent to two right angles
- use four compass directions to describe direction (N, S, E, W)

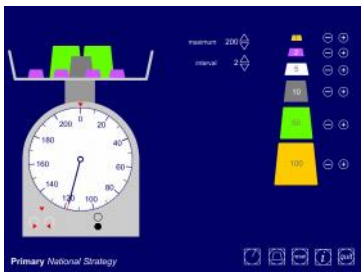
Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate *I can work out how to solve problems with one or two steps* *I can solve problems using measurements* *I can choose what calculation to work out and I can decide whether a calculator will help me*	These are the prices of coconuts and bananas.  coconuts 78p each bananas £1.20 for 1 kg Josh buys one coconut and half a kilogram of bananas. How much does he spend altogether? Explain what you did to get your answer. How did you know what operation(s) to use? Could you have done it in a different way? Did you use a calculator? Why/why not?
• Add or subtract mentally pairs of two-digit whole numbers (e.g. 47 + 58, 91 – 35) *I can use mental addition and subtraction to help me solve problems*	Why do 37 + 25, 47 + 15 and 57 + 5 all give the same answer? What strategies would you use to work out the answers to these calculations: 37 + 48, 81 – 36? Could you use a different method? How could you check that your answer is correct?
• Recognise horizontal and vertical lines; use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares *I know when a line is horizontal or vertical* *I can describe the position of a square on a grid of squares*	Lisa places a counter on square D4.  She moves it 2 squares east and 3 squares south. Write the position of the square she moves it to.
• Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.3 m or 0.6 kg) *I can estimate and measure a weight* *I know the relationships between units of weight* *I can write a mass in kilograms using a decimal point*	Estimate the weight of this bag of potatoes. And of this tin of beans. Which units would you use to measure the weight of an egg? A centimetres B millilitres C grams D kilograms Which is heavier: 2900 g or 3 kg? Explain how you know. Can you tell me another way to say or write 8 kilograms? What about 250 grams? Look at these cards. They have capacities in kilograms or grams. 5 kg, 500 g, ¼ kg, 1.5 kg, 750 g Put the cards in order from the lightest to the heaviest. How did you order the cards? Why did you put this measurement here? Were any of the measurements hard to order? Why? Which would you prefer: ¾ kg of gold or 700 g of gold? Why?

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit *I can use kitchen scales or a bathroom scale to measure a weight* *I can read a weight in kilograms and grams from a scale marked in kg*	Emily is making a cake. She puts flour on the scales. She then adds sugar to the flour.  How much sugar does she add?
• Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables *I can tell the time to the minute on a clock with hands* *I can write down a time using am and pm* *I can work out how long it takes to do something if I know the start and end times*	How long do you spend at school each day? How long do you play computer games each day? How long have you lived in your house? How long is it until your next birthday? What are the most suitable units of time to use to answer these questions? Could you give the answer using a different unit of time? What time is it on the clock on the wall? What time will it be 50 minutes from now? The time is 2:00 pm. What time was it three hours ago?
• Listen to a speaker and take notes on the talk *I can listen to someone else speak and write down important bits of information that will help me with my task*	Maria is going to describe how she worked out a time interval using a number line. Make some notes so that you can do it in the same way. Listen carefully while I explain how to read a number from this scale. Make a note of what to do.

Learning overview

Children 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.

Practical activities help children to increase their accuracy of **measurement and estimation**. For example, they take a bag of counters and estimate what they think is half, putting these into another bag. They then weigh both bags to see how close they were. They calculate the difference in grams. When weighing, they **choose appropriate instruments**, recognising that different weighing scales are used to weigh different objects. They look at the numbering on scales and the number of intervals between the numbers. They calculate the value of each interval and learn to count on from the last numbered interval in order to take a reading. They gain extra practice using the ITP 'Measuring scales'.



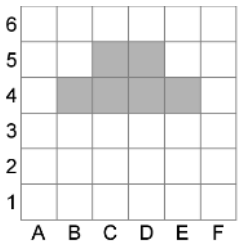
Children continue to **add and subtract mentally** pairs of two-digit whole numbers. They use their mental skills to solve problems such as:

Two shelves are 75 cm and 87 cm long. What is their total length? What is the difference between their lengths?

I need to weigh 150 g of flour. So far I've poured in 68 g. How much more do I need to add?

Children use the **vocabulary associated with position, direction and movement**. They recognise when lines are **horizontal and vertical** and identify simple examples in the environment, for example that the edge of the table is horizontal.

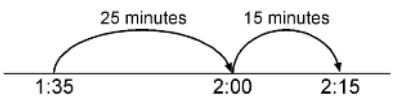
They know that rows on a grid are described as horizontal and columns as vertical, and can describe the position of a square on a grid with the rows and columns labelled. Using a grid they shade in some squares to make a shape with a given number of sides, e.g. an octagon.



They sit back to back with a partner and use the labels of the rows and columns to describe the position of the squares they have shaded. Their partner **listens to the speaker, making notes** on their own grid to replicate the shape.

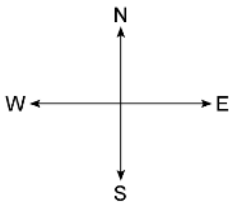
Children revise the relationship between hours, minutes and seconds. They **read the time to the nearest minute** on a 12-hour digital clock and on an analogue clock. They practise making number pairs with a total of 60 and then discuss, for example, that 4:37, or 37 minutes past 4, or 23 minutes to 5 are equivalent. They **record time using am or pm notation**. They recognise what they might typically be doing at certain times and can make a time line to show their day.

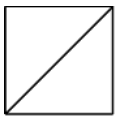
They use counting strategies and a number line or time line to work out time differences, remembering there are 60 minutes in an hour when they bridge over the hour. For example, they **solve problems** such as: *The cake went in the oven at 1:35. It cooked for 40 minutes. What time did it come out?* by calculating that it is 25 minutes until 2:00; this leaves another 15 minutes, so the cake would come out at 2:15.



Children also find information in **timetables and calculate time intervals**. For example, they use a TV guide to find out when programmes begin and end and work out how long different programmes last.

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate *I can work out how to solve problems with one or two steps* *I can solve problems involving measures and time* *I can choose what calculation to work out and I can decide whether a calculator will help me*	A piece of rope 204 cm long is cut into 4 equal pieces. Which of these gives the length of each piece in centimetres? A 204 ÷ 4 B 204 × 4 C 204 – 4 D 204 + 4 How did you know whether to add, subtract, multiply or divide? What clues did you look for in the problem? What are the important things to remember when you solve a word problem? Look at this problem: Jenny can walk 103 metres in 1 minute. How far can she walk in 2 minutes? Explain what you should do to get your answer. Show me how to record any calculations you need to do to solve the problem.
• Refine and use efficient written methods to add and subtract two-digit and three-digit whole numbers and £.p *I can add and subtract a two-digit and a three-digit number using an efficient written method*	Sunil is 138 cm tall. His younger brother is 47 cm shorter. How tall is Sunil's brother? Mary drove 58 km to Andover. She then drove 238 km to Cambridge. How far did Mary drive altogether? Show me the calculations that you did to solve these problems. Is there a more efficient way to do them?
• Derive and recall multiplication facts up to 10 × 10, the corresponding division facts and multiples of numbers to 10 up to the tenth multiple *I know my tables to 10 × 10*	Look at these number sentences. What number goes in the box? How do you know? □ × 7 = 35 9 × □ = 72 What numbers are missing? ○ × □ = 36 If 7 × 9 = 63, what is 63 ÷ 7? What other facts do you know? If I multiply a number by 8 and then divide the answer by 8, what happens?
• Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g. 15 × 9, 98 ÷ 6) *I can record how to multiply and divide a two-digit number by a one-digit number*	One length of the swimming pool is 25 metres. Jane swims 5 lengths of the pool. How far does Jane swim altogether? Kiz swims 225 metres in the pool. How many lengths does he swim? Explain how you solved these problems. Could you have done them differently?
• Draw rectangles and measure and calculate their perimeters; find the area of rectilinear shapes drawn on a square grid by counting squares *I can draw a rectangle and work out its perimeter*	The perimeter of a square is 28 cm. What is the length of one side? Use centimetre squared paper to draw different rectangles with a perimeter of 28 cm. Draw different rectangles with an area of 12 cm^2.

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Know that angles are measured in degrees and that one whole turn is 360°; compare and order angles less than 180° *I know that angles are measured in degrees* *I know that a whole turn is 360 degrees or four right angles*	Tell me an angle that is bigger than one right angle and smaller than two right angles. Two of these angles are the same size. Put rings around the two angles which are the same size.  Draw an angle which is bigger than a right angle.
• Recognise horizontal and vertical lines; use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares *I can use the eight compass points* *I can give directions, follow directions and say how good someone else's directions are*	Kelly is facing north. She turns clockwise through 3 right angles. Which direction is she facing now?  Aled is facing north-west. He turns clockwise through 2 right angles. Which direction is he facing now?
• Use decimal notation for tenths and hundredths and partition decimals; relate the notation to money and measurement; position one-place and two-place decimals on a number line *I can write lengths like 5 metres and 62 centimetres using decimal points*	Tell me what the digit 7 represents in each of these amounts: 7.35 m, 0.37 m, 2.7 cm. Which is larger: 239 cm or 2.93 m? Why? Put these in order: 0.56 m, 125 cm, 3.6 m. Which is the smallest? How do you know? Which is the largest? How do you know? What length comes next: 1.76 m, 1.86 m, 1.96 m, …?
• Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.35 m or 0.6 kg) *I can estimate and measure a length using metres, centimetres or millimetres* *I know the relationships between metres, centimetres and millimetres*	Estimate the height of the door. The width of your table. Tick (✓) the correct box. The length of a banana is about… ☐ 2 cm ☐ 20 cm ☐ 200 cm ☐ 2000 cm What unit would you use to measure the length of the river Thames? The length of a drinking straw? Look at these cards. They have lengths in kilometres, metres, centimetres or millimetres. 1000 m, 2 km, 3 cm, ½ m, 4.5 m, 40 cm, 5 cm, 400 mm Put the cards in order from the smallest to the largest. How did you order the cards? Why did you put this measurement here? Were any of the measurements hard to order? Why? Can you tell me another way to say or write 2 km? What about 4 m? And 5 cm?

Objectives *Children's learning outcomes in italic*	Assessment for learning
• Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit *I can use a measuring tape, metre stick or ruler to measure a length accurately*	Explain to someone else how to measure the length of a line that is between 4 cm and 5 cm long. Measure accurately the length of the diagonal of this square.  Give your answer in centimetres.
• Take different roles in groups and use the language appropriate to them, including roles of leader, reporter, scribe and mentor *I can play the role of … in group work* *I can work as a member of a group to decide how to measure and record capacity*	Discuss in your group how to find out which of these six containers holds the most water. I would like … to be the group leader, … to take notes and … to draw any diagrams that you need. Tell me about the contribution you made to the group work.

Learning overview

Children learn the meaning of *kilo* (one thousand), *centi* (one hundredth) and *milli* (one thousandth) to help remember the relationships between kilometres, metres, centimetres and millimetres. They multiply and divide numbers by 10 and 100 and use this to convert **metres into centimetres or centimetres into millimetres**, completing tables such as:

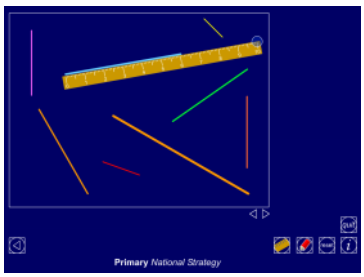
Item	Length in metres	Length in cm
Metre stick	1 m	100 cm
Height of door	2 m	
Length of room	9 m	

and responding to questions such as: *How many metres are in 8 km? How many millimetres are in 8 cm?*

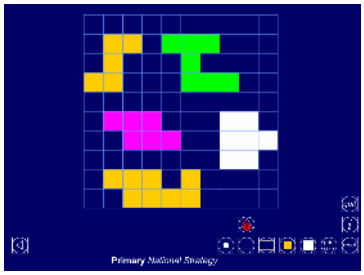
Children **choose and use appropriate units** to measure length, realising that different units are needed for different distances. They suggest lengths that would be measured in km, m, cm and mm. They undertake practical activities to increase their accuracy in estimating lengths, choosing appropriate units and measuring instruments and reading the measurement from a scale. For example, they measure how far they can throw a beanbag, or the growth of a plant over time.

Children **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.

Children use a ruler to **measure and draw lines** to the nearest millimetre. They get extra practice using the ITP 'Ruler'.



They 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'.



Children continue to **develop and refine written methods** to multiply and divide a two-digit number by a one-digit number and efficient written methods to add and subtract two-digit and three-digit whole numbers. Children who confidently explain how an expanded method works move on to a more compact method of recording.

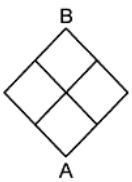
Children draw on their calculation strategies to **solve one- and two-step word problems**, including those involving money and measures. They use rounding to estimate the solution, choose an appropriate method of calculation (mental, mental with jottings, written method) and then check to see whether 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 £2 0?

A family sets off to drive 524 miles. After 267 miles, how much further do they still have to go?

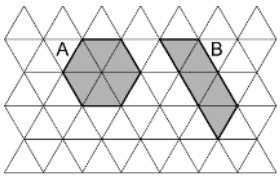
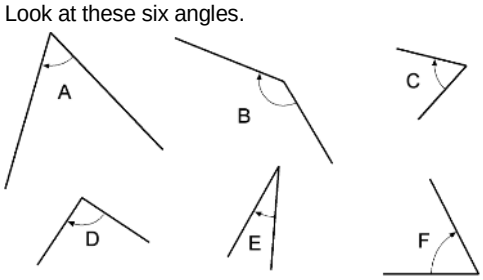
Children understand that angle is a measure of turn. They follow and give directions which include turning through **whole, half and quarter turns**. They know that a quarter turn is equivalent to 90 degrees and a whole turn is 360 degrees or four right angles. They recognise angles that are smaller than and larger than a right angle and start to **order angles**. They recognise which of two angles is greater and place in order a set of angles, each less than 180 degrees.

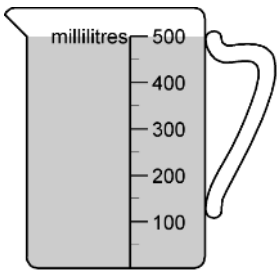
Children give directions using the **eight compass directions** N, S, E, W, NE, NW, SE and SW. They look at weather forecasts to track changes in wind direction. They investigate the different routes from A to B using only the directions north-west and north-east and record their results systematically in a table.



Children **take different roles in groups** of three, taking it in turns to give directions, to follow directions and to observe, commenting on how accurately directions were given and followed. For example:

Face SE and turn clockwise 180 degrees/two right angles. Which direction are you now facing?

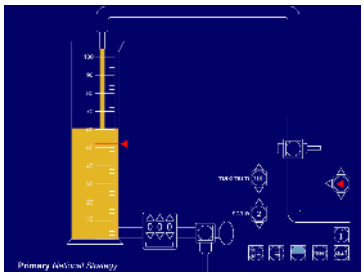
Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate *I can choose what calculation to work out and I can decide whether a calculator will help me* *I can work out how to solve problems with one or two steps* *I can solve problems involving measures and time*	It takes Chris 4 minutes to wash a window. He wants to know how many minutes it will take him to wash 8 windows at this rate. He should: A multiply 4 × 8 B divide 8 by 4 C subtract 4 from 8 D add 8 and 4 How did you know which of these to choose? Maria has half a litre of orange juice. She fills some glasses by pouring 100 ml of orange juice into each of them. How many glasses does Maria fill? What calculation did you do? Did you use a calculator? Why/why not? Did you have to do anything to your answer to make it fit with the problem? Tell me what you did.
• Refine and use efficient written methods to add and subtract two-digit and three-digit whole numbers and £.p *I can use written methods to add and subtract measurements made in our classroom*	What tips would you give to someone to help them with column addition/subtraction? Which of these are correct? What has this perso n done wrong? How could you help them to put it right?
• Draw rectangles and measure and calculate their perimeters; find the area of rectilinear shapes drawn on a square grid by counting squares *I can find the area of shapes by counting squares*	The perimeter of a rectangle is 24 cm. What could its area be? Draw a rectangle with an area of 28 cm^2. Is there more than one way of doing this? Leon's grid has two shaded shapes.  Leon says: 'Shape A has a larger area than shape B.' Explain how he could have worked this out.
• Know that angles are measured in degrees and that one whole turn is 360°; compare and order angles less than 180° *I know if an angle is smaller than 180°* *I can put a set of angles in order, from smallest to largest* *I can estimate in degrees the size of an angle less than a right angle*	Look at these six angles.  Which is the smallest angle? One of the angles is a right angle. Which is a right angle? One of the angles is an obtuse angle. Which is an obtuse angle?

Objectives *Children's learning outcomes in italic*	**Assessment for learning**
• Use decimal notation for tenths and hundredths and partition decimals; relate the notation to money and measurement; position one-place and two-place decimals on a number line *I can order decimals on a number line*	Tell me what the digit 4 represents in each of these amounts: 4.3 l, 0.4 l. Which is larger: 300 ml or 0.25 l? How do you know? What is 0.1 litres in millilitres?
• Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.35 m or 0.6 kg) *I can estimate and measure a capacity* *I know the relationship between litres and millilitres* *I can write a capacity in litres using a decimal point*	Estimate the capacity of this bucket. Of this egg cup. Tick (✓) the correct box. A can of drink holds about… ☐ 0.3 litres ☐ 3 litres ☐ 30 litres ☐ 300 litres What unit would you use to measure the capacity of a washing-up bowl? Of a can or a tea cup? Can you tell me another way to say or write 3 litres? What about 500 millilitres? Which would you prefer, $\frac{3}{4}$ of a litre or 650 ml of lemonade? Why? Look at these cards. They have capacities in litres or millilitres. 2 litres, 20 ml, $\frac{1}{2}$ l, 1.5 l, 700 ml Put the cards in order from the smallest to the largest. How did you order the cards? Why did you put this measurement here? Were any of the measurements hard to order? Why?
• Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit *I can read the scale on a measuring cylinder or measuring jug*	This jug has water in it.  I am going to pour 150 millilitres of water out of the jug. How much water will be left in the jug?
• Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables *I can solve time problems where I have to work out start and finish times* *I can use a timetable*	Estimate how long your favourite TV programme lasts. Use a television guide to work out how close your estimation was. It takes 35 minutes to walk from home to school. I need to be there by 8.55 am. What time do I need to leave home? How much does it cost to hire a rowing boat for three hours? **Boat Hire** Motor boats £1.50 for 15 minutes Rowing boats £2.50 for 1 hour Sasha pays £3.00 to hire a motor boat. She goes out at 3:20 pm. By what time must she return? Explain how you solved this problem. Could you have done it in a different way?

Objectives *Children's learning outcomes in italic*	Assessment for learning
• Take different roles in groups and use the language appropriate to them, including roles of leader, reporter, scribe and mentor *I can play the role of … in group work* *I can work as a member of a group to plan a bus timetable*	Discuss in your group how to plan a bus timetable from school to the town centre. I would like … to be the group leader, … to take notes and … to draw any table that you need. Tell me about the contribution you made to the group work.

Learning overview

Children use the meaning of *milli* (one thousandth) to help remember the relationship between litres and millilitres. In practical work, they **choose and use appropriate units to estimate and measure capacity**. They make statements such as: 'This container will hold about half as many small cubes as this one', or: 'This small bottle holds about twenty 5 ml teaspoons of water'. They **take on different roles** to read and record measurements. They estimate, measure and compare the capacity of different containers, **reading a range of partly numbered scales** to the nearest division. They get extra practice using the ITP 'Measuring cylinder'.



Children make measurements of lengths and heights in centimetres and millimetres and practise estimating before measuring. They make comparisons and calculate differences and totals.

Children **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.

Children **work in groups** to find information in **timetables and calculate time intervals**. For example, they use a class timetable to find out how much time they spend on mathematics during a day/week, and they look at simple bus/train timetables to see how long a journey takes.

Children use their calculation strategies to solve **one- and two-step problems involving measures**. They decide whether to use mental, mental with jottings, written methods or a calculator to find the answer. For example:

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?

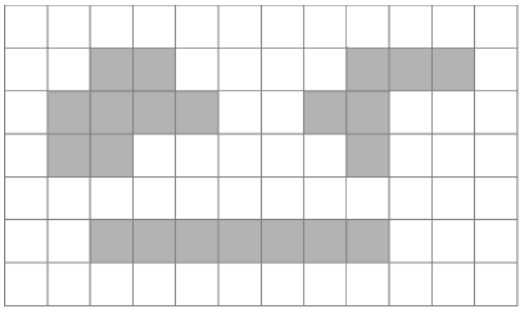
A jug holds 2 litres. A glass holds 250 ml. How many glasses will the jug fill?

Dean saves the same amount of money each month. He saves £149.40 in a year. How much money does he save each month?

When they solve problems, children use their understanding of the relationships b etween units to **convert measurements to the same unit**.

Children continue to develop their **understanding of angle**. They recognise when an angle is less than 180 degrees. They use a 45-degree or 60-degree set-square to draw and measure angles of 90, 60, 45 and 30 degrees. They **compare the size of angles**, for example estimating whether an angle is greater than 60°, between 60° and 30°, or less than 30°. They use their set -square to check.

Children 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.



They compare the perimeter and area of squares and rectangles by measuring the lengths of the sides to the nearest centimetre and calculating the area, using a calculator where appropriate.