

Summer Scheme of Learning

Year 2

#MathsEveryoneCan



Contents

- ▶ Meet the Characters 3
- ▶ Yearly Overview 4
- ▶ Summer Blocks
 - ▶ Block 1 – Geometry: Position and Direction 5
 - ▶ Block 2 – Your own problem solving activities
 - ▶ Block 3 – Time 15
 - ▶ Block 4 – Mass, Capacity and Temperature 29

Meet the Characters

Children love to learn with characters and our team within the scheme will be sure to get them talking and reasoning about mathematical concepts and ideas. Who's your favourite?



Teddy



Rosie



Mo



Eva



Alex



Jack



Whitney



Amir



Dora



Tommy



Dexter



Ron



Annie

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction				Measurement: Money		Number: <u>Multiplication and Division</u>		
Spring	Number: <u>Multiplication and Division</u>		Statistics		Geometry: Properties of Shape		Number: Fractions			Measurement: Length and Height	Consolidation	
Summer	Geometry: Position and Direction			Problem solving and efficient methods		Measurement: Time	Measurement: Mass, Capacity and Temperature			Investigations		

White

**Rose
Maths**

Summer - Block 1

Position & Direction

Year 2

Overview

Small Steps

- ▀ Describing movement
- ▀ Describing turns
- ▀ Describing movement and turns
- ▀ Making patterns with shapes

NC Objectives

Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Order and arrange combinations of mathematical objects in patterns and sequences.

Describing Movement

Notes and Guidance

Children use language ‘forwards’, ‘backwards’, ‘up’, ‘down’, ‘left’ and ‘right’ to describe movement in a straight line.

Children will practically follow and give directions with a partner before writing directions for routes and recording routes on 2-D grids. Teachers need to discuss the direction objects are facing, in order to correctly complete left and right movements.

Mathematical Talk

How far have you/has your partner moved?
In what direction have you/has your partner moved?

What direction are we facing in at the start? Why is this important?

Can you describe the movements made by ___?

How could we record these movements?

Varied Fluency

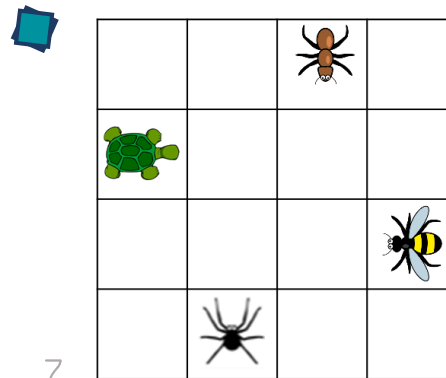
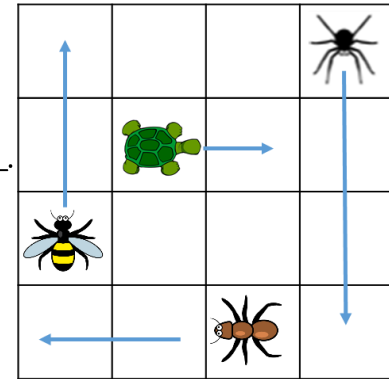
- Using the words forwards, backwards, left and right, give your partner some instructions to follow when moving around the classroom/playground.
- Complete the stem sentences to describe the movements made.

The has moved 1 square _____.

The has moved ___ squares _____.

The _____ has moved 2 squares up.

The _____ has moved ___ squares down.

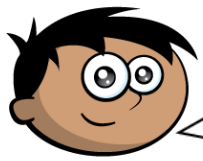


Record these movements on the grid using arrows.

- The moves 1 square right.
- The moves 3 squares forward.
- The moves 1 square down.
- The moves 1 square up.

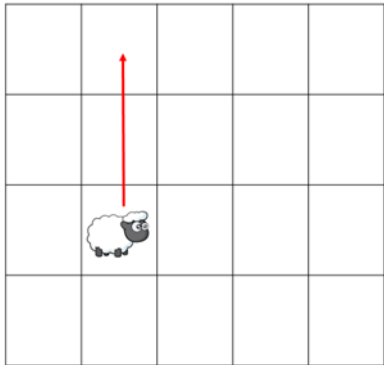
Describing Movement

Reasoning and Problem Solving



The sheep has moved 2 squares forward.

Amir

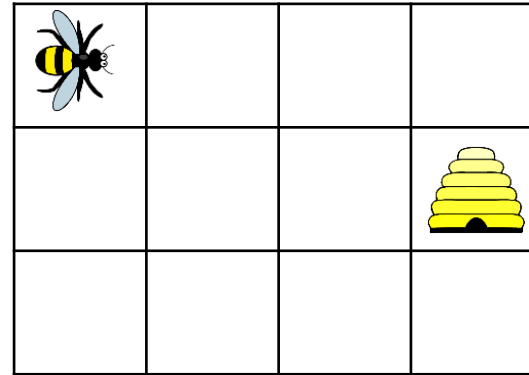


Amir is incorrect. The sheep has moved 2 squares to the left because of the way it was facing to begin with.

Is Amir correct?
Explain your reasoning.

How many different routes can you write for the bee to get to the hive?

Use the words forwards, backwards, left and right.



Possible answers:
Forward 3, Right 1.

Right 1, Forward 3.

Right 2, Forward 3,
Left 1.

Right 1, Forward 3.

Right 2, Forward 2,
Left 1, Forward 1.

There are more routes for the children to find.

Describing Turns

Notes and Guidance

Children describe turns using the language ‘full turn’, ‘half turn’, ‘quarter turn’, ‘three-quarter turn’, ‘clockwise’ and ‘anticlockwise’.

It is important to encourage the children to take into consideration which direction the object/person is facing to begin with.

Mathematical Talk

What direction was the turn?

Describe the turn that the number shapes have made?

Could there be more than one answer? Why?

Varied Fluency

Turn a figure.

Ask your partner to describe the turn using the language, ‘full turn’, ‘half turn’, ‘quarter turn’, ‘three-quarter turn’, ‘clockwise’ and ‘anticlockwise.’



Match the turn to the description.



A full turn.



A quarter turn clockwise.



A half turn anticlockwise.

Describe how the triangle has turned each time.



The triangle has made a _____ turn _____.



The triangle has made a _____ turn _____.



The triangle has made a _____ turn _____.

Describing Turns

Reasoning and Problem Solving

Look at the number shape below:



How could the number shape have turned?

Describe all possibilities.

Possible answers:
No turn
Quarter/half/
three-quarter or
full turn clockwise.

Quarter/half/
three-quarter or
full turn
anticlockwise.

Always, Sometimes, Never

If two objects turn in different directions they will not be facing the same way.

Sometimes.
It depends on how far the objects are turned – quarter, half, three quarters or full.

Describing Movement & Turns

Notes and Guidance

Children use their knowledge of movement and turns to describe and record directions.

They need to be aware of the direction the object is facing before it is turned.

Children may explore movement and turns further using ICT or during P.E.

Mathematical Talk

Which direction is ___ facing to begin with? Why is this important?

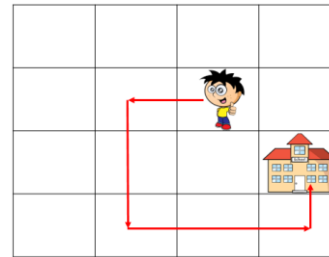
Is ___ moving or just changing direction? How do you know?

How can we record the directions given?

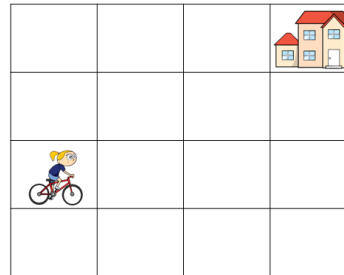
Are there any other routes that could be taken?

Varied Fluency

Describe the route Dennis takes to school.



Draw the route to show these directions.



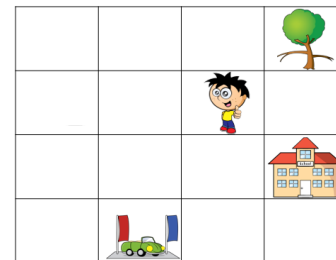
Forward 1 square. Turn left.

Forward 1 square, quarter turn anti-clockwise.

Forward 1 square. Make a quarter turn clockwise.

Forward 1 square. Make a three quarter turn anti-clockwise. Forward 3

Write directions for Dennis to get to each place on the map



Describing Movement & Turns

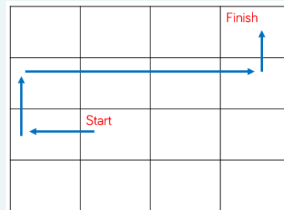
Reasoning and Problem Solving

How many different routes can you find to get from start to finish. Use the words 'forwards', 'backwards', 'clockwise', 'anti-clockwise' and 'quarter turn'.

			Finish
	Start		

Children will find a range of routes.

For example:



- Turn a quarter anticlockwise.
- Forward 1
- Turn a quarter clockwise.
- Forward 1
- Turn a quarter clockwise.
- Forward 3
- Turn a quarter anticlockwise.
- Forward 1

Is Whitney correct?



A quarter turn clockwise is the same as a three-quarter turn anticlockwise.

Convince me.

Possible answer: Whitney is correct.

A quarter turn clockwise is the same as a three-quarter turn anticlockwise.

Children may use objects/small people to show their reasoning.

Making Patterns with Shapes

Notes and Guidance

Children build on previous knowledge of patterns and repeating patterns from Year 1

They now describe and create patterns that involve direction and turns.

Children use the language ‘clockwise’, ‘anti-clockwise’, ‘quarter’, ‘half’ and ‘three quarters’ to describe patterns.

Mathematical Talk

What is happening in the pattern?

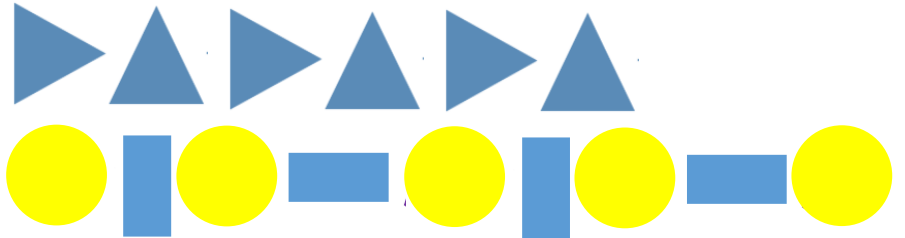
What would the next shape look like?

How would you describe its position?

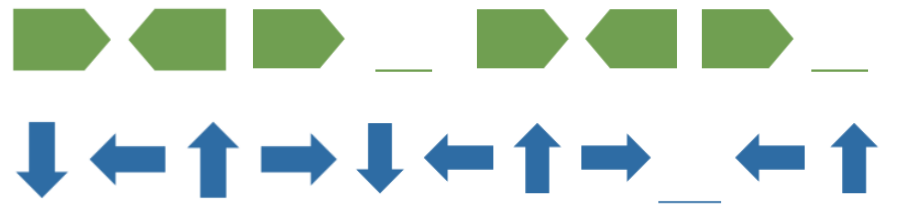
How can we work out the missing shape?

Varied Fluency

Continue these patterns by adding the next 3 shapes.



Fill in the missing shapes to complete the patterns.



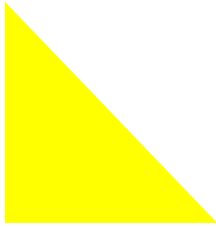
Describe the turn for each pattern.



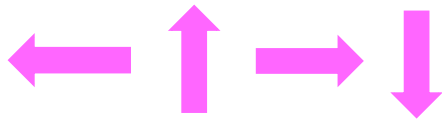
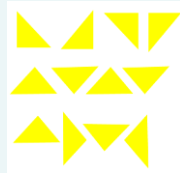
Making Patterns with Shapes

Reasoning and Problem Solving

How many different patterns can you create using this shape?



Possible answers:



The rule is turn the shape a quarter turn.

Eva

The rule is turn the shape three quarters.



Rosie

Eva and Rosie could both be correct as no direction is given. Eva may be turning clockwise and Rosie anticlockwise.

Who is correct?

Spot the mistake in each pattern. Explain why they are incorrect.



The 4th shape should be pointing right.



Or the 8th shape should be pointing left.



The 5th shape has not made half a turn.



White

**Rose
Maths**

Summer - Block 3

Time

Year 2

Overview

Small Steps

NC Objectives

- ▶ O'clock and half past
- ▶ Quarter past and quarter to
- ▶ Telling time to 5 minutes
- ▶ Hours and days
- ▶ Find durations of time
- ▶ Compare durations of time

Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day.

Compare and sequence intervals of time.

O'clock and Half Past

Notes and Guidance

Children recap the Year one objective of telling the time to the hour and half past the hour.

Children should be given the opportunity to create times using individual clocks with moveable hands.

Children read and write times from clocks.

Mathematical Talk

What do the numbers represent on the clock face?
Which is the hour hand? Which is the minute hand?

Where will the hour hand be at ____ ?
Where will the minute hand be at ____ ?
What do you notice about the minute hand at half past?

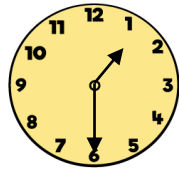
Can you show me _____?

Varied Fluency

Match the events to the approximate times they happen.
Can you show the time on your clock?

9 o'clock	Lunchtime
Half past 10	Go to school
12 o'clock	Home time
Half past 3	Playtime

What time is it?



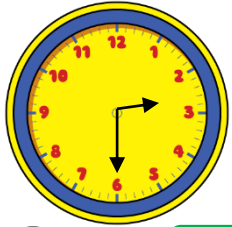
It is past

Complete the tables.

5 o'clock		Half past 4	
		1 o'clock	

O'clock and Half Past

Reasoning and Problem Solving



Who is telling the time correctly?



The time is half past 6

Dora



The time is half past 3

Amir



The time is half past 2

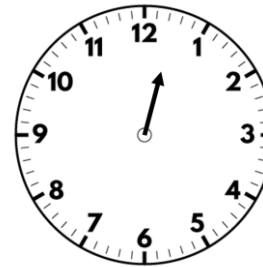
Alex

Can you spot the mistakes they've made?

Alex is correct. Dora has confused the minute hand with the hour hand. Amir has not noticed that the hour hand has not gone past 3 yet.

It is half past 11 so the hour hand should be on the 11

Is Alex correct?
Explain your reasoning.



Oh no! The minute hand has fallen off the classroom clock!

Lunchtime is at 12:00

Have the children missed their lunchtime?

Alex is incorrect. If the time is half past 11 the hour hand should be half way between the 11 and 12

Unfortunately, the children have missed their lunch. The hour hand is halfway between 12 and 1 so the time is 12:30

Quarter Past & Quarter To

Notes and Guidance

Children read and draw the times 'quarter to' and 'quarter past'. They use their knowledge of fractions and turns to identify quarter past and quarter to.

Children should recognise that the hour hand moves along with the minute hand. Therefore when the time is quarter past the hour, the hour hand will be just past the hour and when the time is quarter to, the hour hand will be just before the hour.

Mathematical Talk

Where are the hands pointing to?

Can we divide the clock face into four equal parts? Can we link this to fractions?

If the minute hand is pointing at 3, how many minutes have passed the hour?

If the minute hand is pointing at 9, how many minutes until the next hour?

Show me quarter past/to....

Varied Fluency

Look at the clocks.



Discuss how the minute hand has travelled. Identify when the time is quarter past the hour and quarter to the hour. Give the children individual clocks with moveable hands and ask them to make quarter to/past times.

Match the clocks to the correct time.



Quarter to four
Quarter past four



Quarter to three
Quarter past three



Complete the table.

The minute hand is pointing to ____ The hour hand is just after ____ The time is <i>quarter</i> ____ <i>seven</i>		The minute hand is pointing to three. The hour hand is just after six. The time is <i>quarter past</i> six.	
The minute hand is pointing to ____ The hour hand is just before ____. The time is <i>quarter</i> ____ <i>two</i> .		The minute hand is pointing to nine. The hour hand is just ____ twelve. The time is <i>quarter to</i> twelve.	

Quarter Past & Quarter To

Reasoning and Problem Solving



Quarter past is always later than quarter to.

Do you agree with Teddy?
Explain why.

It depends on the hour of the times given. For example: quarter to 12 is later than quarter past 11. If the hour remains the same then Teddy is correct.

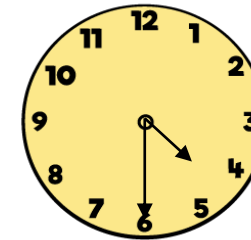
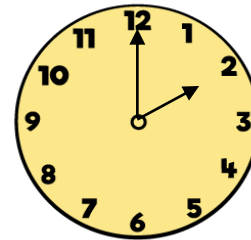
How many quarters of an hour are between 7 o'clock and 9 o'clock.

Explain how you found the answer.

There are 8 quarters of an hour between 7 o'clock and 9 o'clock.

The train to Blackpool leaves at quarter past and quarter to every hour.

Make a list of the times of the trains Oliver can catch if he gets to the train station between 2 o'clock and half past 4



Oliver could catch the following trains:

- Quarter past 2
- Quarter to 3
- Quarter past 3
- Quarter to 4
- Quarter past 4

Telling Time to 5 Minutes

Notes and Guidance

Children read and show analogue time to 5-minute intervals. Children should be confident at counting from 0 to 60 in steps of 5 so they can then apply this to counting around the clock in fives and use this method to work out what time is shown.

Children need to recognise that once the minute hand gets past 6 the time is described as ‘to’ the next hour, rather than ‘past’ the hour.

Mathematical Talk

How many minutes are there between each pair of numbers on a clock?

How many different ways can you count round the clock?

Where will the minute hand be at ____? Where will the hour hand be at ____?

How do we know whether it is a ‘past’ or a ‘to’ time?

Can you show ____ past/to ____?

Varied Fluency

Using a demonstration clock, ask the children to count round in minutes. When the minute-hand is pointing to a number, record how many minutes have passed the hour in a table. What do they notice? Will this pattern continue?

Minute hand pointing to	Minutes past the hour
1	5
2	10
3	15

Show the children times to 5-minute intervals on a large clock. Ask the children to identify what time is being shown. Give the children individual clocks with moveable hands. Ask the children to make times to 5 minute intervals.

Match the times to the correct clock.

20 past 6		5 to 9	
10 to 2		20 to 11	
25 to 3		10 past 1	

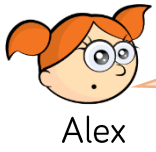
Telling Time to 5 Minutes

Reasoning and Problem Solving



Dora
It is ten to one.

Amir
It is ten past ten.



Alex
It is ten to two.

Who is correct? Explain your answer.

Alex is correct. Dora has said the hour before not the next hour. Amir has confused his minute and hour hands.

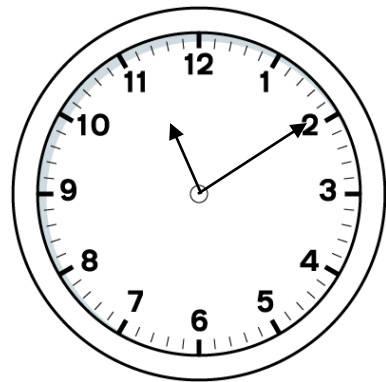


Four lots of 5 minutes is the same as quarter of an hour.

Do you agree with Rosie? Explain why.

Rosie is incorrect. Four 5 minutes are the same as 20 minutes.

Sophia starts her Maths questions at 10 past 11



Each question takes her 5 minutes to complete. She completes 7 questions.

What time does Sophia finish her Maths questions? Explain how you found the answer.

Sophia finishes her Maths questions at quarter to 12

Children may use a clock to count round seven lots of 5 minutes.

Children may do $5 \times 7 = 35$ and count 35 minutes round the clock.

Hours and Days

Notes and Guidance

Children learn that there are 24 hours in a day and 60 minutes in an hour.

Children use clocks to convert minutes to hours and minutes. Children should be encouraged to use their knowledge of counting in fives to help them convert.

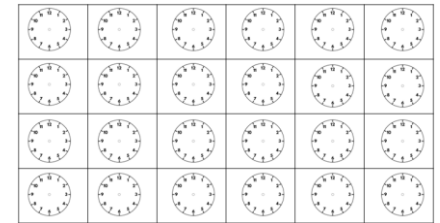
Mathematical Talk

How many hours are there in a full day?
 How many minutes are in an hour and a half? How could we calculate this?
 Could we count in half an hours? How many half an hours are in one hour?
 How many half an hours will there be in two hours?

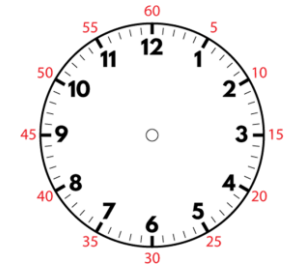
Varied Fluency

Starting from midnight show every hour on the clocks for a full day.

There are hours in a day.



Using the clock, show how many minutes there are in 1 hour.
 1 hour = _____ minutes
 How many minutes would there be in 2 hours?



Match the bars to the times.

60 minutes		
60 minutes	60 minutes	
60 minutes		
60 minutes	10	

90 minutes
70 minutes
120 minutes
2 hours
1 hour

Hours and Days

Reasoning and Problem Solving



Tommy

There must be 12 hours in a day because we start from midnight and go up to 12 o'clock then start again from 1

Do you agree with Tommy? Explain why.

I disagree because there are 12 hours am and 12 hours pm therefore equaling 24 hours in a day.

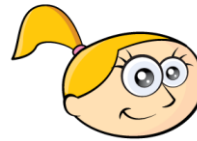


Rosie

If you add three hours onto the current time, the amount of minutes to/past the hour do not change.

Do you agree with Rosie? Prove it.

I agree. The hour hand will change but the minutes will stay the same.



Eva

The day starts at 12 o'clock and ends at 12 o'clock.

Here are Eva's calculations for working out how many hours there are in a day.

12	6	12	6	12
1	7	1	7	
2	8	2	8	
3	9	3	9	
4	10	4	10	
5	11	5	11	

I counted them up, and there are 25 hours in a day.



What mistake has Eva made?

Eva has counted 12 o'clock three times.

The final twelve on her list is the start of the next day.

Find Durations of Time

Notes and Guidance

Children identify the start and end time of an event. They use these times to work out how long an event lasted. Children should understand this is the duration of an event. Children use individual clocks and number lines to help them work out the duration of an event. They can count in steps of 5 minutes to help them.

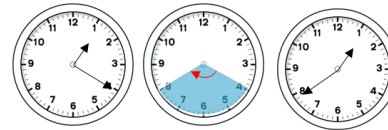
Mathematical Talk

- What is the start time? What is the end time?
- How can we show this on the clock?
- How long did the event last?
- How did you work out the duration?
- Are there any other methods for working out duration?

Varied Fluency

How much time has passed from the start to end time?

Start Duration End



Complete the table.

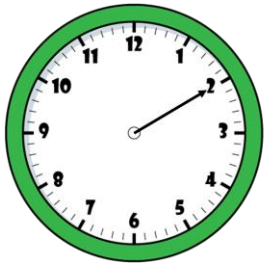
Start	End	Time passed	Duration
			___ minutes
			___ minutes
5 past 2	5 to 3		___ minutes

Jack leaves school at quarter past 3
He arrives home at five to 4
How long was Iqbal's journey?

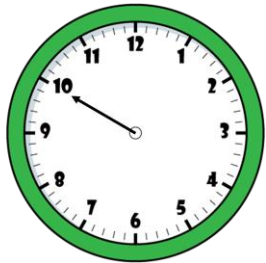
Find Durations of Time

Reasoning and Problem Solving

Oh no! The hour hand has fallen off the class clock!



Start



End

The clock shows the start and end time of a film.

How long do you think the film lasted?

The film could have lasted 40 minutes, but children may reason that most films last more than an hour, so it is more likely to be an hour and 40 minutes or two hours and 40 minutes.

Aimee is planning her birthday. She wants to plan something to do from 9am to 5pm.

Here are the things she wants to do:

- Visit the zoo (3 hours)
- Go to Pizza Palace (1 hour and a half)
- Have breakfast (half an hour)
- Play party games (1 hour)
- Watch a film (2 hours)

Create a timetable for Aimee's day. Compare it to your friends – is it the same?

There are 8 hours in Aimee's day so children could create different combinations for Aimee's day.

Compare Durations of Time

Notes and Guidance

Children compare times using ‘longer’ and ‘shorter’. They order times from longest to shortest and vice versa.

Children then compare durations of time taken by particular events.

They could explore ways to work out durations of time most efficiently, including using empty number lines and using their knowledge that there are 60 minutes in an hour.

Mathematical Talk

- Which is longer 2 minutes or 1 hour?
- How can you order the times?
- How many minutes does each TV show last?
- How can we count the minutes efficiently?
- How much longer is than
- How can we efficiently work out the length of time each person works?

Varied Fluency

Circle the longest time.

1 hour	40 minutes	Half an hour
55 minutes	Three quarters of an hour	35 minutes

Can you order the times from longest to shortest?

Use the table to complete the sentences.

TV Show	Starts	Ends
Pop World	3 o' clock	Twenty to 4
Animal Patrol	Half past 6	Five to 7
Super Cars	Quarter past 8	Five past 9

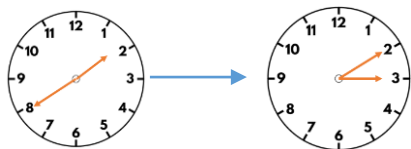
_____ is the shortest TV show.
 _____ is longer than _____ and _____

Joe works from half past 10 until 3 o' clock.
 Emma works from 9 o' clock until half past 12
 Who works the longest amount of time?

Compare Durations of Time

Reasoning and Problem Solving

The clocks show the start and end time of the film Super Dog.



The film Crazy Cat starts at quarter past 1 and ends at quarter to 3

Teddy says,



Super Dog must be the longest film, because it ends the latest.

Do you agree with Teddy?
Explain why.

I do not agree with Teddy, because both films last exactly the same length of time – 1 hour and 30 minutes.

Rosie has an hour for her lunch break. If she takes 10 minutes to eat her lunch, does she have enough time to complete all of the playground activities?

Activity	Duration
Skipping	7 minutes
Ball skills	10 minutes
Treasure hunt	21 minutes
Trim trail	19 minutes

How do you know?

Rosie doesn't have time to complete all of the activities. Completing all of the activities would take 57 minutes. If she spends 10 minutes eating her lunch, she would only have 50 minutes left.

White

**Rose
Maths**

Summer - Block 4

Measurement

Year 2

Overview

Small Steps

NC Objectives

- Compare mass
- Measure mass in grams
- Measure mass in kilograms
- Compare volume
- Millilitres
- Litres
- Temperature

Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$

Compare Mass

Notes and Guidance

Children recap on Year 1 learning by comparing the mass of different objects. They will initially use balance scales to compare the mass of two or more objects.

Children compare mass using $<$ and $>$ and order objects based on their masses.

Mathematical Talk

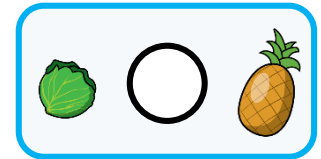
Look at the scale, which side is lower?
What does this tell us about the objects?

Which object is heavier? Which object is lighter?

Can you hold the objects and predict which is heavier?
Is a largest object always the heaviest?

Varied Fluency

- Using the words 'more' and 'less' and the $>$ or $<$ symbols, describe the mass.



The lettuce weighs _____ than the pineapple.

- Choose three objects. Use the balance scales to order them from heaviest to lightest?



The _____ is heavier than the _____ but lighter than the _____.
The _____ is lighter than the _____ but heavier than the _____.

- Complete the sentences:



4 bananas weigh the same as ____ doughnuts.
2 bananas weigh the same as ____ doughnuts

Can you write sentences using 'more' or 'less' using the image?

Compare Mass

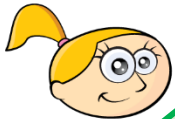
Reasoning and Problem Solving



Apples weigh more than bananas.



Tommy



Eva

Two doughnuts weigh the same as two bananas.

3 bananas weigh the same as two apples, so Tommy is correct - an apple must weigh more than a banana.

1 banana weighs the same as 2 doughnuts so Eva is incorrect.

Do you agree?
Explain why.



One pear weighs 10 cubes.
How many cubes will balance one pineapple?
Explain how you know.

1 pineapple weighs 20 cubes.

Always, sometimes or never true?

The larger the box, the heavier it is.

Sometimes.
Children can explore this using different sized boxes.

Measure Mass (g)

Notes and Guidance

In Year 2, the children use standard units of mass (grams) for the first time. They continue to use balance scales before moving on to use standard weighing scales. Children apply their counting in 2s, 5s and 10s skills to reading scales accurately. They should see a variety of scales with different intervals. Give children the opportunity to feel the mass of gram weights so they can use this for estimation.

Mathematical Talk

When the balance scales are level, what does this tell us?
 What symbol could we use? (=)
 What is the mass of the _____?
 What would two _____ weigh?
 How could you tell if something was lighter or heavier than 10g?
 How much heavier is the _____ than the _____? How could you work it out?

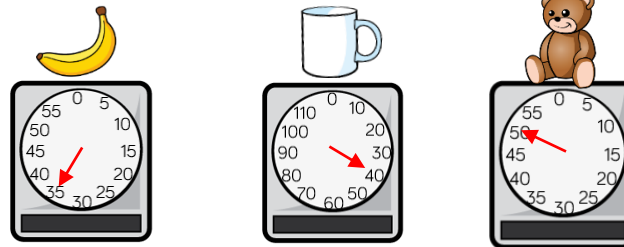
Varied Fluency

- Use gram weights to measure the mass of objects using a balance scale.

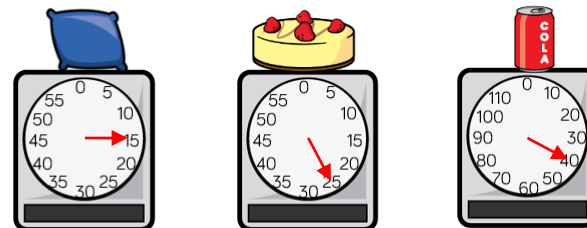
The _____ weighs _____ grams.



- Use scales to record the mass of objects in grams.

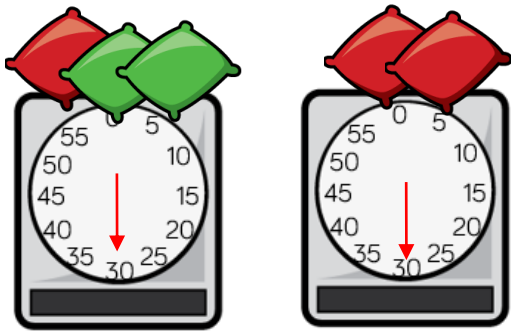


- Order the items from heaviest to lightest.



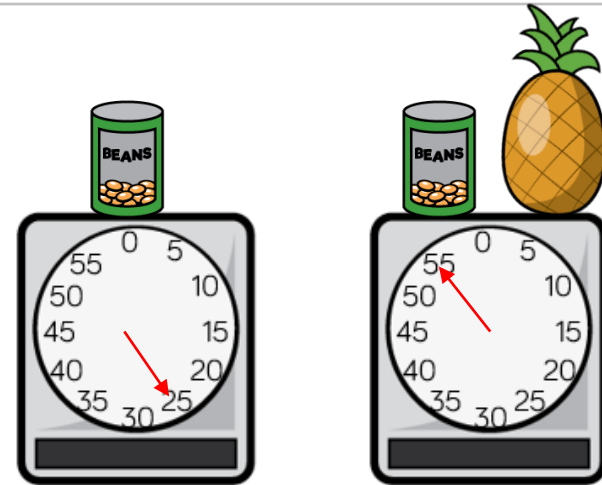
Measure Mass (g)

Reasoning and Problem Solving



The red beanbag weighs more because it weighs the same as **two** green beanbags.

Which is heavier, the red or the green beanbag?
Explain why.



The tin of beans weighs 25 g and the pineapple weighs 30 g

The  weighs g.

The  weighs g.

Measure Mass (kg)

Notes and Guidance

Children use their knowledge of measuring mass in grams to start to measure mass in kilograms.

They apply counting in 2s, 5s and 10s to measure on different scales.

Give children the opportunity to feel the mass of kilogram weights and real life objects that weigh 1 kg so they can use this to estimate.

Mathematical Talk

Which is heavier, one gram or one kilogram?

What else do you think we might measure in kilograms?

How much do you think that you weigh? Would you measure this in grams or kilograms? Shall we estimate and then weigh ourselves?

Can you make up some different questions about the suitcases? What words can you use to compare?

Varied Fluency

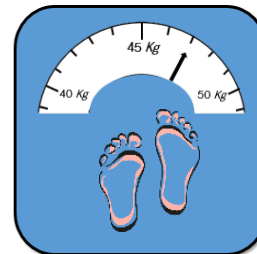
Find the mass of the sweets and the beans.



The sweets weigh ____ kg

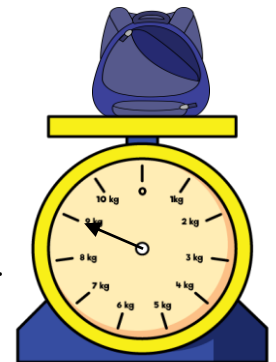
The beans weigh ____ g.

Read the scales to find the mass of each.



The bag weighs ____ kg.

The person weighs ____ kg.



Sophie's family are going on holiday. Compare the mass of their suitcases.



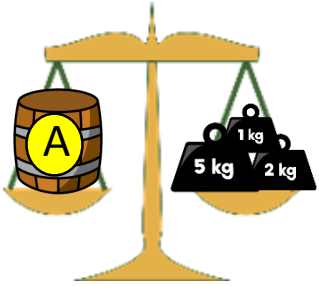
Sophie's suitcase is _____ than Dad's suitcase

Mum's suitcase weighs ____ kg more than Dad's suitcase.

Measure Mass (kg)

Reasoning and Problem Solving

What is the mass of each barrel?



Double the mass of A



Half the mass of A

What is the difference between the mass of B and C?

Barrel A weighs 8 kg

Barrel B weighs 16 kg

Barrel C weighs 4 kg

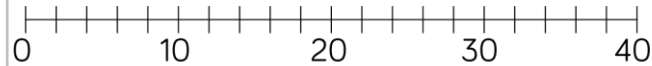
B is 12 kg heavier than C

The brown parcel weighs twice as much as the blue parcel.

The green parcel weighs 2 kg more than 30 kg

The blue parcel weighs 12 kg less than the green parcel.

Draw an arrow to show where each parcel would be on the scale.



The green parcel weighs 32 kg

The blue parcel weighs 20 kg

The brown parcel weighs 40 kg

Compare Volume

Notes and Guidance

Children compare the volume of containers using $<$, $>$ and $=$. They build on their understanding of the difference between capacity and volume from Year 1. Capacity is the amount a container can hold. Volume is the amount it is actually holding.

Children use the language ‘quarter’, ‘half’ and ‘three-quarters full’ to describe and compare volume. Make sure children have the opportunity to practically investigate volume and capacity.

Mathematical Talk

Which container has the largest/smallest capacity? How do you know? Can we order them from largest to smallest?

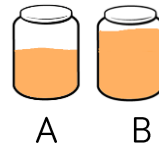
Which container has the most or least liquid in?

How many mugs does it take to fill the bottle?
Is this more or less than the pot? Can we find the difference?
Does the tallest container always hold the most?

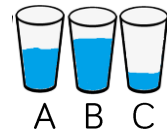
Varied Fluency

■ Show three different containers. Which container has the largest capacity? Using water or rice, make each container: one quarter full, half full, three-quarters full.

■ Complete the sentences using the words ‘less’, ‘more’ or equal’.



Container A has _____ than container B.



Container C has _____ than container B.

Container A has _____ than container C but _____ than container B.

■ Complete the sentences:



The bottle can fill _____ mugs.



The pot can fill _____ mugs.



Use other containers to investigate how many mugs of rice they take to fill.

Compare Volume

Reasoning and Problem Solving

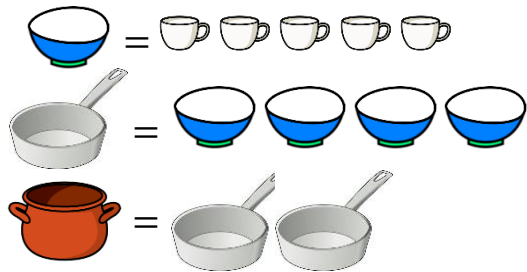
Whitney had two full bottles of juice. She poured some juice into two glasses.



Which glass has the most juice in?
Which has the least juice in?
Explain how you know.

Glass A has the least juice in and Glass B has more juice in. Bottle A has more juice left over which means it has less juice poured out.

Choose a selection of different sized containers.
Decide how you will measure how much liquid each container can hold.
Order your containers from smallest to largest.
Compare the containers using $<$, $>$ or $=$



How many does the hold?

The pot holds 40 cups of water.

Millilitres

Notes and Guidance

Children are introduced to standard units of millilitres (ml) for the first time.

They should be provided with a selection of different measuring cylinders and jugs in order to practice measuring in millilitres. They should be encouraged to estimate how many ml unlabeled containers will hold and then use measuring cylinders or jugs to check.

Mathematical Talk

Which container has the largest/smallest capacity? Can we order them from largest to smallest?

Look at the scale on my cylinder, what do you notice? Is this the same for this cylinder?

If we pour the liquid from this jar/glass into the cylinder, how much does each container hold?

Varied Fluency

- Use a variety of different containers with ml clearly labelled e.g. measuring spoon, water bottle, liquid soap, vinegar etc. Introduce that liquid can be measured in millilitres. Discuss whether 5 ml is a large or small amount. Show 5 ml using a medicine spoon. Look at the containers estimate then identify how many ml each container holds.

- Draw the level on the scale to show the capacity of each container.

The container's capacity is ___ ml



The container's capacity is ___ ml

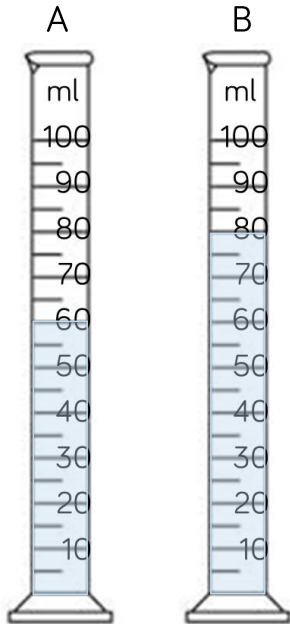
The container's capacity is ___ ml

- Use different containers e.g. mug, bowl, pan, tea cup. Fill them with water or rice. Pour them into a measuring cylinder and measure the amount of liquid or rice in the measuring cylinder.

Millilitres

Reasoning and Problem Solving

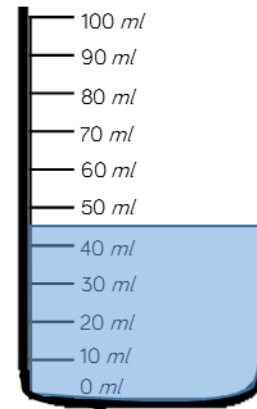
A  holds 5 ml of liquid.
How many  of liquid are there in each container?



Container A holds 12 teaspoons.

Container B holds 16 teaspoons.

Estimate the amount of water in the container.



Explain why you have given your answer.

The water is between 40 ml and 50 ml. It is approximately 45 ml.

Litres

Notes and Guidance

Children are introduced to litres (l) as a standard unit for the first time.

Children recognise the difference between measuring in millilitres and litres and when it is more efficient to use litres to measure liquid rather than millilitres. They should be encouraged to estimate volumes and then check by measuring.

Mathematical Talk

Which is larger, 1 millilitre or 1 litre? How do you know?

Would you measure _____ in litres or millilitres? Why?

How many litres of water do you drink a day?

Show the children a litre container. How many litres of water do you think it would take to fill _____?

Varied Fluency

- Provide a variety of different containers with litres clearly labelled e.g. cola bottle, paint bottle, milk etc.

Introduce litres and discuss how these are the same but different to millilitres. Identify how many litres fill each container.

- Show how much liquid is in each cylinder after you:
 - Pour 3 litres of water into the cylinder.
 - Leave 1 litre of cola in the bottle.
 - Pour half of the juice into the cylinder.



- Use different containers e.g. bucket, large pan etc. Estimate and then measure the capacity of each one.

Litres

Reasoning and Problem Solving

Mo puts 4 litres of water in bucket A. He then pours 3 litres from bucket A into bucket B.



Which sentence is correct?

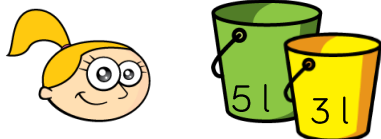
A B

- There is more in bucket A.
- There is less in bucket A.
- There are equal amounts in each bucket.

Explain why.

There is less in bucket A because there will be 1 litre in A and 3 litres in B.

Eva wants to measure 2 litres of water into a tub. She only has a 5 litre and a 3 litre container.



How can she use both containers to measure 2 litres?

Eva could fill her 5 litre container and then empty 3 litres into the 3l container. She will be left with 2 litres.

$$5l - 3l = 2l$$

3 bowls each have more than 20 l of water in but less than 50 l

The green bowl has 5 l more than the red bowl.

The blue bowl has 10 l more than the green bowl.

How much could each bowl have in?



The red bowl could have between 20 l and 35 l

The green bowl could have between 25 l and 40 l

The blue bowl could have between 35 l and 50 l

Temperature

Notes and Guidance

Children are introduced to temperature, thermometers and the units 'degrees Centigrade', written °C for the first time. They learn that the temperature is higher when it is warmer.

They apply their counting in 2s, 5s and 10s skills when reading different scales on thermometers.

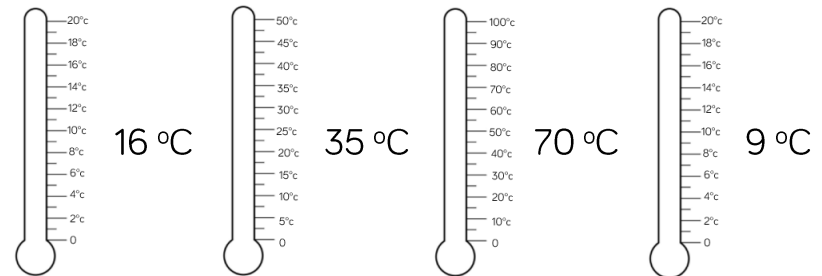
Mathematical Talk

- What unit can we use to measure temperature?
- What is the scale going up in? How do you know?
- If the temperature increases what happens to the number on the scale?
- If the temperature decreases what happens to the number on the scale?
- Can we compare temperatures using vocabulary such as increased, decreased, warmer, colder and difference?

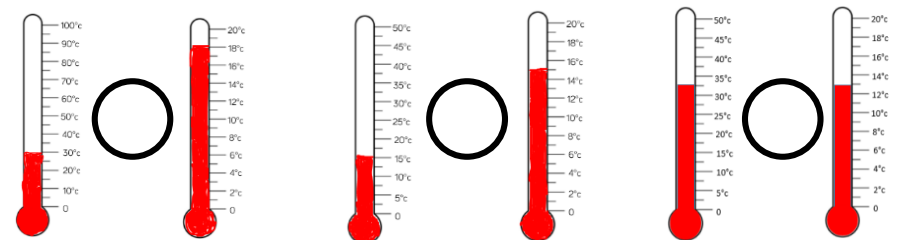
Varied Fluency

- Take temperatures around the school and complete the following stem sentences:
 The temperature in the classroom is _____.
 The classroom is _____ than the playground.
 The difference in temperature between the _____ and the _____ is __ degrees Celsius.

- Complete the thermometers to show the temperatures.



- Compare the temperatures using $<$, $>$ or $=$



Temperature

Reasoning and Problem Solving

Mollie took the temperature at 12 p.m. and again at 5 p.m.

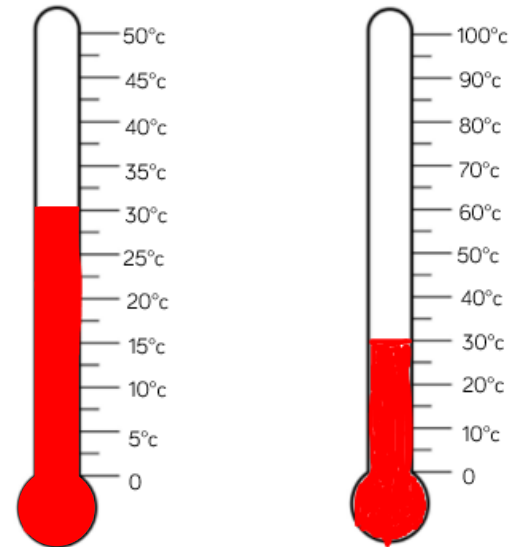
There was a difference of 7°C

What could the temperatures be?

Children may give any temperatures that have a difference of 7

Some children may realise that it is usually cooler in the evening and therefore make sure there 12pm temperature is always warmer than the 5pm temperature.

What is the same and what is different about the thermometers/temperatures?



Both thermometers are showing 30°C

The scale on the first thermometer counts up in 5°C . The scale on the second thermometer counts up in 10°C

The second thermometer will be able to record higher temperatures.