

## 4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

Hello 4/5N,

We are not at school for the next two weeks, but I hope we all use this time to both enjoy being at home and to keep your learning going until we meet again on 5<sup>th</sup> October!

I have attached lots of work for you to progress through during the next two weeks. I have provided various options for you to complete your work. You may not finish everything, but please make sure your focus is on maths and literacy activities.

**You *should* be able to complete these independently but ask Mum or Dad if you need help.** Please email the school at [enquiries@cranwell.lincs.sch.uk](mailto:enquiries@cranwell.lincs.sch.uk) if you need assistance with logins, etc.

I wanted to introduce you to my dogs, Alfie and Charlie, who are both very excited to have me at home to give them an extra 'walkies'. I hope all of you enjoy some extra time with your loved ones at home. I can't wait to hear about what you have done during your time off when we get back to school.

Take care and see you all soon,  
Mrs New



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### Week 1

For maths we will be using a combination of videos and worksheets. We will access materials available online from White Rose Maths and The National Academy. Please follow the links given below for each objective.

Please continue to complete your daily maths lessons as follows:

**Mon Counting in Intervals**

<https://vimeo.com/454736934>

**Tues Number lines**

<https://login.mathletics.com>

**Wed Compare and order numbers**

<https://classroom.thenational.academy/lessons/comparing-5-digit-numbers-cnkh6c>

**Thurs Compare and order numbers (2)**

<https://classroom.thenational.academy/lessons/comparing-6-digit-numbers-using-inequalities-6crkje>

**Fri Rounding**

<https://classroom.thenational.academy/lessons/rounding-5-digit-numbers-to-the-nearest-100-1000-and-10-000-6hgk2d>



### Week 2

For maths we will be using a combination of videos and worksheets. We will access materials available online from White Rose Maths and The National Academy. Please follow the links given below for each objective.

Please continue to complete your daily maths lessons as follows:

**Mon Rounding to a million**

<https://vimeo.com/456943660>

plus, worksheet below

**Tues Negative Numbers**

<https://vimeo.com/457420739>

plus, worksheet below

**Wed Negative Numbers (2)**

<https://login.mathletics.com/>

**Thurs Roman Numerals**

<https://classroom.thenational.academy/lessons/investigating-roman-numerals-up-to-100-6guk8c>

<https://classroom.thenational.academy/lessons/investigating-roman-numerals-up-to-1000-61k32r>

**Fri Roman Numerals / Place Value Assessment**

<https://classroom.thenational.academy/lessons/solving-problems-involving-roman-numerals-6gt36d>

<https://login.mathletics.com/>

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### Negative numbers



1 Complete the number lines.

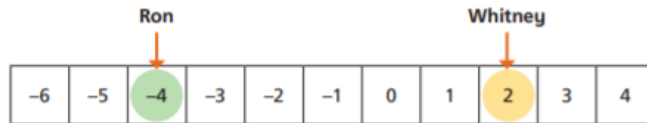
a)



b)



2 Whitney and Ron are playing a game.



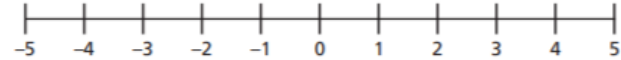
a) Ron moves forwards 5 spaces.

What number is his counter on now?

b) Whitney moves back 7 spaces.

What number is her counter on now?

3 Use the number line to find the difference between the numbers. Complete the sentences.



a) The difference between 3 and 5 is

b) The difference between -3 and 5 is

c) The difference between -1 and 1 is

d) The difference between -5 and 5 is

4 The temperature on Monday was 4°C.

a) That night the temperature fell by 7°C.  
What was the temperature at night?

The temperature on Monday night was

b) On Tuesday the temperature was 13°C.

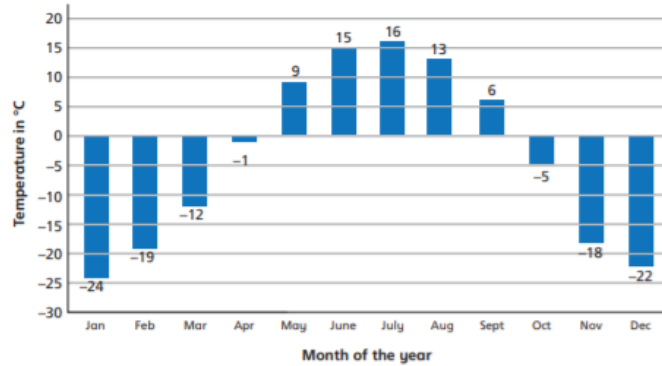
By how many degrees did the temperature rise from Monday night to Tuesday?

The temperature rose by  from Monday night to Tuesday night.



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- 5 This bar chart shows average temperatures for each month at the North Pole.

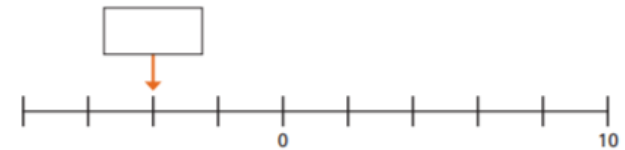


- a) On average, which month is the hottest? \_\_\_\_\_
- b) On average, which month is the coldest? \_\_\_\_\_
- c) What is the difference in temperature between the hottest and coldest months?
- d) By how many degrees does the temperature rise between March and August?
- e) By how many degrees does the temperature fall between June and November?
- f) How many months of the year is the temperature below freezing?
- g) In which months does the average temperature drop below freezing?  
 \_\_\_\_\_  
 \_\_\_\_\_

- 6 Teddy is on the 4th floor of an office building, which is 14 metres above the ground.  
 Rosie is in the underground car park, which is 3 metres below the ground.  
 How far apart are they?

Teddy and Rosie are  apart.

- 7 a) What number is the arrow pointing to?



- b) What number is halfway between C and D?



The number halfway between C and D is

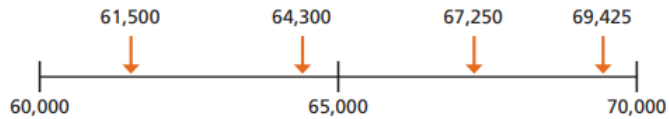


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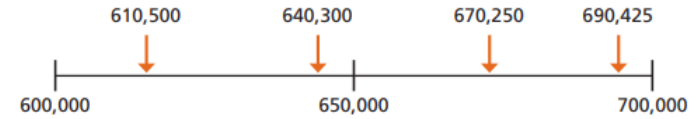
### Round numbers to one million

**1** Complete the sentences to round the numbers to the nearest 10,000  
The first one has been done for you.



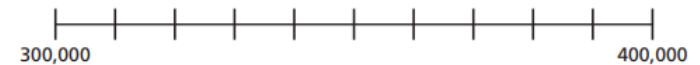
- a) 61,500 is closer to  than   
61,500 rounds to  to the nearest 10,000
- b) 64,300 is closer to  than   
64,300 rounds to  to the nearest 10,000
- c) 67,250 is closer to  than   
67,250 rounds to  to the nearest 10,000
- d) 69,425 is closer to  than   
69,425 rounds to  to the nearest 10,000

**2** Complete the sentences to round the numbers to the nearest 100,000



- a) 610,500 is closer to  than   
610,500 rounds to  to the nearest 100,000
- b) 640,300 is closer to  than   
640,300 rounds to  to the nearest 100,000
- c) 670,250 is closer to  than   
670,250 rounds to  to the nearest 100,000
- d) 690,425 is closer to  than   
690,425 rounds to  to the nearest 100,000

**3** Draw an arrow and label 350,000 on the number line.



Complete the sentence.

350,000 rounds to  to the nearest 100,000



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- 4 The table shows the price of 4 different homes.

Round each price to the nearest £10,000 and nearest £100,000

Type of house	Price	Rounded to the nearest £10,000	Rounded to the nearest £100,000
terraced house	£194,167		
semi-detached house	£225,674		
detached house	£365,697		
flat	£98,099		

When comparing house prices, is it more useful to round to the nearest £10,000 or £100,000? Explain why.

- 5 Round the numbers to the correct values.

<p>a)                    <b>432,442</b></p> <p>to the nearest 10 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 100 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 1,000 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 10,000 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 100,000 is <input style="width: 50px;" type="text"/></p>	<p>b)                    <b>878,675</b></p> <p>to the nearest 10 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 100 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 1,000 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 10,000 is <input style="width: 50px;" type="text"/></p> <p>to the nearest 100,000 is <input style="width: 50px;" type="text"/></p>
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- 6 Rosie rounds a number to the nearest 100,000  
Her answer is 700,000

a) What is the smallest number she could have started with?



The greatest integer that rounds to 700,000 is 750,000

Amir

b) Is Amir correct? How do you know?

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- 7 Tiles are sold in boxes of 10  
Teddy needs 84 tiles.



I need 8 boxes because 84 rounded to the nearest 10 is 80

Explain why Teddy is wrong.

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Dora needs 103 tiles.

How many boxes of tiles does she need?

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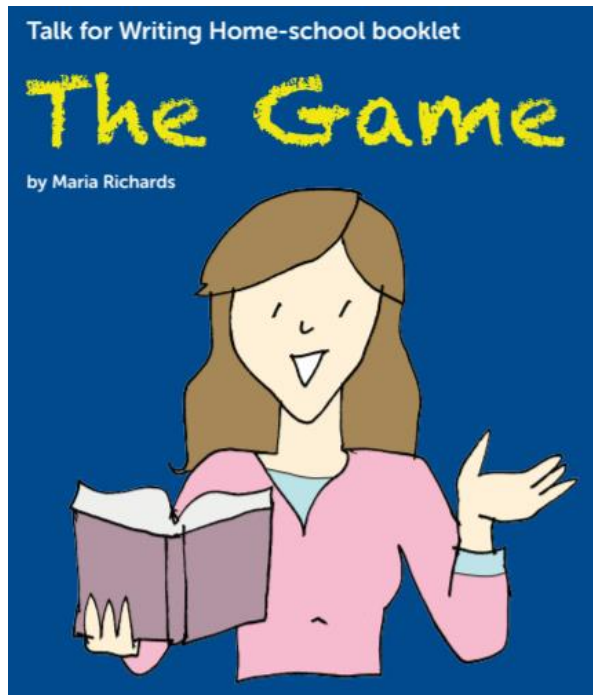


Please follow the link below to access a home learning booklet called 'The Game' (this can either be printed or you can write your answers and ideas in your exercise books):

<https://www.talk4writing.com/wp-content/uploads/2020/04/Y5-Unit.pdf>

This booklet is designed for you to work at your own pace over a **two-week** period, taking you through a series of literacy tasks related to the story including: reading comprehension, grammar, vocabulary and planning tasks. The booklet culminates in you producing your own story!

Please don't try to complete this in one sitting. Try to complete a couple of pages per session as you work towards creating a fantastic story – good luck!



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### Reading Comprehension – A Victorian Mine

Read the text on the following page and answer the following comprehension questions:

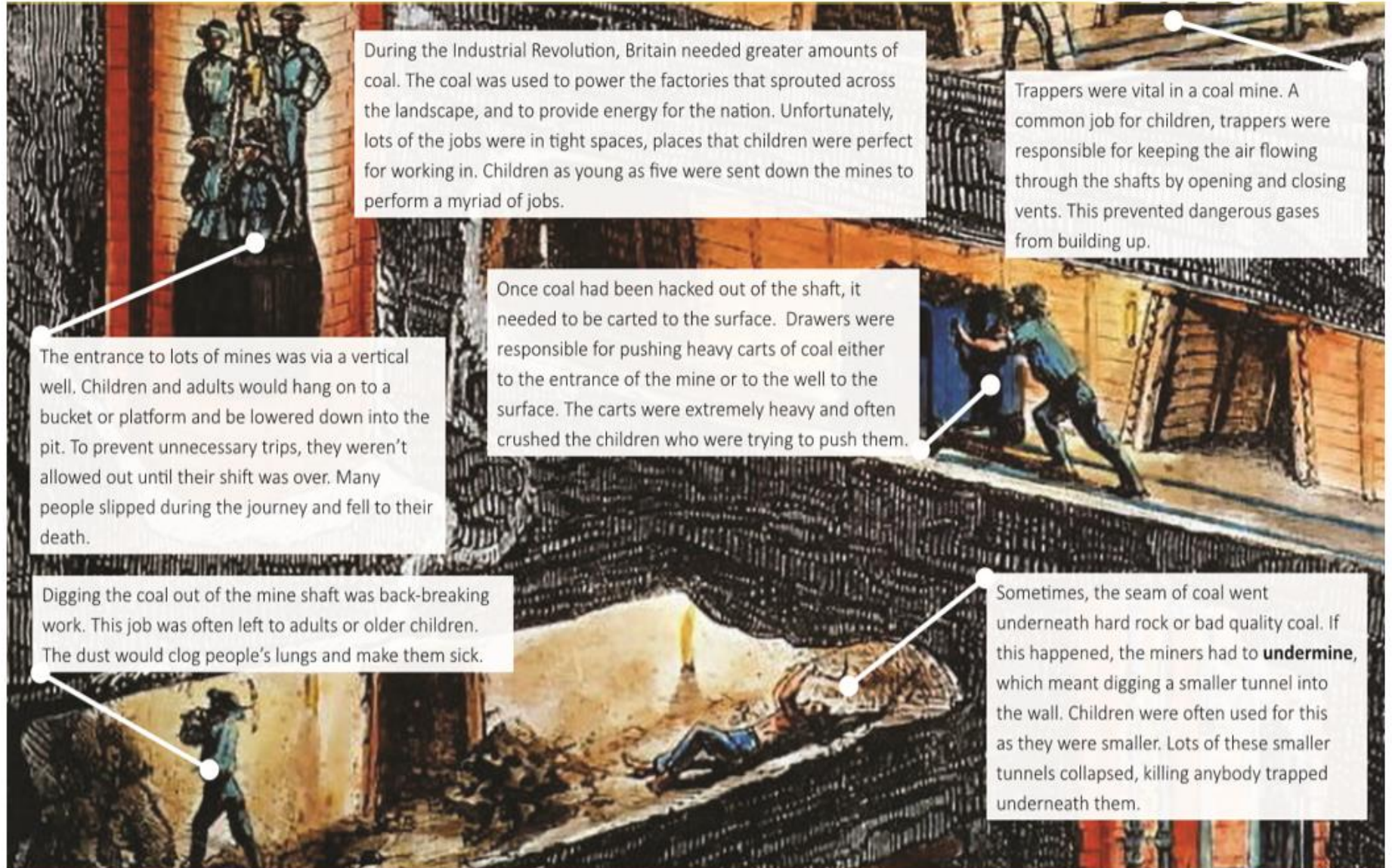
VOCABULARY FOCUS	<ol style="list-style-type: none"><li>1. Which word give you the image of factories growing like flowers?</li><li>2. Find a word that is a synonym for many.</li><li>3. Explain what “vital” means.</li><li>4. What is meant by the phrase “back-breaking work”?</li><li>5. What does the word “prevented” mean?</li></ol>
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VIPERS QUESTIONS	
Inference	Why were children sent to work in the mines?
Inference	Why were trappers considered vital?
Inference	Why was it important that factories had so much coal?
Retrieval	Why was the dust in a mine dangerous?
Retrieval	Which job required children to push heavy loads?



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### A Victorian Mine



During the Industrial Revolution, Britain needed greater amounts of coal. The coal was used to power the factories that sprouted across the landscape, and to provide energy for the nation. Unfortunately, lots of the jobs were in tight spaces, places that children were perfect for working in. Children as young as five were sent down the mines to perform a myriad of jobs.

Trappers were vital in a coal mine. A common job for children, trappers were responsible for keeping the air flowing through the shafts by opening and closing vents. This prevented dangerous gases from building up.

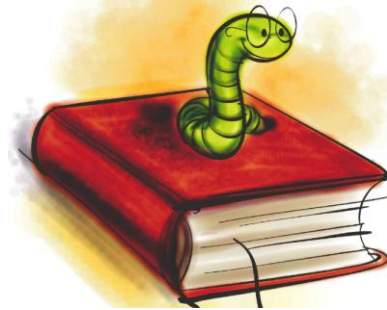
The entrance to lots of mines was via a vertical well. Children and adults would hang on to a bucket or platform and be lowered down into the pit. To prevent unnecessary trips, they weren't allowed out until their shift was over. Many people slipped during the journey and fell to their death.

Once coal had been hacked out of the shaft, it needed to be carted to the surface. Drawers were responsible for pushing heavy carts of coal either to the entrance of the mine or to the well to the surface. The carts were extremely heavy and often crushed the children who were trying to push them.

Digging the coal out of the mine shaft was back-breaking work. This job was often left to adults or older children. The dust would clog people's lungs and make them sick.

Sometimes, the seam of coal went underneath hard rock or bad quality coal. If this happened, the miners had to **undermine**, which meant digging a smaller tunnel into the wall. Children were often used for this as they were smaller. Lots of these smaller tunnels collapsed, killing anybody trapped underneath them.

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**Reading Comprehension – Worst Jobs For Kids**

Read the text on the following page and answer the following comprehension questions:

VOCABULARY FOCUS	<ol style="list-style-type: none"><li>1. What word tells the reader how loud a noise was?</li><li>2. Find and write a definition for the word “reign”.</li><li>3. Explain what the phrase “horrific conditions” means.</li><li>4. What is meant by “dainty”?</li><li>5. What is meant by “toxic”?</li></ol>
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VIPERS QUESTIONS	
Summarise	What were most children lucky to do?
Summarise	Which features of children made them perfect for many jobs?
Summarise	What did all of the jobs have in common in terms of children’s health?
Summarise	What happened that meant more children were needed in railway stations?
Inference	How do you think the author felt about Victorian children? What tells you this?

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### Worst Jobs For Kids

Ever moaned about having to do your homework? What about cleaning your bedroom, or hoovering the floor? Count yourself lucky you weren't a child during Queen Victoria's reign. You were lucky if you were sent to school back then; most children were sent out to work in some of the most horrific conditions you can imagine. You've probably heard about chimney sweeps and flower sellers, but there were much worse jobs out there if you were desperate.

Do you love rolling around in the mud? How about scraping through the dirt to find any coins or lost bits of jewellery? If that sounds good, then a job as a tosher might have been right up your street. It wasn't just the muck and filth on the street though, you'd spend most of your time down in the sewers rummaging around for anything that the rich folk up above might have dropped into the drains.

Tiny children have tiny hands, and they were perfect for fixing the fiddly little mechanisms on the enormous looms that factories used to weave fabric. The sound of the shuttles flying backwards and forwards would have caused quite a din; however, they couldn't stop working just to fix a machine. Instead, children would scuttle around underneath the vast wooden machines and try to time their movements perfectly. Quite often they would get it wrong. The lucky ones only lost a finger. The unlucky ones? Well, I'm sure you can guess.

It wasn't just fixing the looms that children's dainty digits were perfect for. The rise of the steam train meant that lots of children were needed to scrape out the cinders and clean the undercarriage of the engine. Not only did this involve a lot of choking dust and ash, but the cinders were often still red-hot, and many children suffered horrific burns.

Most houses were lit by candles back then, and so matches were needed by the thousands. Dipping the sticks in the toxic phosphorus was another job saved for the cursed children. The horrible chemical would rot their teeth and often led to fatal lung disease. Not sure it was worth it for a penny a day.



Dick Whittington said that the streets of London were paved with gold. More accurately, they were often paved with filth, particularly dog droppings. Luckily for the children of the time, they could earn money by scraping it up and selling it to the tanners - people who turned the hide of a cow into leather. If they really wanted to earn some money, they could help the tanners by stamping the poo into an odorous mix of chemicals (barefoot, of course) and using it to soak the skins. Unfortunately, many poor children didn't have access to a bath afterwards!

So there you have it. There were some pretty vile jobs for luckless lads and lasses in Victorian times, and we haven't even mentioned leech collectors, coal miners, rat catchers, navvies (canal diggers) and grave robbers. No wonder so many children were desperate to go to school!

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### Science – Plants

**We are revisiting a topic from your previous year: plants. Using the four study sheets about plants at the end of this document, can you answer the following questions?**

1. Which part of a plant absorbs water from the soil?
2. Why is the flower of a flowering plant usually brightly coloured?
3. How do plants get water to their leaves?
4. Why do plants need light?
5. In pollination, pollen from the \_\_\_\_\_ sticks to the \_\_\_\_\_.
6. Give two examples of pollination.
7. Why are minerals important to a plant?
8. Explain the role of the leaves of a plant.
9. Give two different ways in which seeds of a plant can be dispersed.

**You could present this information in the form of an information text along with illustrations and labelled diagrams.**



### Science / DT – Properties of Materials

We are having lots of fun exploring the properties of materials this term. Now it's time for you to put your engineering skills to the test by researching and then building bridges (inspired by Isambard Brunel – a famous engineer from the Victorian era).

There are four tasks to complete, if you can:

1. Research four main bridge types and find examples to complete the table in the worksheet below.
2. Produce an information sheet on one type of bridge (your choice) – this can be typed up or handwritten.
3. Make a bridge from card using the cut-out sheet provided – can you place weights on it and record how much it held? You could use maths cubes, sugar cubes, coins – use your imagination, just be sure to record your results.
4. Bridge challenge – build a bridge from materials you may have at home (as listed on the info sheet below) that is able to hold 500g – e.g. a bag of sugar or rice – for 10 seconds without collapsing.

You should discover lots about structures and forces through this learning – and I hope you have fun too!

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Your task is to research the basic types of bridges. Find out the main features of each of the bridges and then research to see if you can find examples of each of these types of bridges in the UK and then the rest of the world. Good luck! The website we went on in school was this one: <http://www.pbs.org/wgbh/buildingbig/bridge/basics.html> You can copy the table onto a piece of paper if you like (or print).

BRIDGE TYPE	FEATURES	A REAL-LIFE EXAMPLE IN THE UK	A REAL-LIFE EXAMPLE IN THE WORLD
THE BEAM BRIDGE			
THE TRUSS BRIDGE			
THE ARCH BRIDGE			
THE SUSPENSION BRIDGE			

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Here is some homework that links our DT (bridges), Science (Materials and their Properties) and History (Victorians) topics together!

Your task is to find out about one of the basic types of bridges. You can choose an example from the UK or from abroad; however, there will be an extra HP available for those children who research a bridge from Victorian times which is one of the basic types that we have looked at. Here are the basic types to remind you: Beam, Truss, Arch and Suspension. Your research should fill one side of an A4 sheet of paper. It can be created by hand or on the computer but you will need to include the following:

- Information about the features which make it either a beam, truss, arch or suspension bridge.
  - Include a picture of the actual bridge (may be hand drawn or printed out).
  - Provide information about the bridge - where it is built; when it was built; who designed it; how long it took to build; where it is; the span of the bridge; any special features; and finally, what materials were used to build it.
- Good luck and enjoy your task!

P.S. Remember to think about how you present your work. Any writing must be neat and easy to read and include all punctuation as needed. Your work must be orderly and neat. Why not try a few designs to see which layout works best for you?



Beam bridge



Cantilever bridge:  
Firth of Forth



Ancient Roman aqueduct



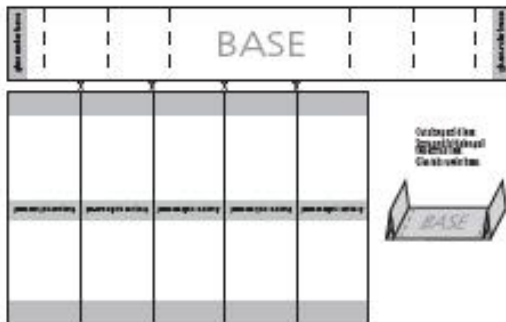
Suspension bridge:  
Golden Gate Bridge

Engineers are challenged to make structures which are strong, light and efficient.

They use **triangulation**, **suspension** techniques and **arches** to achieve this.



Lendal Bridge



Make a bridge from card using the cut-out sheet



Photos: Peter Smith Associates

How many cubes can you place near the centre before the bridge collapses?

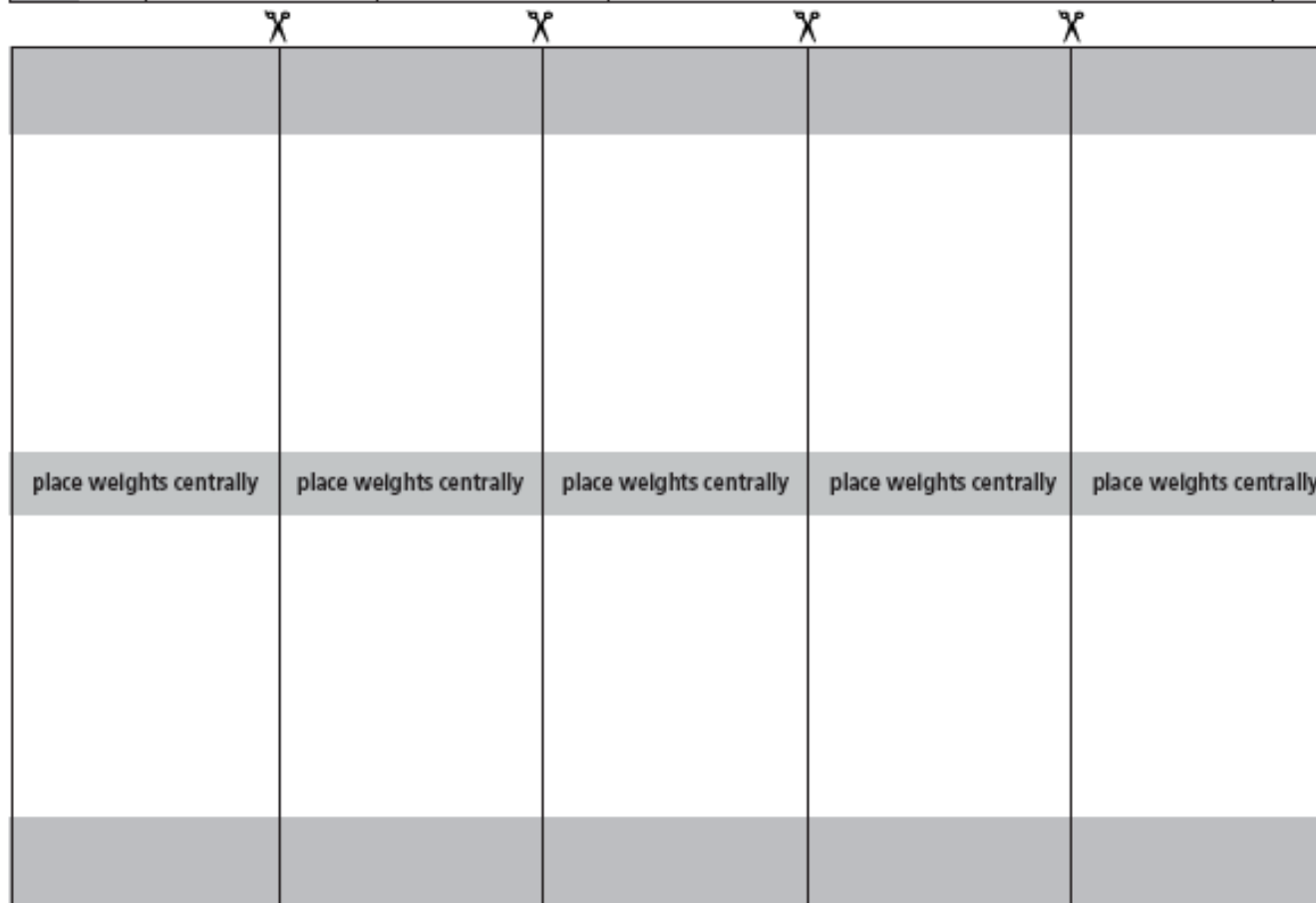
What happens when you change the number of layers of card?

Number of layers in span	Number of cubes supported
1	
2	
3	

Now bend one piece of card and use it as an **arch**. How does this affect the strength of your bridge?



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Cut along solid lines.  
Score and fold along all  
the dotted lines.  
Glue tabs under base.





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### The challenge

We are challenging you to build a bridge that has a span of 30cm wide and a minimum of 15cm high in the centre, that is able to hold 500g - e.g. a bag of sugar or rice - for 10 seconds without collapsing.

### What you will need:

Get together some things that you can use to build it before you start. There are no rules for this - you can do this just with things you have around your home. Some examples of things you might use are:

- Straws
- Blu-tack/playdough
- Rubber bands
- String/wool
- Paper/newspaper/old magazines
- Egg cartons/cardboard tubes
- Scissors
- Sellotape/glue
- Card/cereal boxes/packaging

Remember: these can all be (clean) items from the recycling rubbish. Be inventive and resourceful. All great designers have a budget to work to and need to make their bridges cost-effective. What better way than to use only recycled items.

### Things to think about before you start:

- Think about the types of bridge you have seen. The different types of bridge (beam, arch, truss etc) are called its 'form'. You can see more about these below. Which form of bridge are you going to build?
- Your bridge will need to be strong enough to hold 500g. How will you make your bridge strong enough? In the past bridges were often made of stone or timber, but modern bridges are commonly made of materials like concrete and steel, which are heavy but very strong.

### Did You Know?

Did you know that some shapes are better at absorbing loads than others? For example, triangles are particularly strong because they create a very rigid structure that spreads the load from a single point to a wider area. Think about what shapes you could use in your bridge.

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### Information to remind you and to help you with your design

There are four main types of bridges:

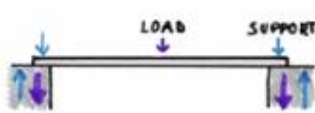
1. Beam bridges are made of horizontal beams supported by piers at each end.
2. Truss bridges are a combination of triangles.
3. Arch bridges are made up of arches supporting the bridge and are naturally strong.
4. Suspension bridges are long bridges, such as the Golden Gate Bridge.

Two key types of forces involved in building any structure are tension and compression. A tension force is one that pulls materials apart (like two teams pulling a rope during a game of tug-of-war). A compression force is one that squeezes material together (like pushing down a spring and making it shorter). Each type of bridge deals with the important forces of tension and compression. Remember the information on the website:

<http://www.pbs.org/wgbh/buildingbig/lab/forces.html>


**THE FOUR MAIN TYPES OF BRIDGES:**

#### 1. BEAM BRIDGE



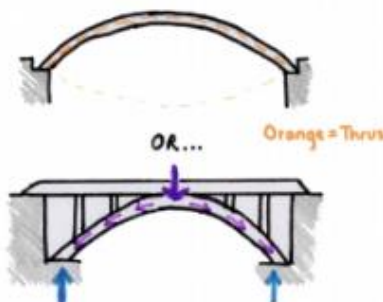
When a single beam spans any distance, the very top of the beam gets the most compression, and the very bottom of the beam experiences the most tension. The beam needs to be strong to resist these forces. You also need to apply weight at both ends to counteract the bending at the centre.

#### 2. TRUSS BRIDGE



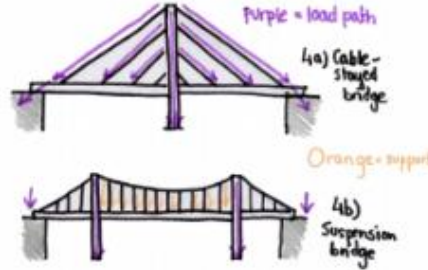
The design of a truss creates a rigid structure that transfers the load from a single point to a wider area, making the structure strong.

#### 3. ARCH BRIDGE



The semi-circular structure distributes compression through its entire form and diverts weight onto its two abutments, the part of the bridge that directly take on pressure. It needs firm foundations, to allow all the parts to push back against each other.

#### 4. SUSPENSION BRIDGE



The towers support the majority of the weight as compression pushes down on the suspension bridge's deck and then travels up the cables, ropes or chains to transfer compression to the towers. The towers then dissipate the compression directly into the earth.

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### **Evidence!!**

We would like you to take a photo of your finished bridge design before testing; during the test; and shortly after the test to see what state your bridge is in. Please ask an adult to help you with this. You will need to ask the adult to send your bridge photos by email to [enquiries@cranwell.lincs.sch.uk](mailto:enquiries@cranwell.lincs.sch.uk) with your teacher's name in the subject of the email. You will also need to ensure your name is clear too! Alternatively, you could save it to a memory stick and bring that instead so we can see your wonderful hard work.

*Good Luck everyone, we are really looking forward to seeing your wonderful designs - Mrs Bullement & Mrs New*

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**Week 1**

Please learn your spellings for this week:

*terrible*  
*possible*  
*sensible*  
*visible*  
*invisible*  
*reversible*  
*edible*  
*legible*  
*credible*  
*incorrigible*  
*gullible*  
*fallible*

Can you use these words in a sentence?



**Week 2**

Please learn your spellings for this week:

*rough*  
*tough*  
*enough*  
*thought*  
*bough*  
*borough*  
*plough*  
*drought*  
*although*  
*doughnut*  
*thoroughly*  
*fought*

Can you use these words in a sentence?

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Please try to keep fit around the home and garden – you could take pictures of all the physical challenges you attempt.



SPAG (spelling, punctuation and grammar) activities will be set online.



Mathletics activities will be set in addition to White Rose tasks.



Please complete your weekly times table test, giving yourself 5 minutes to write answers in your book, then self-mark and keep a record of your total along with the date.

For further challenge, you can choose to complete the division test.



Please read for at least 20 minutes every day this week.

Try to read aloud with an adult, at least once, and discuss what you've read with them.

Once you have read a book, please complete a book review in your exercise books.

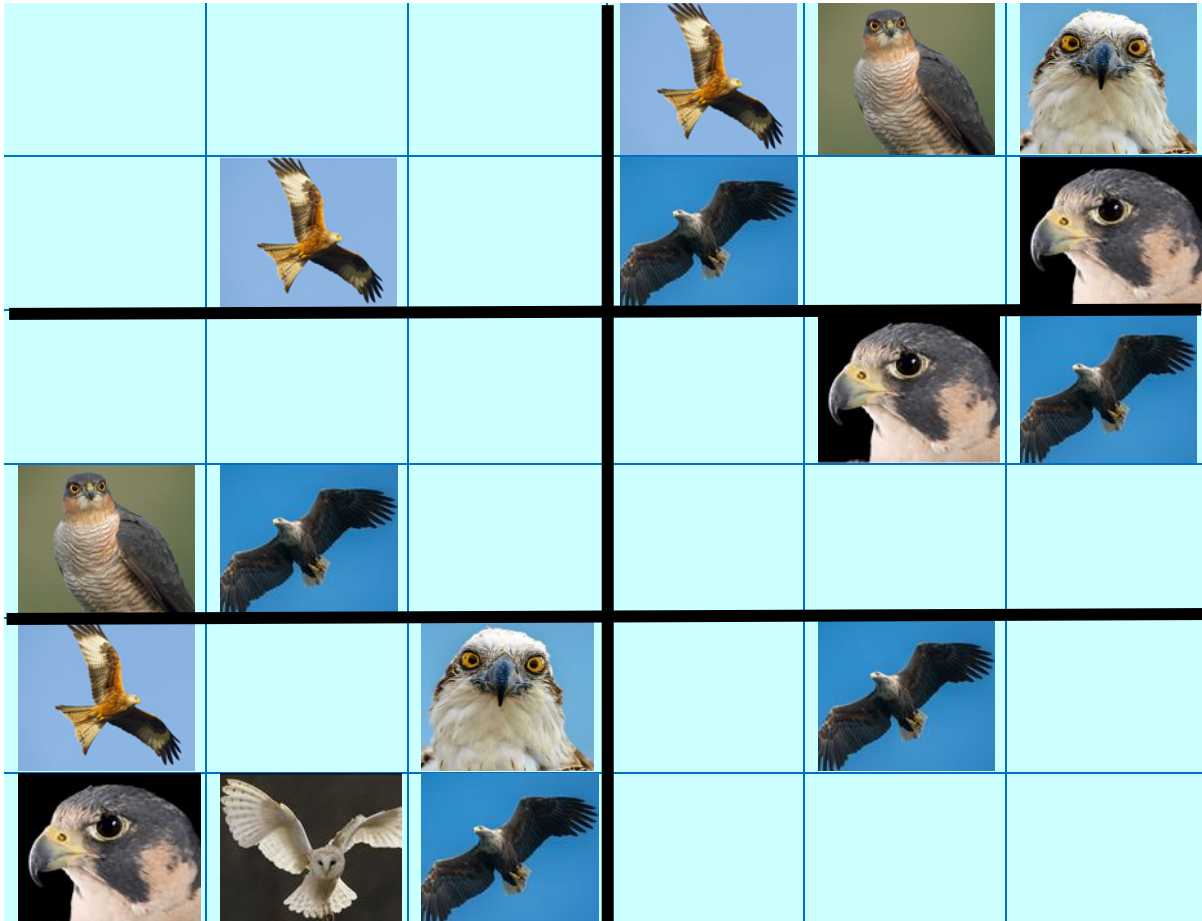


Can you create a PowerPoint (or written information sheet) to educate children about E-safety and how to stay safe online?



## 4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

### Birds of Prey Sudoku

Can you fill in the gaps so that every bird of prey appears only once in each row and column? Write the first letter of their name in each of the squares to complete the challenge (see key provided below, e.g., write R for Red Kite in the right square)!



Key:

	<b>R</b>	Red Kite		<b>W</b>	White Tailed Eagle
	<b>S</b>	Sparrow Hawk		<b>P</b>	Peregrine Falcon
	<b>O</b>	Osprey		<b>B</b>	Barn Owl

4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

Answers to Sudoku puzzle:

W	P	B			
O		S		B	
B	O	R	S		
		P	B	O	R
	S		P		B
			O	R	S

4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

Times Table Test - Year 5/6

Name .....

Date .....

5 x 6 =	2 x 12 =	7 x 6 =	3 x 10 =	5 x 2 =	7 x 7 =
7 x 11 =	9 x 4 =	3 x 2 =	4 x 12 =	3 x 3 =	6 x 12 =
1 x 2 =	11 x 7 =	6 x 9 =	11 x 4 =	9 x 6 =	2 x 11 =
12 x 7 =	1 x 1 =	2 x 5 =	6 x 8 =	5 x 12 =	6 x 2 =
3 x 8 =	9 x 3 =	10 x 7 =	4 x 2 =	7 x 8 =	5 x 10 =
12 x 3 =	1 x 10 =	1 x 3 =	9 x 7 =	4 x 10 =	1 x 4 =
8 x 9 =	6 x 6 =	3 x 12 =	5 x 9 =	12 x 4 =	8 x 8 =
8 x 4 =	7 x 9 =	2 x 10 =	3 x 5 =	8 x 7 =	5 x 5 =
12 x 10 =	2 x 2 =	6 x 11 =	1 x 11 =	4 x 9 =	3 x 9 =
1 x 12 =	4 x 8 =	10 x 4 =	2 x 3 =	4 x 5 =	4 x 3 =
12 x 5 =	1 x 5 =	5 x 8 =	8 x 6 =	5 x 11 =	10 x 6 =
2 x 1 =	11 x 1 =	3 x 1 =	10 x 1 =	4 x 1 =	11 x 11 =
Total:	Total:	Total:	Total:	Total:	Total:

9 x 8 =	7 x 5 =	4 x 7 =	2 x 6 =	10 x 3 =	4 x 6 =
5 x 3 =	10 x 8 =	4 x 4 =	8 x 3 =	11 x 2 =	12 x 2 =
2 x 9 =	8 x 2 =	9 x 12 =	3 x 7 =	7 x 10 =	9 x 9 =
8 x 11 =	1 x 9 =	9 x 2 =	12 x 8 =	3 x 6 =	6 x 10 =
2 x 4 =	3 x 11 =	11 x 12 =	9 x 5 =	1 x 8 =	7 x 4 =
11 x 10 =	3 x 4 =	12 x 9 =	5 x 4 =	2 x 7 =	10 x 12 =
6 x 5 =	10 x 10 =	1 x 6 =	4 x 11 =	10 x 9 =	11 x 5 =
11 x 6 =	5 x 7 =	11 x 8 =	8 x 10 =	6 x 4 =	12 x 1 =
6 x 7 =	6 x 3 =	7 x 3 =	10 x 2 =	9 x 1 =	1 x 7 =
7 x 2 =	8 x 12 =	9 x 10 =	11 x 9 =	10 x 5 =	11 x 3 =
7 x 12 =	12 x 6 =	9 x 11 =	10 x 11 =	12 x 12 =	2 x 8 =
8 x 1 =	7 x 1 =	8 x 5 =	5 x 1 =	12 x 11 =	6 x 1 =
Total:	Total:	Total:	Total:	Total:	Total:



## 4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

Plants and Habitats

### Parts of Plants

- Explore the requirements of plants for life and growth
- Describe the functions of different parts of flowering plants
- Explain how water is transported within plants

### Requirements for Life and Growth






Before a seed can germinate it needs water, which usually comes from soil. Germination also requires food, which is contained within the seed.

During germination, most plants will start to grow a shoot and a root.

The shoot will grow (even through soil) towards a source of light and air.

The root will grow into the soil in search of water and **nutrients**.

Following **germination**, a healthy plant quickly requires:

<b>Light:</b> Plants need light to make food. The leaves of a plant use light, water and carbon dioxide from the air to make the food they need to grow.	
<b>Water:</b> Water is vital to life. Plants use water to help them make food. They take water in through their roots.	
<b>Air:</b> Plants use their leaves to take carbon dioxide from the air. The leaves use the carbon dioxide with water and light to make their food.	
<b>Nutrients:</b> Like humans and other animals, plants need nutrients such as minerals to help them stay healthy. They get these from water in the soil through their roots.	
<b>Room:</b> It is important for a plant to have room to grow. If it gets too crowded, a plant will find it difficult to get enough water and light.	

#### Key Point

All living things need water, food and air. Plants are like humans – if they don't have nutrients, they won't be as healthy. If they don't have space to grow, it makes life very difficult for them.

#### Key Point

Different plants need different amounts of light, water and nutrients. A cactus, for example, can store lots of water. Large trees need large amounts of water and have extensive roots.

## Plant Part Functions

### Flowers

Flowers are needed for reproduction. Colour and scent attract insects. Pollen and eggs are produced by the flowers and these are needed to produce seeds.

### Leaves

Leaves are needed for nutrition because they make food for the plant using sunlight and carbon dioxide from the air in a special process called photosynthesis.



### Stem

The stem is needed for support and for nutrition. It holds the plant up so it can get light, and it transports water and nutrients from the roots to the leaves and flowers.

In trees, the stem is known as the trunk.

### Roots

Roots support the plant, acting as an anchor to prevent it blowing away. The roots are also vital for nutrition. Thousands of tiny root hairs absorb (soak up) water and minerals from the soil. The water and minerals then travel up through the plant.

## Water Transport in Plants

Water absorbed by the roots travels up inside the stem of the plant. From the stem, the water can enter the leaves and flowers, helping the plant to grow and be healthy by delivering essential minerals to where they are needed.

### Quick Test

1. List five things that a plant needs to grow healthily.
2. Which parts of a plant start to grow during germination?
3. Why are the leaves of a plant important?
4. What are the two main roles played by the stem of a plant?

## Study



### Working Scientifically

Observe the effects of water on plant growth by taking a number of samples of a plant and giving each sample a different amount of water. Remember to keep all other variables the same.



### Key Words

- Nutrients
- Germination

## 4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

Plants and Habitats

# Reproduction

- Explore the part that flowers play in the life cycle of flowering plants
- Describe the process of reproduction in some plants and animals

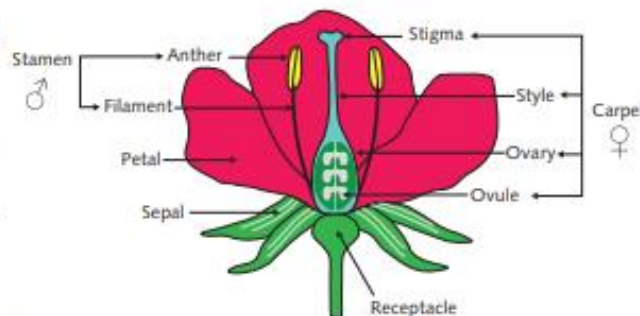
## Reproduction in Flowering Plants

The flower of a plant contains its reproductive organs – the parts it uses during reproduction – to make new flowering plants. New plants are made by **sexual reproduction**.

### Pollination

A flower's colourful petals and the scent of sweet nectar attract insects such as bees, which feed on the nectar.

Pollen from the flower's anther sticks to the insect and is then carried to another flower where it sticks to the stigma. This process is called **pollination**.



### Key Point

The male part of the flower (**stamen**) contains pollen on the anther, which is held up by the filament.

The female part (**carpel**) has a sticky stigma to catch pollen, a style which holds up the stigma, and an ovary containing ovules.

### Fertilisation

When a grain of pollen joins with an **egg** in the carpel of another flower, **fertilisation** takes place and a seed starts to form in the **ovary**.

### Seed Dispersal

When a seed forms, the petals of the flower die and the ovary becomes a fruit containing the seeds. Some fruits are easily recognisable (such as fruits we eat) but for some plants, such as garden flowers, the fruit does not look like edible fruit at all. The fruit of the plant is important for seed dispersal. This is when the seeds are carried away from the parent plant (by animals, wind, exploding pods or water) to give them room to grow into new plants.







### Working Scientifically

Take cuttings from different plants and put them in soil. Do any of them start to grow? Consider the conditions and variables – temperature, amount of soil, amount of light and amount of water.

## 4/5 Home Learning: 21<sup>st</sup> September to 2nd October (2 weeks)

There are three common methods of seed dispersal:

Animal dispersal	Wind dispersal	Explosion dispersal	
 			
Some fruits stick to animals and the seeds are carried away.	Animals and birds eat some fruits, such as berries, and excrete them in a new place.	Light, feathery fruits help seeds be blown away by the wind.	Some fruits are pods which dry and then burst open, scattering the seeds.

## Study

### Key Point

Animals are produced as a result of a process called sexual reproduction. The baby is made, grows a little and is then born before it grows to an adult and eventually dies.

## Asexual Reproduction in Plants

Some plants can reproduce without pollen or an egg. This is known as **asexual reproduction**. Small pieces cut from a plant (known as cuttings) can grow in the right conditions (usually requiring at least water and light).

## Reproduction in Animals

Sexual reproduction occurs in most animals. In this process:

- the egg from the mother plus the **sperm** from the father combine and the egg is fertilised.
- the fertilised egg grows into a foetus and eventually a baby is born.

This process is common to most animals, although in some, the embryo grows in an egg outside the mother. In humans and other mammals, the baby grows inside the mother.

### Key Words

- Sexual reproduction
- Stamen
- Carpel
- Pollination
- Egg
- Fertilisation
- Ovary
- Asexual reproduction
- Sperm

### Quick Test

Complete the diagram.

