Exceptional Closure Work Pack

Year 9

In addition, work can be completed on Sparx Maths, Sparx Reader and Sparx Science

English

Celebrities – Role Models or Just Famous?

From red carpet events to social media posts, celebrities are constantly in the spotlight. Millions follow their lives online, copying their fashion choices, opinions, and even their behaviour. But should celebrities really be treated as role models?

Some argue that many celebrities have a positive influence. “When someone with a large platform speaks out about mental health, racism, or climate change, it gets people talking,” says journalist Reema Patel. “Celebrities can use their fame for good.”

However, others believe the obsession with fame is unhealthy. Some celebrities gain attention not for talent or hard work, but simply for being controversial or attractive. “We’re sending the wrong message to young people,” says headteacher Mr. Wallace. “Fame doesn’t always equal value.”

The rise of influencers has made the line between celebrity and advertisement even blurrier. Many are paid to promote products without always saying so clearly. This can make followers trust things that aren’t truly honest.

Whether admired or criticised, one thing is certain: celebrities have more power than ever — and with that comes responsibility.

Section A – Retrieval

1.According to the article, name two ways celebrities influence people.

2.What is one concern mentioned about influencers?

Section B – Inference

3.What can you infer about Mr. Wallace’s opinion on celebrity culture?

4.Why might some people question whether celebrities should be role models?

Section C – Language Analysis

5.How does the writer use language to show the mixed opinions about celebrities? Give one example and explain its effect.

Section D – Evaluation

6.How effectively does the article explore the impact of celebrities on society? Use evidence from the text to support your answer.

English

“Do Celebrities Have a Responsibility to Set a Good Example?”
Present arguments for and against, then explain your own opinion using persuasive techniques.

Success Criteria

- ✓ **Essay (PARAGRAPHS)**
- ✓ **Formal tone**
- ✓ **DAFORESTI features**
- ✓ **Range of sentence types (so, so; triple noun colon; adverb beginning… etc)**
- ✓ **Range of punctuation**

English

Title: Screen Time – Finding the Right Balance

(Adapted for educational use)

Screens are everywhere — in our homes, our pockets, even on our wrists. Teenagers today spend more time in front of screens than any previous generation, and experts are starting to ask: how much is too much?

According to a recent study, the average teenager in the UK spends over seven hours a day looking at screens, not including time spent on schoolwork. That includes watching videos, scrolling through social media, playing games, and messaging friends.

While screens can be entertaining and educational, too much time spent on them can have negative effects. "We're seeing a rise in sleep problems, reduced attention spans, and increased anxiety," says Dr. Elaine Foster, a child psychologist.

However, not all screen time is bad. Video calls can help people stay in touch with loved ones, and educational apps can support learning in new and exciting ways. The key, experts say, is not to ban screens, but to set healthy limits and take regular breaks.

Some schools and families have introduced "screen-free evenings," where everyone switches off devices and spends time reading, talking, or doing outdoor activities. "It's made a huge difference to our home life," says one parent. "We feel more connected."

Section A – Retrieval According to the article, how many hours a day does the average UK teenager spend looking at screens (not including schoolwork)?

1.Name two negative effects of too much screen time mentioned in the article.

Section B – Inference

3.What can you infer about the writer's view of screens in everyday life?

4.Why might screen-free evenings help families feel "more connected"?

Section C – Language Analysis

5.How does the writer use language to show both the benefits and risks of screen time? Give one example and explain its effect.

Section D – Evaluation

6.How effectively does the article encourage readers to reflect on their own screen use? Use evidence from the text to support your answer.

English

Extension Task – Persuasive Writing

Write a speech to be delivered in a school assembly titled: **"Should Schools Encourage Students to Reduce Their Screen Time?"**

Present arguments for and against, then give your own opinion, using persuasive language and evidence from the article.

Success Criteria

- ✓ **Speech (PARAGRAPHS)**
- ✓ **Formal tone**
- ✓ **DAFORESTI features**
- ✓ **Range of sentence types (so, so; triple noun colon; adverb beginning… etc)**
- ✓ **Range of punctuation**

Maths

8 Maths and money

In this block, I will learn...

how to analyse bank statements and utility bills

Gas bill

Previous meter reading	2	3	6	4	Price per unit 14p
Current meter reading	2	5	4	6	Fixed charge £19

How many units have been used?

How much does the gas used cost?

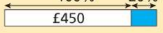
How can you find the total charged?

how to calculate compound interest

£3400 is invested in an account paying 5% compound interest per annum. How much money will be in the account after 3 years?

how to calculate value-added tax

A laptop costs £450 plus VAT at 20%. What is the total cost of the laptop?



how to calculate simple interest

£1500 is invested in an account paying 4% simple interest per annum. How much money will be in the account after 5 years?

how to solve problems involving wages and salories

Wages: £9 per hour for a 35-hour week. Overtime paid at time and a half.

Mario works for 42 hours one week. How much does he earn?

How much overtime has Mario done?

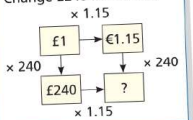
What is the hourly rate for overtime?

How can you find his total pay?

about exchange rates and how to solve problems involving foreign currency

£1 = €1.15

Change £240 into euros.



how to identify best value for money

Which is better value for money?

4 tins for £1.85

6 tins for £2.99

4 tins for £1.85:
1 tin costs £1.85 ÷ 4

6 tins for £2.99:
1 tin costs £2.99 ÷ 6

8.1 Interpreting bills and statements

Small steps

- Solve problems with bills and bank statements

Key words

Bill – shows how much money is owed for goods or services

Balance – an amount of money in an account

Credit – an amount of money paid into an account

Debit – an amount of money taken out of an account

Are you ready?

1 Work out

a £2.90 + £3.15 **b** £4.25 + £0.85 **c** £8 – £6.47 **d** £4.50 – 75p

2 Round each number to 2 decimal places.

a 3.643 **b** 12.4789 **c** 4.0243 **d** 0.4398

3 Work out

a 15 – 45 **b** –24 + 46 **c** –13 – 6 **d** 17 + –10

4

MENU

tea	£1.45	muffin	£2.75
coffee	£3.50	Danish pastry	£2.50
orange juice	£2.80	croissant	£1.85
bottled water	£0.90	flapjack	£0.85

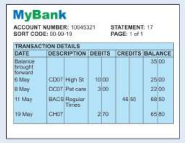
Filipo buys two cups of tea, a muffin and a croissant.

a How much does Filipo spend?

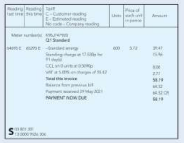
b How much change will Filipo receive if he pays with a £20 note?

Models and representations

Bank statement



Utility bill



Receipt from shops/online shops

Maths

8.1 Interpreting bills and statements

In this chapter, you will look at household **bills** such as gas, electricity and water bills and how they are calculated using meter readings.

You will also look at bank statements and learn to interpret the different features in order to solve problems.

Gives details about the transaction

Credits are money added to the account

Debits are money taken from the account

This is the **balance** at the start of the statement period

Balance is a running total Credits are added to the total and debits are subtracted from the total

MyBank

First Name
Surname
2 July to 1 Aug

SORT CODE
90-99-19

ACCOUNT NUMBER
12345678

Date	Payment details	Credit	Debit	Balance
July 2	balance brought forward			458.30
July 3	cash withdrawal		20.00	438.30
July 10	pizza shop		14.99	423.31
July 15	rent		350.00	73.31
July 17	train station		3.55	69.76
July 20	salary	550.00		619.76
July 24	cheque deposit	25.00		644.76
July 30	gas company		46.00	598.76
Aug 1	balance carried forward			598.76

Example 1

Sven has £55 in his bank account.

He spends £32.50 in the supermarket and buys two coffees, each costing £3.40

Later, he pays his gas bill costing £46

a How much money does Sven spend altogether?

b Work out Sven's bank balance after these transactions.

a £3.40 × 2 = £6.80
Sven buys two coffees, so you need to multiply £3.40 by 2

Total amount spent:
£32.50 + £6.80 + £46 = £85.30
You can use a calculator, which gives the answer 85.3

Remember that working with money means using 2 decimal places and 85.3 is the same as £85.30

b £55 − £85.30 = − £30.30
Sven's balance will be what he originally had in his account, subtract what he spent.

So he will be £30.30 overdrawn.
A negative balance means Sven owes the bank £30.30

Example 2

Here is part of Zach's gas bill. Work out how much Zach has to pay for the units of gas he has used.

Gas bill

Old meter reading	8	6	4	2
New meter reading	9	3	1	5

Price per unit 44p
Fixed charge £12

9315 − 8642 = 673 units used
First, you need to work out how many units of gas Zach has used.

673 × 0.44 = £296.12
Multiply the number of units used by the cost of each unit. Remember to convert 44p to £0.44

£296.12 + £12 = £308.12
Zach owes £308.12
Then add on the fixed charge of £12

Practice 8.1A

1 Here is part of Lydia's shopping receipt showing everything she bought.

a How many oranges did Lydia buy?

b Altogether, how much did Lydia spend on drinks?

c What was the total cost of Lydia's shopping?

d Lydia paid with a £20 note. How much change did she receive?

★★★★★★★★★★
LOCAL SHOP
★★★★★★★★★★
Date 12-09-21
Time 12:19

Oranges	
6 @ £0.45	£2.70
Apples	
3 @ £0.35	£1.05
Grapes (500g)	£2.00
Orange juice	
2 @ £1.50	£3.00
Cola	
(6 bottles)	£5.25
Cereal (375g)	£2.19
Jam (300g)	£1.09

2 Here is a café menu.

CAFÉ MENU

bottled water	£0.80	muffin	£3.55
tea	£2.55	Danish pastry	£3.00
coffee	£4.45	croissant	£2.55
orange juice	£3.00	fruit bread	£1.95
apple juice	£4.10	pain au chocolat	£2.85

For breakfast, Emily buys a coffee, a croissant and a bottle of water.

Jackson buys a tea, a Danish pastry and a muffin.

Who spends more money on breakfast?

Maths

3 At the greengrocer's, Mario buys 500 g of apples and 1 kg of pears.
Apples cost 35p per 100 g and pears cost 55p per 100 g
How much does Mario spend?

4 Seb's water bill shows that he has used 65 cubic metres of water since his last bill.
He is charged 112p per cubic metre plus a fixed charge of £8.50
What is the total cost of Seb's water bill?

5 The diagram shows the reading on Abdullah's gas meter.

Gas bill

Old meter reading	2	3	5	9
New meter reading	2	5	0	4

Price per unit 22.8p
Fixed charge £9.50

Work out the total cost of Abdullah's gas bill.

6 Benji uses 46 units of electricity in one month.
He is charged 106p per unit.

Explain Benji's error.

7 Marta's phone company charges her 3p per minute for calls plus 5p for each text message. She also pays a fixed cost of £23 each month.
In August, Marta uses 134 minutes of call time and sends a total of 45 text messages.
Work out the total cost of her phone bill in August.

8 Explain what it means for a bank account to be overdrawn.

9 Amina has £135 in her bank account. She makes payments of £27.99 and £65.45. She then withdraws £20 in cash.

a How much money will Amina have left in her account?

b Amina then pays a £40 parking fine using money from her account. By how much will she be overdrawn?

10 Work out the correct amount of money for each box, **a**–**h**, in this bank statement.

MyBank

First Name
Surname
5 Sep to 4 Oct

SORT CODE
11-11-11
ACCOUNT NUMBER
12345678

Date	Payment details	Credit	Debit	Balance
5 Sep	balance brought forward			£215.56
7 Sep	supermarket		£23.55	a
10 Sep	gym membership		£30.00	£162.01
12 Sep	cash withdrawal		b	£142.01
15 Sep	cash deposit	£50.00		c
18 Sep	water bill		£45.00	d
21 Sep	salary paid in	e		£597.01
28 Sep	coffee shop		£10.19	f
3 Oct	supermarket		£27.66	g
4 Oct	balance carried forward			h

What do you think?

1 Beth has £46 in her bank account. Her bank charges £25 if she becomes overdrawn.
Beth buys some groceries for £25.66 and withdraws £30 in cash.
How much will Beth now owe her bank?

2 Rob buys 600 g of blueberries and 400 g of strawberries. He pays £3.99 in total.
Blueberries cost £3.85 per kilogram. Find the cost of one kilogram of strawberries.

3 Faith received an electricity bill for £39.21. Her bill includes a fixed charge of £14.50 and she is charged 17.4p per unit of electricity.
Calculate, to the nearest whole number, the number of units of electricity Faith has used.

Consolidate – do you need more?

1 Look at the prices of these items.

a Work out the total cost of two notebooks, three pens and a ruler.

b Rhys buys colouring pencils and a notebook. He pays with a £10 note. How much change will he receive?

2 Faith buys 1.5 kg of rice at a cost of £3.80 per kilogram.

a How much does Faith spend?

b Faith has £10 in her purse. Will she have enough money to buy a box of chocolates costing £4.50 as well as the rice? Show your working to explain how you know.

3 Here is Huda's electricity bill.

Electricity bill				
June 30	2	3	8	8
September 30	2	6	0	8

Price per unit 38p
Fixed charge £18.15
Admin fee £2.00

Work out the total cost of Huda's bill.

4 Kate uses these meter readings to calculate her gas bill.

Gas bill				
Latest meter reading	3	4	7	0
Previous meter reading	3	2	4	1

Cost: 22.5p per unit

3241 + 3470 = 6711 units used.
6711 × 22.5p = £1509.98

Explain Kate's error and calculate the correct amount she owes.

5 Bobbie has £45.90 in her bank account.
On Monday, she buys some books for £18.98 and a coffee that costs £3.35
On Tuesday, she spends £12 at the cinema and £35 at the pet shop.
Work out the final balance of her bank account after these transactions.

6 Beca travels by car to meetings. Her company pays her 46p for each mile travelled.
The diagram shows the mileage of Beca's car at the beginning and the end of the week.

a How many miles did Beca travel this week?

b Calculate how much Beca's company will pay her for travel. (Assume Beca did not use her car for any other travel.)

Stretch – can you deepen your learning?

1 Emily is working out the cost of the electricity that she used in June.
She has used 146 units of electricity.
She pays 22.5p for the first 100 units used and 10.5p for all other units used.
She is then charged a fixed cost of £7.50
Finally, a 5% administration fee is added.
Work out the total cost of Emily's bill in June.

2 Ali compares two mobile phone tariffs.

Blue network	*Red* network
£10 per month plus 2p per minute	No fixed cost and only 6.5p per minute

a Ali uses his phone for approximately 150 minutes per month. Which tariff should he choose? Show how you decide.

b How many minutes would he need to be using each month for the other tariff to become the cheaper option?

Reflect

Most bills have a variety of different charges, fixed costs, costs per unit, interest, VAT and administrative fees. Why is it important to make sure that you understand the different tariffs or plans offered by utility companies?

Maths

8.2 Interest

Small steps

- Calculate simple interest
- Calculate compound interest

Key words

Interest – a percentage fee paid when borrowing money or a percentage earned when you deposit money into a savings account

Deposit – amount of money paid into a bank account

Per annum – means "per year"

Annual – covers a period of one year

Principal – an initial amount invested

Are you ready?

1 Work out

a 30% of 70 **b** 45% of 60 **c** 75% of 180 **d** 3% of 720

2 Write down the multiplier equivalent to a

a 10% increase **b** 3% increase **c** 20% decrease **d** 4.5% increase.

3 Increase 550 by

a 10% **b** 14% **c** 22% **d** 3%

4 Decrease 340 by

a 35% **b** 22% **c** 1% **d** 17%

5 Work these out. Round your answers to 3 decimal places.

a 1.1^3 **b** 1.05^4 **c** 1.54^6 **d** 1.13^2

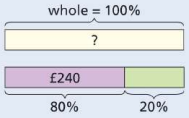
Models and representations

Bar models

Bar models can be used to represent percentage increase.

Part-whole bar models

Part-whole models can help you to work backwards to find an original amount.



Money invested in a savings account *earns* **interest**, which can be paid monthly or **annually**.

You *pay* interest on money borrowed from a bank or other source of finance. The rate of interest is often given **per annum**, which means every year.

In this chapter, you will learn about two different types of interest: simple and compound.

Simple interest is paid on savings but does not earn interest itself. For example, if you had £100 and earned £5 interest in one year, you would now have £105. If you did not **deposit** or withdraw any money from the account, in the following year, you would earn interest only on the £100, not the extra £5.

Example 1

Find the simple interest earned on £600 invested for 3 years in an account earning 4% simple interest per year.

The initial amount invested is called the **principal**.

£600 × 0.04 = £24.00 in one year — First you find 4% of £600. Remember: to find 4% of an amount you can multiply by 0.04

£24.00 × 3 = £72.00 — The amount of interest earned does not change (unless money is added/removed), so multiply by 3 because the money is invested for three years.

The interest earned would be £72.00

Practice 8.2A

1 Flo invests £300 in an account paying simple interest at 5% per annum.

a Work out 5% of £300

b Work out how much money Flo will have in her account after

i 1 year **ii** 3 years.

2 Junaid invests £6000 in an account earning simple interest at 4% per annum.

a Work out 4% of £6000

b Work out the total amount of money in Junaid's account after 4 years.

3 Amina invests £2500 at 6% simple interest per annum. Work out the value of her savings after 6 years.

4 A bank pays 3% simple interest per annum. Work out how much interest each person will earn.

a Bobbie invests £2000 for 3 years.

b Rhys invests £2500 for 2 years.

c Beth invests £1500 for 5 years.

5 Ed buys a washing machine costing £650. He pays a 10% deposit.

a How much does Ed still owe?

Ed pays 5% interest on the remaining amount.

b How much does Ed owe after interest is added?

c Ed pays the amount he owes in 12 equal monthly instalments. Work out how much Ed pays each month.

6 Marta buys a computer costing £780

She pays a 15% deposit and then pays the remainder of the cost over 12 months at 8% interest.

How much will Marta pay for the computer in total?

7

Who will have earned the most interest in one year? Show working to explain how you decide.

What do you think?

1 Marta invests £600 at 4% simple interest per annum. After n years, she has a total of £720 in her bank account. Work out the value of n.

2 Faith invests £850 at x% simple interest per year. After 3 years, she has £1054 in her account. Work out the value of x.

3 Emily invests £n at x% simple interest per year. After 3 years, she has £440 in her account, and after 5 years, she has £520 in her account. Work out the values of n and x.

In this section, you will learn about compound interest and how to calculate the interest earned over several years.

Compound interest is added to your savings each year and you will then earn interest on the total amount in future years.

For example, if you have £100 and earned £5 in interest in one year, you would now have £105. The following year, you would earn interest on the full £105 in your account.

Example 2

Mario invests £1500 in a savings account earning 4% compound interest per year.

How much money will he have in his account after 3 years?

100% + 4% = 104%	First work out the required decimal multiplier. Remember: the multiplier for a 4% increase is 1.04
After 1 year: £1500 × 1.04 = £1560	Then work out the total value of Mario's savings after each year for 3 years. Multiply the total amount in the account at the end of each year by 1.04
After 2 years: £1560 × 1.04 = £1622.40	
After 3 years: £1622.40 × 1.04 = £1687.296	
This rounds to £1687.30	Round your answer to 2 decimal places for money.

So, on my calculator I enter 1500 × 1.04 × 1.04 × 1.04
This is the same as 1500×1.04^3

Ed

Practice 8.2B

1 Huda invests £500 at 2% compound interest per annum.

a Work out 2% of £500

b How much money will Huda have in her account after 1 year?

c How much interest will she earn in the second year?

d How much money will Huda have in her account after 2 years?

2 Flo invests £2540 at 5% compound interest per annum.

a How much money will Flo have in her account after 3 years?

b How much interest will Flo earn in 5 years?

3 Beca invests £250 at 6% compound interest per annum for 3 years.

Chloe invests £350 at 6% simple interest per annum for 3 years.

a Who will have earned more interest?

b How much more interest will they have earned?

4 Benji saves for his retirement. He invests £1000 into an account paying 7% compound interest per annum. Assuming he makes no further withdrawals or deposits, how much money will he have after 40 years?

5 Which earns more interest?

A £600 invested for 5 years at 7% compound interest per annum

B £500 invested for 6 years at 7% compound interest per annum

6 Lydia invests £550 in an account earning 6% compound interest per annum. How long will it take for her investment to double in value?

7 Look at this advert.

a Choose some starting investment values to check the bank's claim.

b Does the initial investment value matter?

8 Which calculation represents the total amount of money after £3000 is invested at 2% compound interest for 6 years?

A 3000×1.2^6

B 3000×1.06^2

C 3000×1.02^6

D $3000 \div 1.02^6$

What do you think?

1 Zach takes out a loan of £1500

He is charged interest at a rate of 23% per annum. Interest is calculated on the outstanding loan amount at the start of each year.

a How much will Zach owe immediately after the loan is taken out?

Zach makes annual payments of £400

b How much will he owe at the start of the fourth year?

c Comment on the length of time it will take Zach to pay off the loan.

2 Samira deposits £100 in a savings account earning 7.5% compound interest per annum.

a Show that her savings will double in value after 10 years.

Faith

If I deposit £300 in the same account, it will take much longer to double.

b Is Faith correct? Explain your answer.

Consolidate – do you need more?

1 Kate invests £7500 in an account paying 4% simple interest per annum. How much interest will she earn in 5 years?

2 Ali and Charlie each have £3450 to invest.

Ali chooses an account paying simple interest at 7% per annum and invests for 4 years.

Charlie chooses an account paying compound interest at 4% per annum and invests for 7 years.

Who will have earned more interest? Show working to explain how you know.

3 Rob invests £2400 in a savings account paying compound interest at 8% per annum.

a How much will he have in his account after 4 years?

b After how many years will his balance exceed £4000?

c How would your answers to parts **a** and **b** change if the interest paid was simple interest?

4 Copy and complete the table.

Maths

8.2 Interest

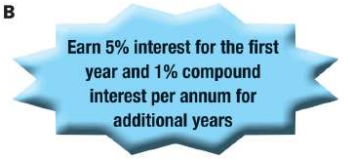
Principal value	Interest rate	Interest type	After 2 years	After 5 years
£5000	3%	compound		
£200		simple	£208.00	
£1700	2.5%		£1786.06	£1923.39
£23 000	8%	simple		

5 Filipo saves £8000 at 5% compound interest per annum. He needs £14 000 for a deposit to purchase a house. Will he have enough in his account after 3 years?

6 Look at these adverts.

A

B



Abdullah has £10 000 to invest. He wants to earn the maximum amount of interest in 3 years. Which account should he choose?

Stretch – can you deepen your learning?

1 Jakub invests £2000 at 5% compound interest per annum.
Ali invests £2500 at 2% compound interest per annum.
In which year will Jakub's investment exceed Ali's?

2 Mario invests some money in an account paying 7% compound interest per year.
After how many years will his investment triple?

3 Kate invests £7000 at x% compound interest per annum. After 3 years, she has £9065.20 in her account. Work out the value of x

4 Samira invests £8000 at 2.5% compound interest per annum. After n years, she has £9051.27 in her account. Work out the value of n

5 Marta invests £n at x% compound interest per annum for 3 years. After 4 years, she has £5035.26 and after 5 years she has £5639.49 in her account. Work out the values of n and x

Reflect

1 Explain the difference between simple and compound interest. You can use examples to help.

2 Explain the dangers of using loans and credit cards with high interest rates when paying for goods. Why can it be a problem if you only make small repayments?

Science

🔋 **Energy Stores**

Energy is stored in different ways depending on the system. These stores include **chemical**, **thermal**, **kinetic**, **gravitational potential**, **elastic potential**, **nuclear**, **magnetic**, and **electrostatic**.

- **Chemical energy** is stored in fuels, food, and batteries, and is released during chemical reactions.
- **Thermal energy** (also called internal energy) relates to the temperature of an object – the hotter it is, the more thermal energy it has.
- **Kinetic energy** is the energy of a moving object – the faster it moves, the more kinetic energy it stores.
- **Gravitational potential energy** is stored when an object is raised above the ground.
- **Elastic potential energy** is stored in stretched or compressed objects like springs or rubber bands.
- **Nuclear energy** is stored in the nuclei of atoms and released in nuclear reactions.
- **Magnetic** and **electrostatic** stores relate to forces between magnets or electric charges.

Energy is not created or destroyed, only transferred between stores in different ways.

Your task is to produce a poster, showing the transfer of energy, including types of energy and real-life examples.
Here are some hints.

- **Sections**:
  - "What is Energy?" – brief definition
  - "Energy Stores" – use the paragraph above
  - "Energy Transfers" – include examples of mechanical, electrical, heating, and radiation
  - "Conservation of Energy" – short note that total energy remains constant
- **Visuals**:
  - Diagrams for each energy store (e.g. falling ball for gravitational, moving car for kinetic)
  - Arrows showing energy transfers
  - A Sankey diagram to illustrate conservation of energy

PTO for more ideas

Science

🧠 Section 1: What is Energy?

Text:

Energy is a quantity that allows work to be done or causes change. It exists in different forms and can be stored, transferred, or transformed, but never created or destroyed.

Visual:

- Lightbulb or sun icon with radiating arrows
- Caption: "Energy powers everything around us!"

🔋 Section 2: Energy Stores

Text:

(Use the paragraph from the previous message here)

Visual Grid (suggest 2 rows of 4 icons):

- 🔥 Chemical – fuel or battery
- 🌡️ Thermal – hot tea or radiator
- 🚗 Kinetic – moving car or ball
- 🧗 Gravitational Potential – climber or raised object
- 🌀 Elastic Potential – stretched spring or elastic
- ☢️ Nuclear – atom or nuclear plant
- 🧲 Magnetic – magnets
- ⚡ Electrostatic – charged balloon

Label each icon clearly.

🎨 Design Tips:

- Use bright colors for each energy store
- Include icons or drawings to help visual learners
- Use bullet points for clarity
- Keep font large and legible from a distance

🔁 Section 3: Energy Transfers

Text:

Energy can be transferred from one store to another by:

- **Mechanical Work** (e.g. pushing, lifting)
- **Electrical Work** (e.g. circuits)
- **Heating** (e.g. via conduction or radiation)
- **Radiation** (e.g. light, sound)

Visual:

- Diagram of a kettle:
- Electrical energy → thermal energy of water (via heating)
- Arrows to show energy flow

♻️ Section 4: Conservation of Energy

Text:

Energy cannot be created or destroyed, only transferred or stored. The total energy in a closed system stays constant.

Visual:

- **Sankey diagram** showing energy input, useful output, and wasted energy (e.g. a lamp:
  - 100 J input → 40 J light, 60 J heat)
- Caption: "Total energy = Useful + Wasted"

Science

Reading Comprehension: *Energy – Core Concepts*

Energy is a fundamental concept in science. It is the ability to do work or cause change. Energy comes in many forms, including **kinetic energy** (movement), **thermal energy** (heat), **chemical energy**, **electrical energy**, **light energy**, and **gravitational potential energy**.

Energy cannot be created or destroyed – this is called the **conservation of energy**. Instead, energy can only be **transferred** from one store to another or **transformed** into a different form. For example, when you rub your hands together, kinetic energy from movement is transformed into thermal energy, warming your hands.

Some energy transfers are efficient, but others are not. In many cases, some energy is wasted, often as heat. Devices are not 100% efficient because of this wasted energy. The **efficiency** of a device can be calculated using the formula:

Efficiency = (Useful energy out ÷ Total energy in) × 100

Energy is measured in **joules (J)**. A kilojoule (kJ) is 1,000 joules. Appliances such as kettles, ovens, and light bulbs all use energy. Scientists and engineers use **energy transfer diagrams** and **Sankey diagrams** to show how energy is used and how much is wasted.

Renewable energy sources, such as solar and wind, are becoming more important to reduce our reliance on fossil fuels, which release carbon dioxide when burned and contribute to climate change.

Multiple Choice (1–4)

1.Which of the following is a form of energy?
a) Friction
b) Joules
c) Kinetic
d) Movement

2.What is the unit used to measure energy?
a) Watts
b) Volts
c) Newtons
d) Joules

3.What does the law of conservation of energy state?
a) Energy can be created.
b) Energy is always increasing.
c) Energy cannot be created or destroyed.
d) Energy is destroyed after use.

4.Which diagram shows both useful and wasted energy?
a) Bar chart
b) Pie chart
c) Sankey diagram
d) Circuit diagram

5.Give two examples of energy stores.

6.What is meant by an energy transfer?

7.Why are devices not 100% efficient?

8.Write the formula for calculating efficiency.

9.Thermal energy is another name for light energy.
(True / False)

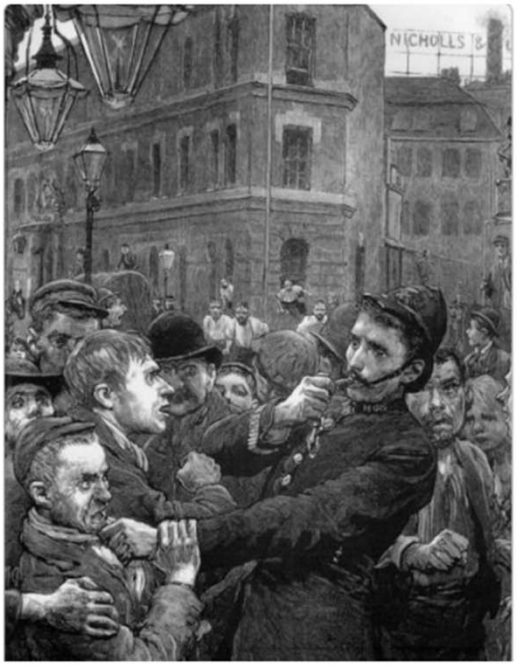
10.Wind and solar are renewable sources of energy.
(True / False)

History – Usefulness Question

TASK: Complete the table on the next page, then use the information and sentence starters to write a response to the question:

How useful are Sources D and E for an enquiry into the policing of crime in Whitechapel in the period, c.1870-c.1900? (8 marks)

Source D. An artist's impression of a scene in the Whitechapel district of London in 1888. It was printed in the *Penny Illustrated Paper*, a cheap weekly newspaper. The police constable is from H-Division. The building behind him is a police station.



Source E. A description of a violent theft, given in evidence at a trial at the Old Bailey, 1888. The victim, John Shumaker, is giving evidence against James Hunt, who is accused of attacking him.

John Shumaker: At 11pm, I was in Cambridge Road, Whitechapel, and the accused ran out and snatched my watch chain from my waistcoat pocket. I ran after him and caught him but then another man attacked me with a stick and struck me four times on my head. I let Mr Hunt go, and he hit me with the stick which cut my nose open. He also hit me on the arm. I was then surrounded by six other attackers and I shouted for help. The accused knocked me down again and took money from my trouser pocket.

History – Usefulness Question

How useful are Sources D and E for an enquiry into the policing of crime in Whitechapel in the period, c.1870-c.1900? (8 marks)

	Source D	Source E
Content: What does the information **within** the source tell you about policing of crime?		
Reliability: Look at the type of source that it is, who published it and when they published it. How reliable and trustworthy do you think the source is?		
Accuracy: Based on your knowledge of Whitechapel, is the information within the source accurate?		
Conclusion: Overall, how useful do you think the source is for this specific investigation? (policing in Whitechapel)		

Sentence Starters:

Source D is [*mostly, very, somewhat]* useful for the enquiry because it tells us… (**content**)
The **reliability** of the source is [*strong/weak*] because… Based on my own knowledge, I know that source A is/is not **accurate** because…
Overall, source D is [*mostly, very, somewhat]* useful for the enquiry into policing in Whitechapel…(**conclusion**)

REPEAT FOR SOURCE E

History – Usefulness Question

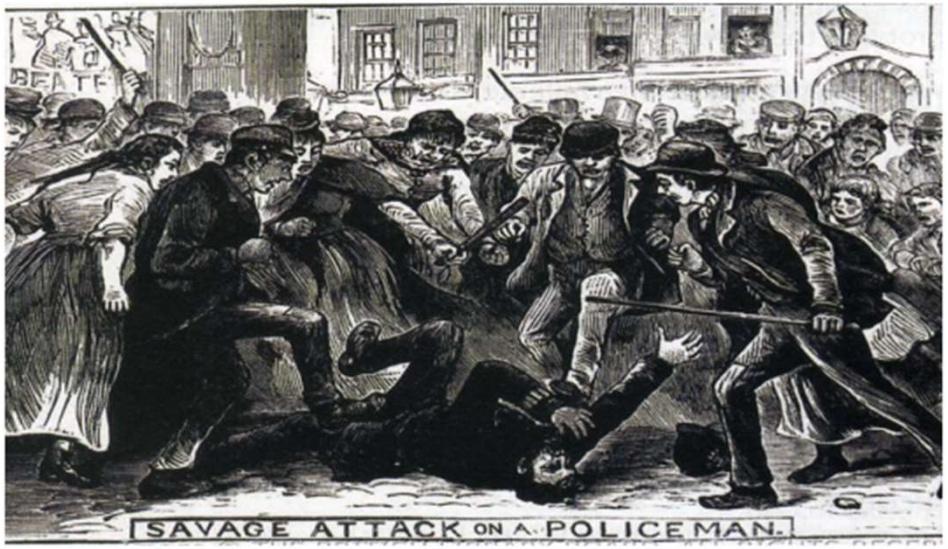
TASK: Complete the table on the next page, then use the information and sentence starters to write a response to the question:

How useful are Sources F and G for an enquiry into the policing of crime in Whitechapel in the period, c.1870-c.1900? (8 marks)

Source F. A story published in The Illustrated Police News, 2 June 1883, about a gang attack on a Whitechapel policeman.

SAVAGE ATTACK ON A POLICEMAN. John Harris, Jane Reynolds and Alfred Lindsey were charged in committing a murderous assault on Dennis Mortimer, a constable ... Constable Mortimer heard loud cries of 'Stop him;' and as he tackled Harris a mob of young ruffians collected around him and commenced pelting him with stones and hitting him with sticks. Mortimer made strenuous efforts to protect himself, but on drawing his truncheon, according to a witness, the female Reynolds wrenched it from his hand and struck him on the side of the head with it, and another girl also hit him about the head. The prisoner and his gang made their escape, leaving the constable unconscious.

Source G. A drawing in the *Illustrated Police News*, published on 2 June 1883. It accompanied the news report shown in source F.



History – Usefulness Question

How useful are Sources F and G for an enquiry into the policing of crime in Whitechapel in the period, c.1870-c.1900? (8 marks)

	Source F	Source G
Content: What does the information **within** the source tell you about policing of crime?		
Reliability: Look at the type of source that it is, who published it and when they published it. How reliable and trustworthy do you think the source is?		
Accuracy: Based on your knowledge of Whitechapel, is the information within the source accurate?		
Conclusion: Overall, how useful do you think the source is for this specific investigation? (policing in Whitechapel)		

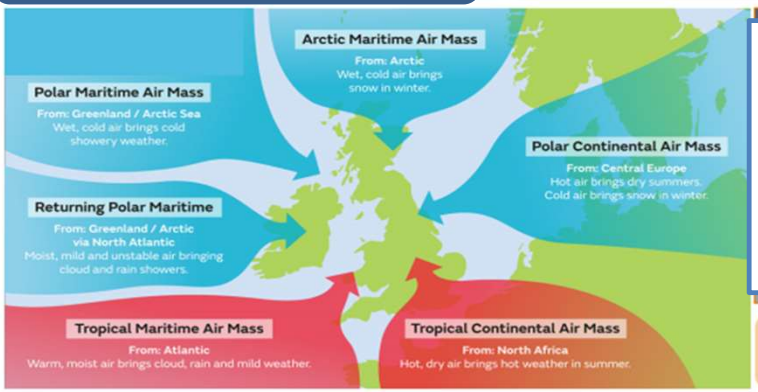
Sentence Starters:

Source F is [*mostly, very, somewhat]* useful for the enquiry because it tells us… (**content**)
The **reliability** of the source is [*strong/weak*] because… Based on my own knowledge, I know that source A is/is not **accurate** because…
Overall, source A is [*mostly, very, somewhat]* useful for the enquiry into policing in Whitechapel…(**conclusion**)

REPEAT FOR SOURCE G

Geography

Extreme weather is when the weather is especially **severe** or **out of season** and is clearly different to the usual weather pattern.



Task: How could each type of air mass and extreme weather impact on our day at school?

Many parts of the UK are at risk from extreme weather. Different air masses crossing the UK bring a variety of weather.

Type of extreme weather	Description/ cause	Impacts
Storm events	Depressions bring heavy rain and strong winds to the UK.	✓ Flood and wind damage to businesses and properties. ✓ Trees uprooted. ✓ Power supplies down. ✓ Disruption to transport. ✓ Death.
Flooding	Often caused by heavy rainfall or storm waves. Torrential rainstorms can cause flash floods. Prolonged rainfall also leads to flooding.	✓ Crops ruined. ✓ Damage to homes, businesses and possessions. ✓ Transport disrupted. ✓ Death by drowning. ✓ Recovery is often expensive. ✓ Landslides.
Droughts and heat waves	Typically long periods with little or no rainfall. In the UK drought is defined as 15 or more consecutive days with less than 0.2mm of rain.	✓ Crop production fails and wildlife is affected. ✓ Reservoirs run low reducing water supplies. ✓ Hosepipe bans are enforced.
Extremes of cold weather	Cold conditions take over if the usual depressions are not passing over the UK, as happened during winter 2014–2015.	✓ Roads, railways and airlines shut. ✓ Increased injuries caused by falling in some and ice.

True or False Questions – UK Air Masses and Weather

1.The Polar Maritime air mass brings warm, dry weather to the UK.
2.The Tropical Continental air mass comes from North Africa.
3.The Arctic Maritime air mass causes snow in winter due to very cold air.
4.The Returning Polar Maritime air mass brings warm and dry conditions to the UK.
5.The Tropical Maritime air mass brings mild and wet weather.
6.The Polar Continental air mass usually brings hot, dry weather in summer.
7.Storm events in the UK are usually caused by tropical cyclones.
8.Drought in the UK is defined as less than 2.0mm of rain in 10 consecutive days.
9.Extreme cold weather in the UK is often due to depressions passing over the country.
10.UK weather is affected by a mix of air masses from both tropical and polar regions.

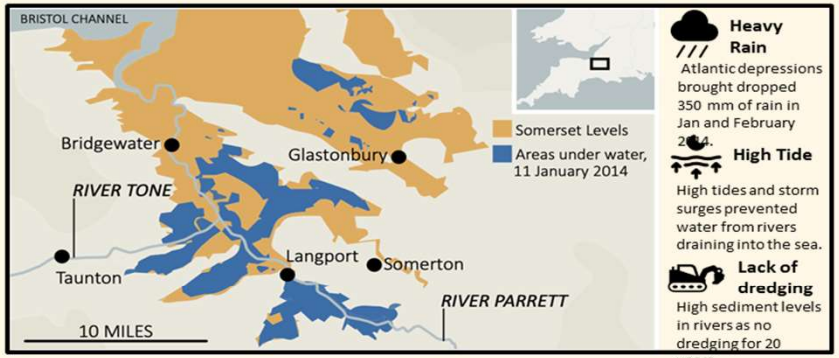
Somerset Levels – UK Extreme Weather Event

Overview

January 2014 — HIC
Somerset, UK

Causes

A quick succession of prolonged Atlantic storms, with persistent rainfall and gale-force winds, was the primary cause of flooding. The rivers could not cope with the significant amount of rain that fell. Additionally, high tides in the Bristol Channel and its narrowing created tidal surges.



Heavy Rain
Atlantic depressions brought dropped 350 mm of rain in Jan and February 2014.

High Tide
High tides and storm surges prevented water from rivers draining into the sea.

Lack of dredging
High sediment levels in rivers as no dredging for 20 years.

Social Impacts

- More than 60 homes flooded.
- Sixteen farms evacuated.
- Residents required temporary accommodation for several months.
- Some villages were cut off.
- Power supplies were disrupted.

Environmental Impacts

- River water was contaminated with sewage, oils and chemicals.
- A large volume of debris was deposited across the Somerset Levels.
- Stagnant water had to be reoxygenated then pumped back into rivers.

Economic Impacts

- Over 14,000 hectares of agricultural land flooded for months.
- Over 1,000 livestock had to be evacuated from farms.
- Roads were cut off.
- Railway lines were closed.
- It is estimated the flooding caused £10 million of damage.

Management

- River banks have been raised and straightened.
- £20 million was pledged on a flood action plan by Somerset County Council.
- Dredging occurred on the River Tone and Parratt in March 2014.
- Road levels have been raised.
- Flood defences have been constructed for communities at risk.

Create a dual coded (words and doodles) mind map to show the causes, effects and responses to the Somerset Floods

Geography

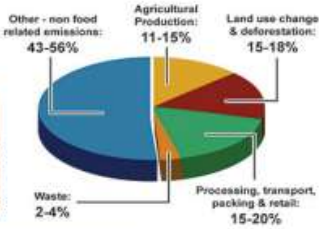
Quick Questions

- What are the two main types of causes of climate change shown in the image?
- What human activity is responsible for 50% of greenhouse gas emissions?
- How does agriculture contribute to climate change?
- Why does deforestation increase CO_2 levels?
- What is the main greenhouse gas released by burning fossil fuels?
- How do volcanic eruptions temporarily affect global temperatures?
- What do orbital changes affect in relation to the Earth's climate?
- What is the 11-year cycle related to the sun called?
- Has solar output changed significantly in the last 50 years?
- What is one example of a natural recorder used as climate evidence?
- How much has the average global temperature increased in the last 100 years?
- What is one source of modern reliable climate data since 1914?
- What has happened to sea levels since 1900?
- What do ocean sediments and plankton help scientists understand?
- According to the pie chart, what percentage of food-related emissions comes from agricultural production?

Causes and evidence of climate change

Orbital changes
The sun's energy is on the Earth's surface changes as the Earth's orbit is elliptical, its axis is tilted on an angle and the Earth isn't spherical.

Agriculture
Accounts for 20% of greenhouse gases. Larger populations and demand for meat and rice will increase its contribution.



Deforestation
Logging and clearing land for agriculture /roads increases the amount of CO_2 in the atmosphere, as less photosynthesis occurs.

Causes of climate change

Solar output
Sunspots increase from a minimum to maximum every 11 years. Fewer sunspots were observed during the coldest period. However, solar output has barley changed in the last 50 years.

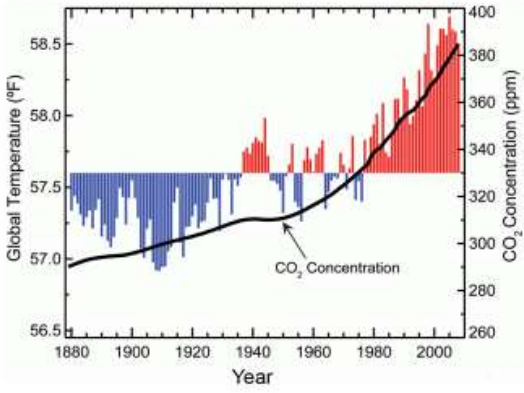
Volcanic activity
Volcanic aerosols reflect sunlight away, reducing global temperatures temporarily.

Human factor

Natural factor

Fossil fuels
Burning fossil fuels releases carbon dioxide. Accounts for 50% of greenhouse gases.

Evidence used for climate change.	What the evidence shows.
Since 1914 the Met Office has had reliable climate change data sing weather stations, satellites, weather balloons, radar and ocean buoys.	✓ An increase in average surface air temperature by 1°C over the last 100 years. ✓ The warmest ocean temperatures since 1850. ✓ A 19 cm rise in sea levels since 1900.
Natural recorders such as tree rings, ice cores and ocean sediments help estimate climate change.	Oxygen, carbon dioxide and methane in ice cores and ocean sediments can help estimate past temperature by comparing it to present levels. Organisms and plankton in ocean sediments reveal water temperatures, oxygen levels and nutrients and these can indicate climate change.



Which cause of climate change do you think is most significant?

Mr Fitzgerald thinks that climate change is only caused by natural processes. Write a persuasive argument to explain why he is incorrect.

Spanish

¿Qué te gusta hacer en tu tiempo libre?

Below is a writing frame. We will use it to write 30-60 words in Spanish in your book about what you enjoy doing in your spare time.

- **You must Include at least 3 activities (and your opinion of them)**
- **You must use at least two different adjectives and at least 1 intensifier**
- **You must use at least 2 connectives (and not the same one twice)**

Me gusta Me encanta	escuchar música / ir al cine / tocar la guitarra / bailar / cantar / salir con mis amigos / jugar con mi consola de videojuegos			porque es	interesante aburrido divertido entretenido relajante difícil creativo estimulante
Escuchar música / Ir al cine / Tocar la guitarra / Bailar / Cantar / Salir con mis amigos / Jugar con mi consola de videojuegos	no está mal	pero detesto / odio	escuchar música / ir al cine / tocar la guitarra / bailar / cantar / salir con mis amigos / jugar con mi consola de videojuegos		

Connectives	Además	También	Entonces	Sin embargo	Por lo tanto	No obstante

Contrast what you like to do now with what you liked to do when you were younger.
¿Qué te gustaba hacer cuando eras pequeño (a)?

Spanish

Escribe una entrada de blog sobre ti. ¡Cuidado con la ortografía y la gramática!

Write a blog entry about yourself. Be careful with your spelling and grammar!

Use Lucía's text as a model. Mention:

- your name, age and what you are like
- where you live and whereabouts it is
- your opinion of your town and a reason
- your home and what it is like
- what you do in your spare time
- what you normally do at the weekends
- what you are going to do next weekend.

Include:

- connectives, intensifiers and time expressions
- at least one 'we' form verb
- a sentence with two tenses in it.

SKILLS

Checking written work

When you check your written work, remember to look for:

- spelling and accents
- endings on articles (un/una/unos/unas)
- verb endings and tenses (canto/me gusta cantar/ voy a cantar)
- adjective endings (antiguo/antigua/ antiguos/antiguas)