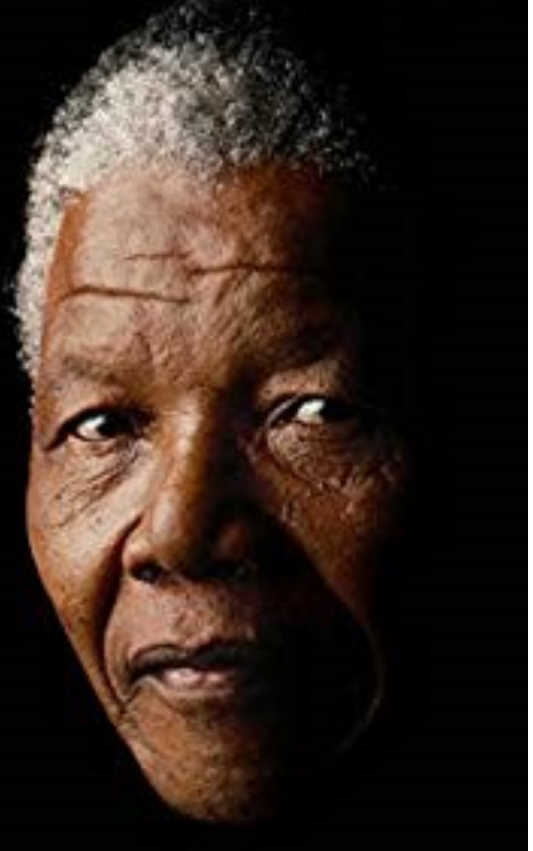




THE WELLS ACADEMY

“Education is the Most
Powerful weapon
which you can use to
change the world.”

Nelson Mandela



Year 11 Tutorial booklet 2020/21—Half Term 1

Name: _____

Tutor: _____



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Tutorial schedule

2020/21 - Half term 1



Day	Date	#	Subject	Content
Friday	04.09.20	Introduction to tutorials—Expectations & standards		
Saturday	05.09.20			
Sunday	06.09.20			
Monday	07.09.20	No tutorial		
Tuesday	08.09.20	1	English	<i>Presentation of Scrooge</i>
Wednesday	09.09.20	2	Science	<i>Animals and Plant cells</i>
Thursday	10.09.20	3	Maths	<i>Expanding a single bracket</i>
Friday	11.09.20	4	English	<i>Scrooge's view of the poor</i>
Saturday	12.09.20			
Sunday	13.09.20			
Monday	14.09.20	No tutorial		
Tuesday	15.09.20	5	Science	<i>Bacterial cells</i>
Wednesday	16.09.20	6	Maths	<i>Expand and simplify two single brackets</i>
Thursday	17.09.20	7	English	<i>Dicken's use of imagery</i>
Friday	18.09.20	8	Science	<i>Specialised cells</i>
Saturday	19.09.20			
Sunday	20.09.20			
Monday	21.09.20	No tutorial		
Tuesday	22.09.20	9	Maths	<i>Expanding double brackets</i>
Wednesday	23.09.20	10	English	<i>The Ghost of Christmas past</i>
Thursday	24.09.20	11	Science	<i>Microscopes and magnification</i>
Friday	25.09.20	12	Maths	<i>Substitution</i>
Saturday	26.09.20			
Sunday	27.09.20			
Monday	28.09.20	No tutorial		
Tuesday	29.09.20	13	English	<i>Scrooge's growth</i>
Wednesday	30.09.20	14	Science	<i>Tissues, organs and systems</i>
Thursday	01.10.20	15	Maths	<i>Finding the Nth term</i>
Friday	02.10.20	16	English	<i>The Ghost of Christmas present</i>
Saturday	03.10.20			
Sunday	04.10.20			
Monday	05.10.20	No tutorial		
Tuesday	06.10.20	17	Science	<i>Pathogens and disease</i>
Wednesday	07.10.20	18	Maths	<i>Using the Nth term</i>
Thursday	08.10.20	19	English	<i>Ignorance and Want</i>
Friday	09.10.20	20	Science	<i>Photosynthesis</i>
Saturday	10.10.20			
Sunday	11.10.20			
Monday	12.10.20	No tutorial		
Tuesday	13.10.20	21	Maths	<i>Index Laws</i>
Wednesday	14.10.20	22	English	<i>Social class in the novella</i>
Thursday	15.10.20	23	Science	<i>Respiration</i>
Friday	16.10.20	24	Maths	<i>Rounding</i>



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Expectations and purpose of Year 11 tutorials



What is the purpose of the tutorial sessions?

Each tutorial session provides a high quality 25 minute revision session which will ensure that everyone has a firm grasp and understanding of the key knowledge, skills and methods which are required to be successful in your exams in **Maths, English & Science**. The sessions are designed to help you learn or practise in areas which will support you improving your GCSE grade in these core subjects.

Over the year these sessions will provide **50 hours** of additional revision, support and intervention which is the **equivalent of an extra two weeks of school**.

But remember the amount of effort, work and focus you give to these sessions will impact on your future and that of your future families. So *make it count, make them proud* and go on to '**Achieve Greatness**'.

Tutorial Expectations

- Always try your best
- Respect others in the room
- Always sit in your designated seat
- Put your hand up if help is required
- Remain quiet unless otherwise instructed
- Remain in your seat throughout the session
- Respect the presentation of your booklet and use it for revision
- Walk straight to your seat and begin the starter



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Tutorial #1—English Literature

ACC: Presentation of Scrooge



The Learning Journey

How is Scrooge presented at the beginning of the novella?

TASK 1: State three words to describe Scrooge and reasons for this. (AO1)

Word	Reason
Ignorant	Scrooge does not know how poor people, such as Bob Cratchit, live. He is

TASK 2: Annotate the extract below, making inferences about Scrooge.(AO1)

This extract is from **Stave One of *A Christmas Carol***. At this point in the novel, the narrator is describing Scrooge as he makes his way to his counting house.

Oh! But he was a tight-fisted hand at the grind-stone, Scrooge! a squeezing, wrenching, grasping, scraping, clutching, covetous¹, old sinner! Hard and sharp as flint, from which no steel had ever struck out generous fire; secret, and self-contained, and solitary as an oyster. The cold within him froze his old features, nipped his pointed nose, shrivelled his cheek, stiffened his gait²; made his eyes red, his thin lips blue and spoke out shrewdly³ in his grating voice. A frosty rime⁴ was on his head, and on his eyebrows, and his wiry chin. He carried his own low temperature always about with him; he iced his office in the dogdays⁵; and didn't thaw it one degree at Christmas.

¹ Greedy

² Walk, posture

³ Sharply

⁴ Ice, frost

⁵ Hottest day of the



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Tutorial #1—English Literature

ACC: Presentation of Scrooge



TASK 3: Independently annotate the extract below, making inferences about Scrooge. (AO1)

1. Remember your knowledge of Scrooge.
2. Identify key phrases that help us understand Scrooge more
3. Combine your knowledge and key phrase to explain further ideas of the character.

External heat and cold had little influence on Scrooge. No warmth could warm, no wintry weather chill him. No wind that blew was bitterer than he, no falling snow was more intent⁶ upon its purpose, no pelting rain less open to entreaty⁷. Foul weather didn't know where to have him. The heaviest rain, and snow, and hail, and sleet, could boast of the advantage over him in only one respect. They often "came down" handsomely, and Scrooge never did.

Nobody ever stopped him in the street to say, with gladsome looks, "My dear Scrooge, how are you? When will you come to see me?" No beggars implored⁸ him to bestow⁹ a trifle, no children asked him what it was o'clock, no man or woman ever once in all his life inquired the way to such and such a place, of Scrooge. Even the blind men's dogs appeared to know him; and when they saw him coming on, would tug their owners into doorways and up courts; and then would wag their tails as though they said, "No eye at all is better than an evil eye, dark master!"



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Tutorial #1—English Literature

Independent Task



Get Started: List synonyms for the terms ‘selfish’ and ‘spiteful’.

selfish

spiteful

Based on the extracts explored in the tutorial, respond to the question below.

Independent Task: How is Scrooge presented as a **selfish** and **spiteful** character at

Success Criteria

1. State why Scrooge is selfish and/or spiteful in the extracts.
2. Include a reference from the extracts that supports your idea.
3. Explain in detail what the reference suggests about Scrooge’s character.
4. State if this presentation of Scrooge is supported or contradicted in another area of the novella.



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Tutorial #1—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #2—Science

Animal and Plant Cells



Complete the starter questions in the boxes below:

1) Circle the structures you would expect to find in an animal cell

STARCH CYTOPLASM
NUCLEUS BLOOD
CELL MEMBRANE
MITOCHONDRIA WATER
RIBOSOME FAT

2) List the main structures you would expect to find in a plant cell

3) List the structures that you **ONLY** find in plant cells

What are we learning/revisiting today?

How to draw and label a plant and animal cell, and the function of the organelles found in them

TASK 1 : Draw an animal cell and label it

TASK 2: Draw a plant cell and label it



Tutorial #2– Science

Animal and Plant Cells



TASK 3: Why is the mitochondria so important to a cell?

Ext: In what type of cell would you find a lot of mitochondria? Why?

TASK 4: In which cells are the different organelles

Organelle	Type of Cell		
	Plant	Animal	Found in both
Cell Wall			
Cell			
Nucleus			
Mitochondria			
Ribosome			
Chloroplast			
Vacuole			

TASK 5: Describe the functions of the organelles

Organelle	Function
Cell Wall	
Cell Membrane	
Nucleus	
Mitochondria	
Ribosome	
Chloroplast	
Vacuole	

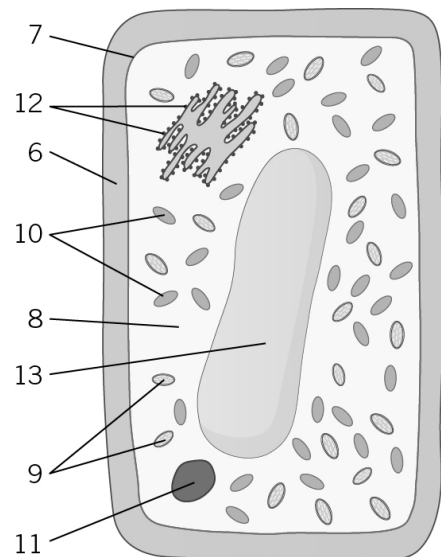
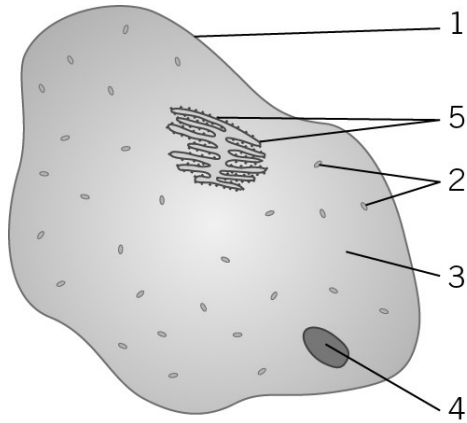


Tutorial #2– Science

Independent Task



Label each cell diagram correctly



Name the three different organelles that are found in a plant cell but not an animal cell

What is the function of :

- A) Cell wall
- B) Cell membrane
- C) Nucleus
- D) Ribosomes
- E) Chloroplasts



Tutorial #2– Science

Animal and Plant Cells



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #3 - Mathematics

Expanding a Single Bracket



Complete the starter questions in the boxes below:

Question 1 What is the 9th multiple of 8?	Question 2 List all the factor of 23.	Question 3 Calculate 37×23	Question 4 Calculate $4.2 + 2.93$
---	---	--	--

What are we learning today?

How to expand single brackets using foil or grid method.

Expand $5(x + 2)$

Expand $7(3x - 2)$

Expand $x(x + 7)$

Expand $4x(5x - 7)$



Tutorial #3 - Mathematics

Expanding a Single Bracket



Key points:

Expand

$$5(x + 9)$$

$$4(y - 3)$$

$$2(3x + 7)$$

$$3(5x - 4)$$

Expand

$$x(a - x)$$

$$5x(2x + 6)$$

$$3y(a + 5y)$$



Tutorial #3 - Mathematics

Expanding a Single Bracket



Independent Study Task

Question 1: Expand the following brackets

(a) $5(y + 3)$

(b) $4(a + 2)$

(c) $8(w + 10)$

(d) $3(x - 7)$

Question 2: Expand the following brackets

(a) $-2(w + 5)$

(b) $-3(c + 7)$

(c) $-8(c + 7)$

(d) $-10(y - 2)$

Question 3: Expand the following brackets

(a) $a(c + 2)$

(b) $c(d - 3)$

(c) $a(b + c)$

(d) $w(8 - y)$

Question 4: Expand the following brackets

(a) $a(a + 2)$

(b) $y(y - 5)$

(c) $w(a + w)$

(d) $c(9 - c)$



Tutorial #3 - Mathematics

Expanding a Single Bracket



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #4—English Literature

ACC: Scrooge's view of the poor



The Learning Journey

How does Scrooge's character reflect Victorian attitudes towards wealth and the poor?

TASK 1: Circle if the statements are true or false. (AO3b)

a) Victorian prisons were focused on rehabilitation and helped people to learn from their mistakes.

TRUE/FALSE

b) In Victorian times, prisoners were made to do hard labour such as picking oakum or walking a tread wheel.

TRUE/FALSE

c) The 'Poor Law Amendment Act' (1834) reduced the amount of money going to the poor which meant that poor people had to earn their money in a work house.

TRUE/FALSE

d) Children did not have to go to prison and were sent to orphanages instead.

TRUE/FALSE

e) In Victorian times, people in debt could be sent to prison.

TASK 2: Identify phrases that reveal Scrooge's attitude towards wealth and the poor. (AO1)

The extract below is from stave 1 of 'A Christmas Carol'. At this point in the novella, the narrator is describing Scrooge and Bob Cratchit's working conditions.

The door of Scrooge's counting-house was open that he might keep his eye upon his clerk, who in a dismal little cell beyond, a sort of tank, was copying letters. Scrooge had a very small fire, but the clerk's fire was so very much smaller that it looked like one coal. But he couldn't replenish it, for Scrooge kept the coal-box in his own room; and so surely as the clerk came in with the shovel, the master predicted that it would be necessary for them to part. Wherefore the clerk put on his white comforter, and tried to warm himself at the candle; in which effort, not being a man of a strong imagination, he failed.



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Tutorial #4—English Literature

ACC: Scrooge's view of the poor



TASK 3: Read the extract below and identify key phrases that reveal Scrooge's attitude towards wealth and the poor. (AO1)

This extract is from Stave One of *A Christmas Carol*. At this point in the novel, two charity workers have arrived to ask Scrooge for a donation.

"At this festive season of the year, Mr. Scrooge," said the gentleman, taking up a pen, "it is more than usually desirable that we should make some slight provision¹ for the Poor and Destitute², who suffer greatly at the present time. Many thousands are in want of common necessities; hundreds of thousands are in want of common comforts, sir."

"Are there no prisons?" asked Scrooge.

"Plenty of prisons," said the gentleman, laying down the pen again.

"And the Union workhouses?" demanded Scrooge. "Are they still in operation?"

"They are. Still," returned the gentleman, "I wish I could say they were not."

"The Treadmill and the Poor Law are in full vigour, then?" said Scrooge.

"Both very busy, sir."

"Oh! I was afraid, from what you said at first, that something had occurred to stop them in their useful course," said Scrooge. "I'm very glad to hear it."

"Under the impression that they scarcely³ furnish Christian cheer of mind or body to the multitude⁴," returned the gentleman, "a few of us are endeavouring⁵ to raise a fund to buy the Poor some meat and drink and means of warmth. We choose this time, because it is a time, of all others, when Want is keenly felt, and Abundance rejoices. What shall I put you down for?"

"Nothing!" Scrooge replied.

To 'Achieve Greatness': Relate your inferences to Victorian context.



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Tutorial #4—English Literature



Independent Task

Get Started: The extract below is from a critical essay about ‘A Christmas Carol’ by L Montgomery. Highlight key information relating to Dickens’ views on society through the presentation of Scrooge. (AO1)

Scrooge’s miserliness is symptomatic for Dickens of the way in which his society ignored, exploited, and abused its poorest and most vulnerable members. Scrooge’s objection to charitable donations in the opening of A Christmas Carol exemplifies this idea. Scrooge dismisses the poor as “surplus population” which was a phrase coined by the laissez-faire economist Thomas Robert Malthus, who represented a “hands-off” school of thought to which Dickens objected.

Based on the extracts explored in the tutorial, respond to the question below.

Independent Task: “Scrooge does not care about the difficulties poor people face. He considers them a burden on society.” To what extent do you agree?

Success Criteria

1. State if you think Scrooge cares about the difficulties poor people face and why.
2. Include a reference from an extract to support your idea.
3. Explain if your reference shows that Scrooge considers poor people a burden on society.
4. Use contextual information to explain possible reasons for his attitude and views on poor people.



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Tutorial #4—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #5—Science



Bacterial Cells

Complete the starter questions in the boxes below:

1) Put the following into order of largest to smallest

BUS ANT CAT WHALE
BACTERIA PLANT HUMAN

2) If bacteria can multiply themselves every 20 minutes, how many would you have after 2 hours if you started with 1?

3) How do plants make their own food?

Write the word equation

Ext: Write the chemical symbol equation

What are we learning/revisiting today?

How to draw and label a BACTERIAL CELL, and the differences between a eukaryote and prokaryote cell

Draw a bacterial cell and label it



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Tutorial #5– Science

Bacterial Cells



What is the difference between a EUKARYOTE cell and a PROKARYOTE cell?

Ext: Give an example of each

Where would you find the following organelles?

Organelle	Type of Cell		
	Plant	Animal	Bacterial
Cell Wall			
Cell			
Nucleus			
Plasmids			
Ribosome			
Cytoplasm			
Flagella			

Describe the functions of the different organelles

Organelle	Function
Cell Wall	
Cell Membrane	
Plasmid	
Flagella	
Slime Capsule	
Chloroplast	
Vacuole	



Tutorial #5– Science

Independent Task



Task 1—Answer the following exam style question

Bacterial cells are prokaryotic cell

Recall the typical structures in a prokaryotic cell and describe the function of each of the structures. (6)

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Tutorial #5– Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #6—Mathematics

Expand & Simplify Two Single Brackets



Complete the starter questions in the boxes below:

Question 1 Simplify $5a \times 4b$	Question 2 Simplify $4a \times 3a$	Question 3 Simplify $5a + 3b + 2a + 11b$	Question 4 Simplify $7a + 3b - 2a - 8b$
---	---	---	--

What are we learning today?

How to collect like terms after expanding brackets.

Expand & Simplify

$$5(y + 3) + 3(2y + 7)$$

Expand & Simplify (We need to be VERY CAREFUL)

$$9(a + 3) - 4(a - 7)$$

By expanding and simplifying find the values of a and b in

$$5(x + 3) + 2(x + b) = ax + 21$$



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Tutorial #6—Mathematics

Expand & Simplify Two Single Brackets



Key points:

Expand & Simplify

$$4(y + 2) + 3(y + 11)$$

$$2(3x + 8) + 4(2x + 1)$$

$$7(a + 5) + 4(a - 3)$$

$$12(b + 4) - 3(b - 2)$$

Extension

By expanding and simplifying find the values of a and b in

$$8(x + 2) + 3(x + b) = ax + 10$$



Tutorial #6—Mathematics

Expand & Simplify Two Single Brackets



Independent Study Task

Question 1 Expand & simplify the following

(a) $5(y + 3) + 2(y + 7)$

(b) $6(2w + 5) + 9(w + 2)$

(c) $3(y - 2) + 4(2y + 5)$

(d) $7(2g + 3) - 5(g + 2)$

(e) $6(x - 2) - 4(x - 8)$

(f) $2(3y - 8) - 5(2y - 1)$

(g) $8(5 + 2m) + 3(5 - 3m)$

(h) $4(w + 7) - 2(2w + 1)$

(i) $9(1 + 2y) + 3(3 - y)$

Question 2 Expand & Simplify the following

(a) $w(w + 5) + w(w + 7)$

(b) $2g(4g + 3) + g(g - 7)$

(c) $n(n - 4) - n(5 - n)$

(d) $2e(4e + 3) - 3e(e - 5)$

(e) $a(3 + c) + c(a + 2)$

(f) $m(a + 7) - a(4 - 3m)$

(g) $8c(8 - 3a) + 3(4 - c)$

(h) $5y(3y + z) - 2y(4y - 3z)$

(i) $4c(3c - c^2) - 2c^2(4 - 5c)$



Tutorial #6—Mathematics

Expand & Simplify Two Single Brackets



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #7—English Literature

ACC: Dickens' use of imagery



The Learning Journey

How does Dickens use imagery to create mood and character?

TASK 1: Match the definitions to the examples. (AO2)

Simile

'...spoke out shrewdly in his grating voice'

Metaphor

'Old Marley was dead as a door-nail.'

Personification

'...hard and sharp as a flint'

Onomatopoeia

'It was cold, bleak, biting weather'

Alliteration

'Clash, clang, hammer; ding, dong, bell. Bell, dong, ding; hammer, clang, clash'

Sibilance

'...he iced his office in his dog-days'

TASK 2: Identify key phrases and methods used in the extract below and state what it might highlight or emphasise. (AO2)

This extract is from Stave One of *A Christmas Carol*. At this point in the novel, Scrooge has refused to give money to charity and is on his way home.

Seeing clearly that it would be useless to pursue their point, the gentlemen withdrew. Scrooge resumed his labours with an improved opinion of himself, and in a more facetious¹ temper than was usual with him.

Meanwhile the fog and darkness thickened so, that people ran about with flaring links, proffering² their services to go before horses in carriages, and conduct them on their way. The ancient tower of a church, whose gruff old bell was always peeping slyly down at Scrooge out of a Gothic window in the wall, became invisible, and struck the hours and quarters in the clouds, with tremulous³ vibrations afterwards as if its teeth were chattering in its frozen head up there.

¹ To treat serious issues with deliberately inappropriate humour

² Offering or giving

³ Trembling or shy





Tutorial #7—English Literature

ACC: Dickens' use of imagery



TASK 3: Identify key phrases and methods used by Dickens and explain what they **mirror, highlight, emphasise or contrast.** (AO2)

The cold became intense. In the main street, at the corner of the court, some labourers were repairing the gas-pipes, and had lighted a great fire in a brazier⁴, round which a party of ragged men and boys were gathered: warming their hands and winking their eyes before the blaze in rapture⁵. The water-plug being left in solitude, its overflowings sullenly congealed⁶, and turned to misanthropic⁷ ice. The brightness of the shops where holly sprigs and berries crackled in the lamp heat of the windows, made pale faces ruddy as they passed. Poulterers'⁸ and grocers' trades became a splendid joke: a glorious pageant⁹, with which it was next to impossible to believe that such dull principles as bargain and sale had anything to do. The Lord Mayor, in the stronghold of the mighty Mansion House, gave orders to his fifty cooks and butlers to keep Christmas as a Lord Mayor's household should; and even the little tailor, whom he had fined five shillings on the previous Monday for being drunk and bloodthirsty in the streets, stirred up tomorrow's pudding in his garret, while his lean wife and the baby sallied¹⁰ out to buy the beef.

To 'Achieve Greatness': Explain what the extract above indicates about the following:

- A) The Victorian labourers
- B) The shops

⁴ Stove

⁵ Joy

⁶ Frozen

⁷ Distrustful, cynical

⁸ Someone who sells poultry (chicken, pigeon, pheasant, quail)

⁹ Show



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Tutorial #7—English Literature

Independent Task



Get Started: Identify the methods used in the extract below. (AO2)

Marley's face. It was not in impenetrable¹ shadow as the other objects in the yard were, but had a dismal² light about it, like a bad lobster in a dark cellar. It was not angry or ferocious, but looked at Scrooge as Marley used to look: with ghostly spectacles turned up on its ghostly forehead. The hair was curiously stirred, as if by breath or hot air; and, though the eyes were wide open, they were perfectly motionless. That, and its livid colour, made it horrible; but its horror seemed to be in spite of the face and beyond its control, rather than a part or its own expression.

Use the extract above to respond to the question below.

Independent Task: How does Dickens use methods to describe Marley's ghost in an unsettling and disturbing way?

Success Criteria

1. State why Marley's ghost appears unsettling and disturbing to the reader.
2. Include a reference from the extract.
3. Explain what the reference suggests about Marley's character.
4. Refer to another relevant event in the novella that supports or challenges your ideas about Marley.



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Tutorial #7—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #8—Science

Specialised Cells



TASK 1 : Complete the starter questions in the boxes below:

1) Circle the organelles that are found in an animal cell

NUCLEUS SAND CYTOPLASM
CELL WALL CELL MEMBRANE
CHLOROPLASTS PLASMID
SPATULA MITOCHONDRIA

2) If a plant did not contain any chloroplasts what would happen to it?

Why would it be a problem?

3) What is the function of a plasmid in bacterial cells

What are we learning/revisiting today?

How to draw and label specialised cells, and their function

TASK 2: Draw a sperm cell and label it

TASK 3: Draw a Root hair cell and label it



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Tutorial #8– Science

Specialised Cells



Describe the features that you would look for to decide on the function of an unknown specialised animal cell

TASK 4: Where would you find the following cells

Type of cell	Where would you find it		
	Animal	Plant	Both
Egg			
Sperm			
Red Blood Cell			
White Blood Cell			
Fat Cell			
Muscle Cell			
Nerve Cell			
Root Hair Cell			

Describe the adaptations of the different cells

Cell	Adaptation
Egg	
Sperm	
Red Blood Cell	
White blood cell	
Fat cell	
Muscle cell	
Nerve Cell	
Root Hair cell	



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Tutorial #8– Science

Independent Task



Task 1 - Complete the following table about specialised cells

Type of cell	Function	Special features/adaptations
Nerve cell		
Sperm cell		
Ciliated epithelial cell		
Muscle cell		
Red blood cell		
Palisade cell		



Tutorial #8– Science



Quick Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #9—Mathematics

Expanding Double Brackets



Complete the starter questions in the boxes below:

Question 1 Calculate 73×23	Question 2 Expand $7(2x + 3)$	Question 3 Simplify $7x - 4 + 4x + 9$	Question 4 Simplify $a \times a \times a \times a$
--	--	--	---

What are we learning today?

How to expand and simplify 2 sets of brackets.

Expand & Simplify

$$(y + 3)(y + 7)$$

Expand & Simplify

$$(x + 5)(x - 8)$$

Expand & Simplify

$$(a - 3)(a - 2)$$

Expand & Simplify

$$(p + 4)(2p - 2)$$



Tutorial #9—Mathematics

Expanding Double Brackets



Key points:

Expand & Simplify

$$(x + 11)(x + 7)$$

$$(x + 7)(3x + 2)$$

$$(x + 10)(x - 5)$$

$$(y + 3)^2$$

$$(x - 5)(x - 4)$$



Tutorial #9—Mathematics

Expanding Double Brackets



Independent Study Task

Question 1: Expand and simplify

(a) $(w + 4)(w + 2)$ (b) $(y + 1)(y + 2)$ (c) $(c + 2)(c + 5)$

Question 2: Expand and simplify

(a) $(8 + x)(2 + x)$ (b) $(9 + y)(4 - y)$ (c) $(1 + y)(3 + y)$

Question 3: Expand and simplify

(a) $(y + 2)(y - 2)$ (b) $(w + 7)(w - 7)$ (c) $(a + 1)(a - 1)$

Question 4: Expand and simplify

(a) $(2c + 1)(2c + 3)$ (b) $(5x + 1)(2x + 5)$ (c) $(3w + 2)(w + 1)$



Tutorial #9—Mathematics

Expanding Double Brackets



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
			Score <input type="text"/>



Tutorial #10—English Literature

ACC: Ghost of Christmas Past



The Learning Journey

How do the descriptions of the ghosts reflect their characters?

TASK 1: Match the character names to the correct description. (AO1)

Fan	Scrooge's apprentice friend
Belle	Scrooge's old boss
Mr Fezziwig	Scrooge's ex-fiancé
Dick Wilkins	Scrooge's younger sister

To 'Achieve Greatness': Explain how you think each character had an impact on Scrooge's future self.

TASK 2: Identify key phrases describing the Ghost of Christmas Past and make inferences. (AO1)

It was a strange figure—like a child: yet not so like a child as like an old man, viewed through some supernatural medium, which gave him the appearance of having receded¹ from the view, and being diminished² to a child's proportions. Its hair, which hung about its neck and down its back, was white as if with age; and yet the face had not a wrinkle in it, and the tenderest bloom was on the skin. The arms were very long and muscular; the hands the same, as if its hold were of uncommon strength. Its legs and feet, most delicately formed, were, like those upper members, bare. It wore a tunic of the purest white; and round its waist was bound a lustrous³ belt, the sheen of which was beautiful. It held a branch of fresh green holly in its hand; and, in singular contradiction of that wintry emblem, had its dress trimmed with summer flowers. But the strangest thing about it was, that from the crown of its head there sprung a bright clear jet of light, by which all this was visible; and which was doubtless the occasion of its using, in its duller moments, a great extinguisher for a cap, which it now held under its arm.

Even this, though, when Scrooge looked at it with increasing steadiness, was *not* its strangest quality. For as its belt sparkled and glittered now in one part and now in another, and what was light one instant, at another time was dark, so the figure itself fluctuated⁴ in its distinctness: being now a thing with one arm, now with one leg, now with twenty legs, now a pair of legs without a head, now a head without a body: of which dissolving parts, no outline would be visible in the dense gloom wherein they melted away. And in the very wonder of this, it would be itself again; distinct and clear as ever.

¹ Withdrawn

² Reduced

³ Glossy, shiny

⁴ Varied, changed



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Tutorial #10—English Literature

ACC: Ghost of Christmas Past



TASK 3: State what the features of the ghost may indicate about his impact on Scrooge. (AO1)

a) 'like a child: yet not so like a child as like an old man' _____
_____.

b) 'face had not a wrinkle in it, and the tenderest bloom was on the skin' _____
_____.

c) 'The arms were very long and muscular; the hands the same, as if its hold were of uncommon strength' _____
_____.

d) 'It wore a tunic of the purest white; and round its waist was bound a lustrous belt' _____
_____.

e) 'It held a branch of fresh green holly in its hand; and, in singular contradiction of that wintry emblem, had its dress trimmed with summer flowers' _____
_____.

f) 'from the crown of its head there sprung a bright clear jet of light' _____
_____.

To 'Achieve Greatness': Explain what you think Dickens is trying to teach the reader about the past.



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Tutorial #10—English Literature

Independent Task



Get Started: Identify key phrases used to describe Marley in the extract below. (AO1)

The same face: the very same. Marley in his pigtail, usual waistcoat, tights and boots; the tassels on the latter bristling, like his pigtail, and his coat-skirts, and the hair upon his head. The chain he drew was clasped about his middle. It was long, and wound about him like a tail; and it was made (for Scrooge observed it closely) of cash-boxes, keys, padlocks, ledgers, deeds, and heavy purses wrought⁴ in steel. His body was transparent; so that Scrooge, observing him, and looking through his waistcoat, could see the two buttons on his coat behind.

Using the extract above, respond to the question.

Independent Task: What does the description of Marley reveal about his character?

Success Criteria

1. State what kind of person you think Marley is based on the description.
2. Include a reference from the extract to support your idea.
3. Explain what the reference shows about Marley’s life and death.
4. Explain what you think Dickens is trying to teach the reader through his description of Marley.



Tutorial #10—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #11—Science

Microscopes and magnification



TASK 1 : Complete the starter questions in the boxes below:

1) Which specialised cell transports oxygen around the bodies of animals?

2) Convert the following:

10 mm into cm

5 cm into m

25 m into km

1 m into mm

3) What is the adaptation of a root hair cell and how does this help the plants?

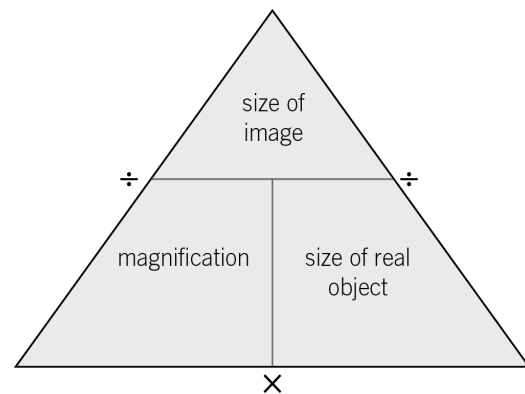
What are we learning/revisiting today?

How to label and focus a microscopes and magnification, how to calculate the size of an object

TASK 2: Label the microscope



TASK 3: Calculating the size of an object



Worked example:



Tutorial #11– Science

Microscopes and Magnification



TASK 4:

Size of image (mm)	Magnification	Size of real object (mm)
5	40	
10	1000	
12	60	
8	200	
15	500	

TASK 5: Compare the differences between microscopes

	Type of microscope	
	Light Microscope	Electron Microscope
What is its highest magnification?		
What is its resolving power?		
What is the type of radiation used to form an image?		
How has it helped scientific understanding of living things?		



Tutorial #11– Science

Independent Task



Task 1—Explain how to use a microscope to view an object

Blank area for writing the explanation of how to use a microscope to view an object.

Task 2—Calculate the magnification of the following objects:

Object	Image Size (mm)	Actual size (mm)	Magnification
E Coli	20	0.002	x
Yeast Cell	10	0.006	x
Blood cell	300	0.01	x
Pollen Grain	40	0.5	x
Hair	6	3.5	x



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Tutorial #11– Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #12—Mathematics



Substitution

Complete the starter questions in the boxes below:

Question 1 Expand & Simplify $(y + 8)(y + 9)$	Question 2 Expand & Simplify $5(2x + 3) + 3(3x - 5)$	Question 3 Work out $43 - 2 \times 2$	Question 4 Work out $2 \times 3 + 2 \times 5$
--	---	---	---

What are we learning today?

How to substitute numerical values into algebraic expressions.

Find the value of $5a + 3b$ when $a = 7$ and $b = 8$

Find the value of $2a + 5b$ when $a = 9$ and $b = -2$

Find the value of $4a - 7b$ when $a = 11$ and $b = -3$

Find the value of $3a^2 + 2b^3$ when $a = 5$ and $b = 2$



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Tutorial #12—Mathematics

Substitution



TASK 1

1) $y = 5x$

a) Work out the value of y when $x = 3$

b) Work out the value of y when $x = -2$

2) $y = 2x + 7$

a) Work out the value of y when $x = 4$

b) Work out the value of y when $x = -3$

3) $y = 2x + 4t$

a) Work out the value of y when $x = 6$ and $t = 1$

4) $y = 2a - 3b$

a) Work out the value of y when $a = 4$ and $b = -2$

5) $v = 3a + 5b$

a) Work out the value of v when $a = 6$ and $b = -3$

TASK 2

1) The following formula is used to work out the cost, £ C , of hiring a car for d days.

$$C = 18d + 50$$

Sue wants to hire a car for 5 days.

How much will this cost Sue?

2) Complete the table of values for

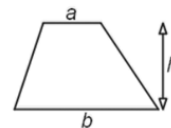
$$y = 2x + 1$$

x	-2	-1	0	1	2	3
y		-1			5	

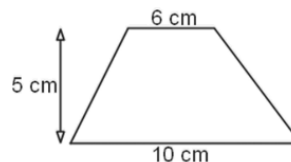
TASK 3

The area of a trapezium is given by the formula

$$A = \frac{1}{2}(a + b)h$$



Find the area of the trapezium shown in the diagram.





Substitution

Independent Study Task

Question 1: If $a = 7$ $b = 10$ $c = 3$ $d = 8$ and $e = 15$
Find the value of each expression.

- | | | | |
|-------------|-------------|-------------|-------------|
| (a) $a + 5$ | (b) $b - 4$ | (c) $c + d$ | (d) $e - d$ |
| (e) $2a$ | (f) $4b$ | (g) $3e$ | (h) $5c$ |

Question 2: If $f = 5$ $g = 6$ $h = 4$ and $i = 2$
Find the value of each expression.

- | | | | |
|----------------|---------------|---------------|---------------|
| (a) fg | (b) hi | (c) fgh | (d) i^3 |
| (e) \sqrt{h} | (f) $3f + 2g$ | (g) $5h + 7i$ | (h) $9h - 7i$ |

Question 3: If $a = -2$ $b = 5$ $c = -6$ $d = 10$ and $e = 9$
Find the value of each expression.

- | | | | |
|---------------|---------------|--------------|---------------|
| (a) $a + 4$ | (b) $b - 8$ | (c) $c + e$ | (d) $a - d$ |
| (e) $d - c$ | (f) $2c$ | (g) $7a$ | (h) $-7b$ |
| (i) $2d + 3c$ | (j) $6e + 3a$ | (k) $5a + 7$ | (l) $20 + 4a$ |

Exam Question

Work out the value of $3p + 4q$ when $p = 5$ and $q = -2$

.....

(2)



Tutorial #12—Mathematics



Substitution

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #13—English Literature



ACC: Scrooge's growth

The Learning Journey

How does Scrooge grow and develop as the novella progresses?

TASK 1: Explain what you think the following characters may symbolise or represent in the novella. (AO1)

a) The Ghost of Christmas Past _____

b) Little Fan _____

c) Fezziwig _____

d) Belle _____

TASK 2: Annotate the text, identifying phrases that show Scrooge is beginning to change. (AO1)

At this point in the novel, the Fezziwigs are hosting a party and everyone has been invited. Scrooge and the Ghost of Christmas Past are watching the festivities.

During the whole of this time, Scrooge had acted like a man out of his wits. His heart and soul were in the scene, and with his former self. He corroborated¹ everything, remembered everything, enjoyed everything, and underwent the strangest agitation. It was not until now, when the bright faces of his former self and Dick were turned from them, that he remembered the Ghost, and became conscious that it was looking full upon him, while the light upon its head burnt very clear.

'A small matter,' said the Ghost, 'to make these silly folks so full of gratitude.'

'Small.' echoed Scrooge.

The Spirit signed to him to listen to the two apprentices, who were pouring out their hearts in praise of Fezziwig: and when he had done so, said,

'Why. Is it not. He has spent but a few pounds of your mortal money: three or four perhaps. Is that so much that he deserves this praise.'

'It isn't that,' said Scrooge, heated by the remark, and speaking unconsciously like his former², not his latter³, self. 'It isn't that, Spirit. He has the power to render us happy or unhappy; to make our service light or burdensome⁴; a pleasure or a toil⁵. Say that his power lies in words and looks; in things so slight and insignificant that it is impossible to add and count them up: what then. The happiness he gives, is quite as great as if it cost a fortune.'

He felt the Spirit's glance, and stopped.



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Tutorial #13—English Literature



ACC: Scrooge's growth

TASK 3: Examine key phrases from the extract. Explain what they **imply** about Scrooge and how Scrooge's behaviour and views have changed since the beginning of the novella. (AO1)

Phrase from the extract	What it implies about Scrooge.	Explain how Scrooge has changed, using references

TASK 4: Construct an analytical paragraph, explaining how Scrooge has changed since the beginning of the novella. (AO1)



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Tutorial #13—English Literature



Independent Task

Independent Task: Using the extract below, summarise how Scrooge has changed since the beginning of the novella.

This extract is from the end of Stave 2 of ‘A Christmas Carol’. At this point of the novella, the Ghost of Christmas Past has taken Scrooge to see Belle and her family.

And now Scrooge looked on more attentively than ever, when the master of the house, having his daughter leaning fondly on him, sat down with her and her mother at his own fireside; and when he thought that such another creature, quite as graceful and as full of promise, might have called him father, and been a spring-time in the haggard winter of his life, his sight grew very dim indeed.

“Belle,” said the husband, turning to his wife with a smile, “I saw an old friend of yours this afternoon.”

“Who was it?”

“Guess!”

“How can I? Tut, don’t I know?” she added in the same breath, laughing as he laughed. “Mr. Scrooge.”

“Mr. Scrooge it was. I passed his office window; and as it was not shut up, and he had a candle inside, I could scarcely help seeing him. His partner lies upon the point of death, I hear; and there he sat alone. Quite alone in the world, I do believe.”

“Spirit!” said Scrooge in a broken voice, “remove me from this place.”

“I told you these were shadows of the things that have been,” said the Ghost. “That they are what they are, do not blame me!”

“Remove me!” Scrooge exclaimed, “I cannot bear it!”

He turned upon the Ghost, and seeing that it looked upon him with a face, in which in some strange way there were fragments of all the faces it had shown him, wrestled with it.

“Leave me! Take me back. Haunt me no longer!”

In the struggle, if that can be called a struggle in which the Ghost with no visible resistance on its own part was undisturbed by any effort of its adversary, Scrooge observed that its light was burning high and bright; and dimly connecting that with its influence over him, he seized the extinguisher-cap, and by a sudden action pressed it down upon its head.



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Tutorial #13—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #14—Science

Tissues, organs and systems



Complete the starter questions in the boxes below:

1) List the main structures you would find in a human cell


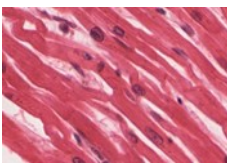


2) Describe what flagella are

3) Why are the nucleus and mitochondria so important to cells?

What are we learning/revisiting today?

How specialised cells become organised into tissues and how several different tissues work together to form an organ

TASK 1: Complete the following table

Cells		<i>e.g. muscle cells</i>	
Tissues		<i>e.g. muscle tissue</i>	
Organs		<i>e.g. the heart</i>	
Organ systems		<i>e.g. the circulatory system</i>	



Tutorial #14– Science

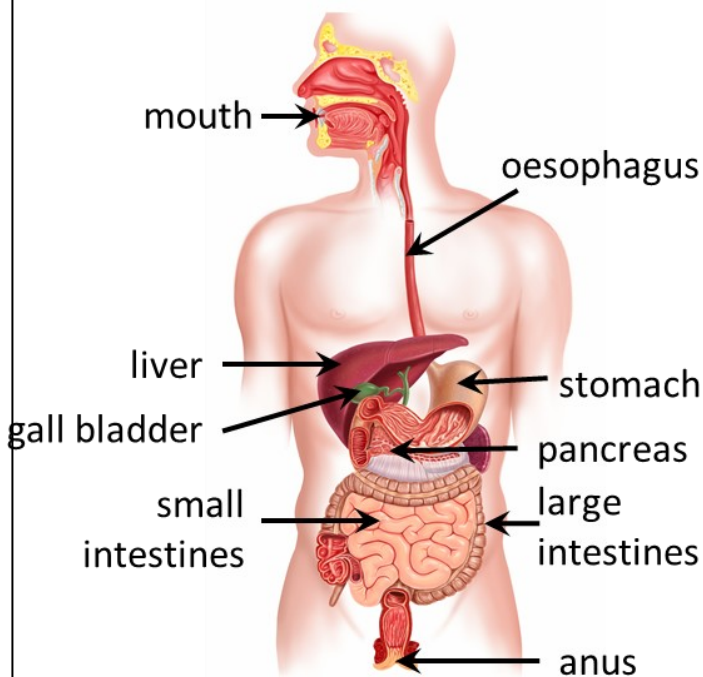
Tissues, organs and systems



TASK 2: Explain the difference between organs and organ systems

EXT: Give two examples

TASK 3: Describe how food travels through the body



TASK 4: Describe the functions of the different organs

Organ	Function
Mouth	
Oesophagus	
Stomach	
Pancreas	
Liver	
Small Intestine	
Large Intestine	
Anus	



Tutorial #14– Science Independent Learning



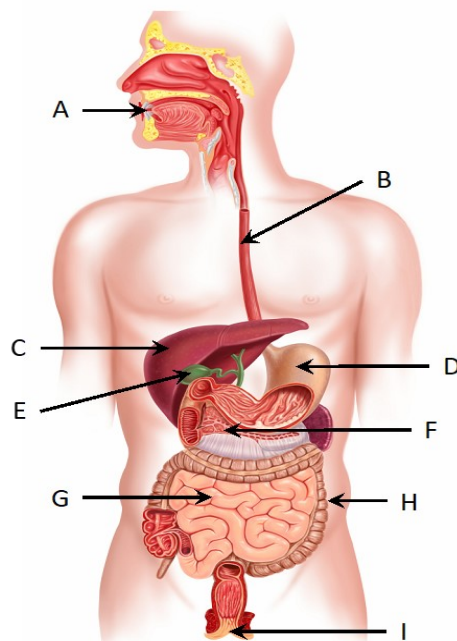
Task 1

Put the following in order of size from the smallest to the largest:

organ organism cell tissue organ system

Task 2

Name parts A - I of the digestive system from the diagram below:



Task 3

What is digestion?

Task 4

What is an enzyme?



Tutorial #14– Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #15—Mathematics



Finding the Nth Term

Complete the starter questions in the boxes below:

Question 1

Solve $x \times 12 = 84$

Question 2

Solve $13x - 3 = -16$

Question 3

How much change would you get from £10 if you spent £1.99 and £1.32?

Question 4

How much change would you get from £10 if you spent £1.95 and £0.64?

What are we learning today?

How to find the Nth term of a sequence

Ex 1. Here are the first 5 terms of an arithmetic sequence.

Find in terms of “n” an expression for nth term of this sequence.

3 7 11 15 19

Ex 2

3 9 15 21 27

Ex 3

8 10 12 14 16

Ex 4

17 12 7 2 -3



Tutorial #15—Mathematics

Finding the Nth Term



Key points:

TASK 1. Here are the first 5 terms of an arithmetic sequence.

Find in terms of “n” an expression for nth term of this sequence.

a) 1 3 5 7 9

b) 6 10 14 18 22

c) 1 4 7 10 13

d) 7 12 17 22 27

e) 11 14 17 20 23

f) 8 6 4 2 0

g) 8 5 2 -1 -4

h) 5 1 -3 -7 -11



Tutorial #15—Mathematics

Finding the Nth Term



Independent Study Task

Question 1: Find the n^{th} term for each of the following sequences

- | | | |
|--------------------------------|----------------------------|----------------------------|
| (a) 5, 8, 11, 14, | (b) 9, 14, 19, 24, | (c) 1, 3, 5, 7, |
| (d) 10, 14, 18, 22, | (e) 2, 7, 12, 17, | (f) 3, 9, 15, 21, |
| (g) 11, 31, 51, 71, | (h) 20, 23, 26, 29, | (i) 1, 7, 13, 19, |
| (j) 100, 125, 150, 175, | (k) 13, 22, 31, 40, | (l) 1.5, 2, 2.5, 3, |

Question 2: Find the n^{th} term for each of the following sequences

- | | | |
|-------------------------------|--------------------------------|----------------------------|
| (a) 10, 7, 4, 1, | (b) 6, 4, 2, 0, | (c) 9, 4, -1, -6, |
| (d) 20, 10, 0, -10, | (e) 5, -1, -7, -13, | (f) 5, 4, 3, 2, |
| (g) -6, -13, -20, -27, | (h) -10, -13, -16, -19, | (i) 2.5, 2, 1.5, 1, |

Exam Question

Here are the first five terms of a number sequence.

3 7 11 15 19

(a) Work out the 8th term of the number sequence.

.....
(1)

(b) Write down an expression, in terms of n , for the n^{th} term of the number sequence.

.....
(2)



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Tutorial #15—Mathematics

Finding the Nth Term



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #16—English Literature

ACC: Ghost of Christmas Present



TASK 1: Match the definitions to the examples. (AO2)

Declarative sentence

Imperative sentence

Exclamatory sentence

Interrogative sentence

“Look upon me!”

“Have you many brothers, Spirit?”

‘It was his own room.’

“Come in and know me better, man!”

To ‘Achieve Greatness’: Explain what the quotations above indicate about the Ghost of Christmas Present.

This extract is from Stave Three of *A Christmas Carol*. At this point in the novel, the Ghost of Christmas Present has arrived at Scrooge’s house.

It was his own room. There was no doubt about that. But it had undergone a surprising transformation. The walls and ceiling were so hung with living green, that it looked a perfect grove¹; from every part of which, bright gleaming berries glistened. The crisp leaves of holly, mistletoe, and ivy reflected back the light, as if so many little mirrors had been scattered there; and such a mighty blaze went roaring up the chimney, as that dull petrification² of a hearth³ had never known in Scrooge's time, or Marley's, or for many and many a winter season gone. Heaped up on the floor, to form a kind of throne, were turkeys, geese, game, poultry, brawn, great joints of meat, sucking-pigs, long wreaths of sausages, mince-pies, plum-puddings, barrels of oysters, red-hot chestnuts, cherry-cheeked apples, juicy oranges, luscious pears, immense twelfth-cakes, and seething⁴ bowls of punch, that made the chamber dim with their delicious steam. In easy state upon this couch, there sat a jolly Giant, glorious to see: who bore a glowing torch, in shape not unlike Plenty's horn, and held it up, high up, to shed its light on Scrooge, as he came peeping round

Word bank

Mirror, Highlight,
Emphasise, Contrast

¹ Orchard, wood, plantation

² Solidification, hardening

³ Fireplace

⁴ Boiling, bubbling



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Tutorial #16—English Literature

ACC: Ghost of Christmas Present



TASK 3: Examine how Dickens has used methods to present the Ghost of Christmas Present as compassionate. (AO2)

Scrooge entered timidly, and hung his head before this Spirit. He was not the dogged Scrooge he had been; and though the Spirit's eyes were clear and kind, he did not like to meet them.

“I am the Ghost of Christmas Present,” said the Spirit. “Look upon me!”

Scrooge reverently did so. It was clothed in one simple green robe, or mantle, bordered with white fur. This garment hung so loosely on the figure, that its capacious breast was bare, as if disdainful to be warded or concealed by any artifice. Its feet, observable beneath the ample folds of the garment, were also bare; and on its head it wore no other covering than a holly wreath, set here and there with shining icicles. Its dark brown curls were long and free: free as its genial face, its sparkling eye, its open hand, its cheery voice, its unconstrained demeanour, and its joyful air. Girded round its middle was an antique scabbard; but no sword was in it, and the ancient sheath was eaten up with rust.

To ‘Achieve Greatness’: Explain what you think the ‘scabbard but no sword’ symbolises.



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Tutorial #16—English Literature

Independent Task



Get Started: Identify key phrases and methods used in the extract below. (AO2)

Again the Ghost sped on, above the black and heaving sea -- on, on -- until, being far away, as he told Scrooge, from any shore, they lighted on a ship. They stood beside the helmsman³ at the wheel, the look-out in the bow, the officers who had the watch; dark, ghostly figures in their several stations; but every man among them hummed a Christmas tune, or had a Christmas thought, or spoke below his breath to his companion of some bygone⁴ Christmas Day, with homeward hopes belonging to it. And every man on board, waking or sleeping, good or bad, had had a kinder word for another on that day than on any day in the year; and had shared to some extent in its festivities; and had remembered those he cared for at a distance, and had known that they delighted to remember him.

Answer the question below, based on the extract above.

Independent Task: How does Dickens use methods to describe Christmas as a time for

Success Criteria

1. State an event in the extract that shows kindness and/or unity.
2. Include a reference from the extract to support your idea.
3. Explain what the reference suggests about Christmas time.
4. State the method used in your reference.
5. Explain what the method mirrors, highlights, emphasises or contrasts about ideas of kindness and



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Tutorial #16—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #17—Science

Pathogens and Disease



TASK 1 : Complete the starter questions in the box-

1) Can you name 5 different types of specialised cells?	2) What is the difference between a tissue and an organ?	3) When do animal cells start to differentiate? Is it the same for plants? Why?
---	--	---

What are we learning/revisiting today?
What pathogens are, how they cause disease and how they can spread

TASK 2: What do the following mean?

Key Word	Definition
Pathogen	
Bacteria	
Virus	
Fungi	
Communicable	

TASK 3: How do our bodies protect us?

Part of body	Defence mechanism
Nose	
Trachea and bronchus (respiratory system)	
Stomach acid	
Skin	



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Tutorial #17– Science

Pathogens and Disease



TASK 4: Fill in the table

Pathogen	Disease	Symptoms	Method of transmission	Control of spread
Virus	<i>Measles</i>			
Virus	<i>HIV</i>			
Virus	<i>Tobacco mosaic virus</i>			
Bacteria	<i>Salmonella</i>			
Bacteria	<i>Gonorrhoea</i>			
Protists	<i>Malaria</i>			



Tutorial #17– Science Independent Learning



Task 1

What is the definition of a pathogen?

Task 2

List four types of micro-organism which can act as pathogens.

1.

2.

3.

4.

Task 3

Complete the table to describe one similarity and one difference between how bacteria and viruses act as pathogens.

Pathogen	Similarity	Difference
Bacteria		
Virus		

Task 4

Name and describe 3 ways the human body defends against the entry of pathogens.



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Tutorial #17– Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #18—Mathematics



Using the Nth Term

Complete the starter questions in the boxes below:

Question 1 Calculate the mean of these numbers 25, 13, 13, 5, 69	Question 2 Calculate the mean of these numbers 2, 5, 7, 2, 54	Question 3 Expand $3(11x + 1)$	Question 4 Expand $6x(11x - 1)$
--	---	--	---

What are we learning today?

How to generate a sequence from an Nth Term rule

Ex 1. The nth term of a number sequence is $5n + 3$.

Write down the first **three** terms of the sequence.

Ex 2 The nth term of a number sequence is $4n - 1$.

a) Write down the first **four** terms of the sequence and the **tenth** term.

b) is 205 in the sequence $4n - 1$

Ex 3 The nth term of a number sequence is n^2 .

Write down the **second** term and the **fifth** term of the sequence.

Ex 4 The nth term of a number sequence is $3n^2$.

Write down the **first** term and the **third** term of the sequence.



Tutorial #18—Mathematics

Using the Nth Term



Key points:

TASK 1

1. The n th term of a number sequence is $2n + 5$. Write down the first **three** terms of the sequence.
2. The n th term of a number sequence is $3n - 1$. Write down the first **four** terms of the sequence.
3. The n th term of a number sequence is $3n + 2$. Write down the first **four** terms of the sequence.
4. The n th term of a number sequence is $5n - 7$. Write down the first **four** terms of the sequence.
5. The n th term of a number sequence is $n^2 + 3$. Write down the first **three** terms of the sequence.
6. The n th term of a number sequence is $3n^2 - 1$.
 - a) Find the **first** term of this sequence.
 - b) Find the **third** term of this sequence.
7. The n th term of a number sequence is $n^2 + n$.
 - a) Find the **fifth** term of this sequence.
 - b) Find the **tenth** term of this sequence.
8. The n th term of a number sequence is $30 - n^2$.
 - a) Find the **third** term of this sequence.
 - b) Find the **fifth** term of this sequence.



Tutorial #18—Mathematics

Using the Nth Term



Independent Study Task

Find the **first 5 terms** of each linear sequence whose n^{th} term is:

a) $6n + 2$

b) $3n + 9$

c) $5n - 1$

d) $n + 5$

e) $4n - 3$

f) $8n + 11$

g) $9n - 6$

h) $5n$

i) $-3n + 24$

j) $-6n + 66$

k) $2.5n + 1$

l) $-7n + 50$

The n^{th} term for some sequences are given below.
Find the first 5 terms for each sequence.

(a) $5n + 3$

(b) $2n + 9$

(c) $3n - 2$

(d) $10n - 6$

(e) $9n + 10$

(f) $n + 8$

(g) $-7n + 20$

(h) $50 - 5n$

(i) $3.5n + 4$

Exam Question

A number sequence has n^{th} term $6n + 3$

(a) Write down the first four terms of this sequence.

1st term, 2nd term, 3rd term, 4th term

(3)

(b) Sara says that 1008 is a term in this sequence.

Explain why she is wrong.

.....

(1)



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Tutorial #18—Mathematics

Using the Nth Term



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #19—English Literature



ACC: Ignorance and Want

The Learning Journey

Why are Ignorance and Want significant in the novella?

TASK 1: State events in the novella that show Scrooge is ignorant or greedy. (AO1)

Ignorant (lacking knowledge and awareness)	Greedy (showing a selfish desire for wealth)

TASK 2: Identify key phrases and methods used to describe Ignorance and Want and state they suggest and the effect. (AO1 + AO2)**The extract below is from the end of Stave 3. At this point in the novella, Scrooge has noticed two children at the Ghost of Christmas Present’s feet.**

From the foldings of its robe, it brought two children; wretched¹, abject², frightful, hideous, miserable. They knelt down at its feet, and clung upon the outside of its garment.

“Oh, Man! look here. Look, look, down here!” exclaimed the Ghost.

They were a boy and girl. Yellow, meagre³, ragged, scowling, wolfish; but prostrate⁴, too, in their humility⁵. Where graceful youth should have filled their features out, and touched them with its freshest tints, a stale and shrivelled hand, like that of age, had pinched, and twisted them, and pulled them into shreds. Where angels might have sat enthroned, devils lurked, and glared out menacing. No change, no degradation⁶, no perversion⁷ of humanity, in any grade, through all the mysteries of wonderful creation, has monsters half so horrible and dread.

¹ shameful
² hopeless, horrible
³ skimpy, small
⁴ level
⁵ humble, shyness
⁶ poverty, filth
⁷ distortion, twisting



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Tutorial #19—English Literature



ACC: Ignorance and Want

TASK 3: Identify key phrases and methods in the extract below and state what they reveal about Ignorance and Want. (AO1 + AO2)

Scrooge started back, appalled. Having them shown to him in this way, he tried to say they were fine children, but the words choked themselves, rather than be parties to a lie of such enormous magnitude.

“Spirit! are they yours?” Scrooge could say no more.

“They are Man's,” said the Spirit, looking down upon them. “And they cling to me, appealing from their fathers. This boy is Ignorance. This girl is Want. Beware them both, and all of their degree, but most of all beware this boy, for on his brow I see that written which is Doom, unless the writing be erased. Deny it!” cried the Spirit, stretching out its hand towards the city. “Slander⁸ those who tell it ye! Admit it for your factious purposes, and make it worse! And bide the end!”

“Have they no refuge or resource?” cried Scrooge.

“Are there no prisons?” said the Spirit, turning on him for the last time with his own words. “Are there no workhouses?”

TASK 4: How are Ignorance and Want significant in the novella as a whole?

AO1	Dickens shows that
AO2	
AO3b	



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Tutorial #19—English Literature

Independent Task



Get Started: Identify key phrases and methods used to describe the Ghost of Christmas Yet-To-Come. (AO2)

THE Phantom slowly, gravely, silently, approached. When it came near him, Scrooge bent down upon his knee; for in the very air through which this Spirit moved it seemed to scatter gloom and mystery.

It was shrouded in a deep black garment, which concealed its head, its face, its form, and left nothing of it visible save one outstretched hand. But for this it would have been difficult to detach its figure from the night, and separate it from the darkness by which it was surrounded.

He felt that it was tall and stately¹ when it came beside him, and that its mysterious presence filled

Using the extract above, respond to the question below.

Independent Task: How is the description of the Ghost of Christmas Yet-To-Come significant?

Success Criteria

1. State what the description of the ghost suggests.
2. Include a reference from the extract to support your idea.
3. State the method used in the phrase you have identified.
4. Explain what the method mirrors, highlights, emphasises or contrasts about the ghost.



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Tutorial #19—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #20—Science

Photosynthesis



Complete the starter questions in the boxes below:

1) Circle the sub-atomic particles in an atom.

SHELLS	NUCLEUS
PROTONS	ALPHA
NEUTRONS	ELECTRONS
GAMMA	BETA

2) How many protons, neutrons and electrons in this sodium atom?



Protons:

Neutrons:

3) Match the scientist to the discovery.

Rutherford	Existence of neutrons.
Bohr	Electrons in shells.
Chadwick	Nuclear model of the atom.

What are we learning/revisiting today?

Photosynthesis—Word and balanced chemical equations

Limiting Factors

Required Practical

What does a plant require for photosynthesis to take place?

What are the factors affecting the rate of photosynthesis?

Limiting factor	How the rate is affected	Why is the rate affected	Graph to show



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Tutorial #20– Science

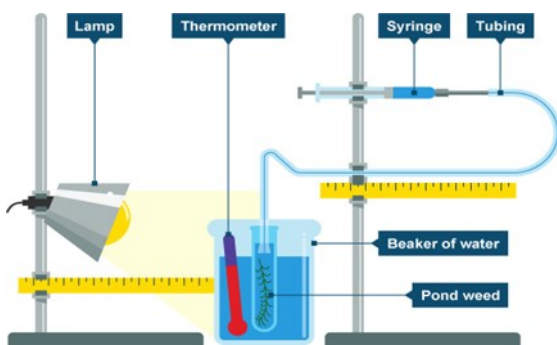
Photosynthesis



Task: What is the word equation for Photosynthesis?

Ext: What is the balanced chemical symbol equation for photosynthesis?

Required Practical—Measuring the rate of photosynthesis when light is the limiting factor



Method

Control Variables:

Independent Variable:

Dependent Variable:

EXT: Why would you use an LED light bulb and not a normal light bulb?

HIGHER ONLY : When light intensity is studied, doubling the distance between the lamp and the pondweed will reduce the light intensity by a quarter. This is called the INVERSE SQUARE LAW



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Tutorial #20 – Science

Independent Tasks



Task 1—Summarising Photosynthesis

1. What is the definition of photosynthesis?
2. What is the word equation of photosynthesis?
3. What is the balanced chemical symbol equation of photosynthesis?

Task 2—Limiting factors of photosynthesis

1. What is a limiting factor?
2. What are the 3 main limiting factors of photosynthesis? Describe what happens to the rate of photosynthesis and sketch the graphs
3. Give 3 ways in which a plant uses glucose



Tutorial #20 – Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #21—Mathematics



Index laws

Complete the starter questions in the boxes below:

Question 1 Calculate the mean 6, 2, 16, 4, 37	Question 2 Find the median 6, 19, 14, 7, 15	Question 3 Expand $6(5 + 11x)$	Question 4 Expand $4x(5 - 11x)$
---	---	--	---

What are we learning today?

What the first 4 laws of indices are

Index Law 1

Ex 1: $5^3 \times 5^4 = 5^{3+4} = 5^7$

Ex 2: $2^8 \times 2 = 2^{8+1} = 2^9$

Rule: $X^a \times X^b = X^{a+b}$

Index law 2

Ex 1: $4^7 \div 4^4 = 4^{7-4} = 4^3$

Ex 2: $3^6 \div 3 = 3^{6-1} = 3^5$

Ex 3: $\frac{13^6}{13^4} = 13^2$

Rule: $X^a \div X^b = X^{a-b}$

Index law 3

Ex 1: $(7^3)^4 = 7^{3 \times 4} = 7^{12}$

Ex 2: $(6^2)^5 = 6^{2 \times 5} = 6^{10}$

Rule: $(X^a)^b = X^{a \times b}$

Index law 4

Ex 1: $4^7 \div 4^7 = 4^{7-7} = 4^0 = 1$

Ex 2: $3^2 \times 3^4 \div 3^6 = 3^{2+4-6} = 3^0 = 1$

Rule: $X^0 = 1$



Tutorial #21—Mathematics

Index laws



Key points:

TASK 1

1). $4^3 \times 4^1 =$

2). $2^2 \times 2^4 =$

3). $8^3 \times 8^1 =$

4). $3^2 \times 3^4 =$

5). $5^3 \times 5^2 =$

6). $2^5 \times 2^2 =$

7). $2^4 \times 2^6 =$

8). $3^4 \times 3^5 =$

9). $3^2 \times 3^6 =$

10). $4^6 \times 4^5 =$

TASK 2

1). $9^4 \div 9^2 =$

2). $7^5 \div 7^3 =$

3). $5^3 \div 5^2 =$

4). $6^3 \div 6^1 =$

5). $2^5 \div 2^2 =$

6). $\frac{3^6}{3^4} =$

7). $\frac{5^6}{5^2} =$

8). $\frac{7^8}{7^4} =$

9). $\frac{12^9}{12^2} =$

10). $\frac{17^7}{17^1} =$

TASK 3

1). $(9^4)^2 =$

2). $(7^5)^6 =$

3). $(5^3)^2 =$

4). $(6^3)^3 =$

5). $(2^5)^2 =$

6). $(3^6)^3 =$

7). $(2^7)^5 =$

8). $(3^6)^5 =$

9). $(5^7)^4 =$

10). $(4^8)^3 =$

TASK 4

1). $9^0 =$

2). $7^0 =$

3). $5^0 =$

4). $x^0 =$

5). $a^0 =$

6). $3^6 \div 3^6 =$

7). $2^7 \div 2^7 =$

8). $a^5 \div a^5 =$

8). $4^3 \times 4^1 \div 4^4 =$

8). $3^2 \times 3^3 \div 3^5 =$

Extension

1). $2a^2 \times a^3 =$

2). $3a^2 \times a^4 =$

3). $c^3 \times 7c^3 =$

4). $b^3 \times 4b^2 =$

5). $5a^2 \times 4a^3 =$

6). $6b^2 \times 4b^3 =$

7). $5b^4 \times 3b^6 =$

8). $2c^5 \times 4c^7 =$

9). $3t^2 \times 4t^3 =$

10). $7a^2 \times 4a^7 =$

11). $5t^2 \times 7t^5 =$

12). $8y^4 \times 3y^4 =$



Independent Study Task

Question 1: Write as a single power of m.

- (a) $m^2 \times m^3$ (b) $m^3 \times m^3$ (c) $m^6 \times m^2$ (d) $m^7 \times m^3$ (e) $m^6 \times m^8$ (f) $m^2 \times m$ (g) $m \times m^3$
 (h) $m^7 \times m^8$ (i) $m^9 \times m^2$ (j) $m \times m^8$ (k) $m^6 \times m^5$ (l) $m^2 \times m^2 \times m^2 \times m^2$

Question 2: Write as a single power of n.

- (a) $n^5 \div n^2$ (b) $n^8 \div n^3$ (c) $n^9 \div n^2$ (d) $n^7 \div n^5$ (e) $n^3 \div n$ (f) $n^8 \div n$ (g) $n^7 \div n^4$
 (h) $n^9 \div n^3$ (i) $n^4 \div n^8$ (j) $n \div n^3$ (k) $n^{45} \div n^5$ (l) $n^3 \div n^3$

Question 3: Write as a single power of a.

- (a) $\frac{a^5}{a^2}$ (b) $\frac{a^9}{a^3}$ (c) $\frac{a^{10}}{a^2}$ (d) $\frac{a^7}{a}$
 (e) $\frac{a^{14}}{a^7}$ (f) $\frac{a^4}{a^4}$ (g) $\frac{a^3}{a^4}$ (h) $\frac{a^5}{a^9}$

Question 4: Write as a single power of y.

- (a) $(y^5)^2$ (b) $(y^3)^2$ (c) $(y^4)^3$ (d) $(y^5)^4$ (e) $(y^3)^6$ (f) $(y^7)^3$ (g) $(y^6)^6$
 (h) $(y^9)^2$ (i) $(y^4)^8$ (j) $(y^3)^{-5}$ (k) $(y^{-5})^2$

Question 5: Write as a single power of y.

- (a) $y^7 \times y^3$ (b) $y^9 \div y^7$ (c) $y^6 \div y^2$ (d) $(y^3)^5$ (e) $y^7 \div y$ (f) $y^3 \div y^7$ (g) $(y^9)^5$
 (h) $y^6 \times y^7$ (i) $y^6 \times y^5 \times y^2$ (j) $y^8 \times y \times y^3$ (k) $\frac{y^8}{y^5}$

Question 6: Write as a single power of x.

- (a) $(2x^3)^2$ (b) $(5x^6)^2$ (c) $(5x^5)^3$ (d) $(2x^3)^4$ (e) $(7x^5)^2$ (f) $(4x^7)^3$ (g) $(2x^6)^6$

Exam Questions

Simplify

$$\frac{m^9 \times m}{m^5}$$

.....
(2)

Simplify

$$2a^3c^3 \times 3a^2c$$

.....
(2)



Tutorial #21—Mathematics

Index laws



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #22—English Literature

ACC: Social class in the novella



The Learning Journey

Why is social class significant in the novella?

TASK 1: State 4 things the Ghost of Christmas Yet to Come shows Scrooge. (AO1)

-
-
-
-

TASK 2: Identify key phrases used to describe the business men and state what is reveals about them. (AO1 + AO2)

The extract below is from stave 4 of ‘A Christmas Carol’. At this point in the novella, the Ghost of Christmas Yet to Come is showing Scrooge a conversation between some business men.

The Spirit stopped beside one little knot of business men. Observing that the hand was pointed to them, Scrooge advanced to listen to their talk.

“No,” said a great fat man with a monstrous chin, “I don’t know much about it, either way. I only know he’s dead.”

“When did he die?” inquired another.

“Last night, I believe.”

“Why, what was the matter with him?” asked a third, taking a vast quantity of snuff out of a very large snuff-box. “I thought he’d never die.”

“God knows,” said the first, with a yawn.

“What has he done with his money?” asked a red-faced gentleman with a pendulous excrescence on the end of his nose, that shook like the gills of a turkey-cock.

“I haven’t heard,” said the man with the large chin, yawning again. “Left it to his company, perhaps. He hasn’t left it to *me*. That’s all I know.”



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Tutorial #22—English Literature

ACC: Social class in the novella



TASK 3: Explain how Dickens presents wealthy business men in stave 4 of ‘A Christmas Carol’.

AO1

AO2

AO3b

TASK 4: Identify key phrases used to describe the lower class and state what is reveals about them. (AO1 + AO2) **The extract below is from stave 4 of ‘A Christmas Carol. In this extract, the ghost has taken Scrooge to Old Joe’s beetling shop.**

They left the busy scene, and went into an obscure¹ part of the town, where Scrooge had never penetrated before, although he recognised its situation, and its bad repute². The ways were foul and narrow; the shops and houses wretched³; the people half-naked, drunken, slipshod, ugly. Alleys and archways, like so many cesspools⁴, disgorged⁵ their offences of smell, and dirt, and life, upon the straggling streets; and the whole quarter reeked with crime, with filth, and misery.

Far in this den of infamous resort, there was a low-browed⁶, beetling shop, below a pent-house roof, where iron, old rags, bottles, bones, and greasy offal, were bought. Upon the floor within, were piled up heaps of rusty keys, nails, chains, hinges, files, scales, weights, and refuse iron of all kinds. Secrets that few would like to scrutinise were bred and hidden in mountains of unseemly rags, masses of corrupted fat, and sepulchres⁷ of bones. Sitting in among the wares he dealt in, by a charcoal stove, made of old bricks, was a grey-haired rascal, nearly seventy years of age; who had screened himself from the cold air without, by a frousy⁸ curtaining of miscellaneous tatters, hung upon a line; and smoked his pipe in all the luxury of calm retirement.

Scrooge and the Phantom came into the presence of this man, just as a woman with a heavy bundle slunk into the shop. But she had scarcely entered, when another woman, similarly laden, came in too; and she was closely followed by a man in faded black, who was no less startled by the sight of them, than they had been upon the recognition of each other. After a short period of blank astonishment, in which the old man with the pipe had joined them, they all three burst into a laugh.



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Tutorial #22—English Literature



Mini Quiz

	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #23—Science

Respiration



Complete the starter questions in the boxes below:

1) Sketch an animal cell

2) List the different organelles in an animal cell

3) Name two specialised animal cells

1.

2.

What are the adaptations of them?

What are we learning/revisiting today?

Aerobic and Anaerobic respiration

Task 1 Definition of respiration:

Task 2: Why do we need respiration?

1.

2.

3.

Task 3 The equation for AEROBIC respiration is:



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Tutorial #23 – Science

Respiration



Task 4: What is Anaerobic respiration?

What is the equation for anaerobic respiration?

Task 5: Metabolism

What is the definition of metabolism?

Why do our bodies need to use metabolism?

What do our bodies use metabolism for?

1.

2.

3.

4.

EXT : How do our bodies get rid of lactic acid?



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Tutorial #23 – Science

Independent Tasks



Task 1—Aerobic Respiration

1. What is the definition of aerobic respiration?
2. Write the word equation for aerobic respiration
3. Write the chemical symbol equation for aerobic respiration
4. What type of cells contain lots of mitochondria? Give an explanation why

Task 2—Anaerobic respiration

1. What is the definition of anaerobic respiration?
2. Write the word equation for anaerobic respiration
3. When would your body need to use anaerobic respiration? Why?

Task 3—Describe an experiment to test the fitness levels of your classmates



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Tutorial #23– Science

Quick Quiz



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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Tutorial #24—Mathematics



Rounding

Complete the starter questions in the boxes below:

Question 1 Find 50% of £150	Question 2 Find 25% of £172	Question 3 Round 341 to the nearest 10	Question 4 Round 1043 to the nearest 100
---------------------------------------	---------------------------------------	--	--

What are we learning today?

How to round a number to one, two or three decimal places.

Ex 1. Round the following to one decimal place:

4.79

6.32

9.25

0.76

Ex 2. Round the following to two decimal places:

6.437

7.157

0.473

1.994

Ex 3. Round the following to three decimal places:

3.6916

4.0264

0.0246

0.9998



Tutorial #24—Mathematics

Rounding



Key points:

TASK 1. Round the following to one decimal place

$2.58 =$

$3.41 =$

$12.42 =$

$18.79 =$

$17.55 =$

$13.642 =$

$0.961 =$

$0.535126 =$

TASK 2. Round the following to two decimal places

$8.648 =$

$4.719 =$

$7.825 =$

$3.136 =$

$0.517 =$

$0.63221 =$

$1.949 =$

$8.9954 =$

TASK 3. Round the following to three decimal places

3.7123

3.4961

2.0907

5.379312

0.0049

0.1707

0.59952

0.999999

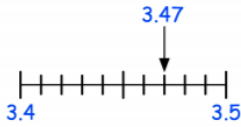


Rounding

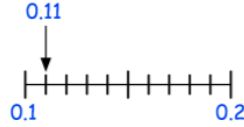
Independent Study Task

Question 1: Round each of the numbers below to 1 decimal place.

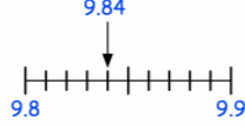
(a) 3.47



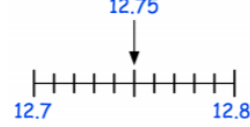
(b) 0.11



(c) 9.84



(d) 12.75

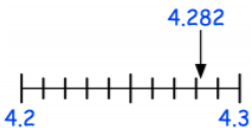


Question 2: Round each of the following numbers to 1 decimal place.

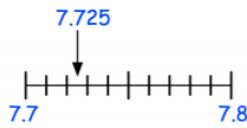
- (a) 4.82 (b) 6.19 (c) 9.77 (d) 10.63 (e) 21.41 (f) 3.14 (g) 48.18
 (h) 29.26 (i) 80.85 (j) 0.43 (k) 248.38 (l) 637.51 (m) 62.89 (n) 9.99

Question 3: Round each of the numbers below to one decimal place.

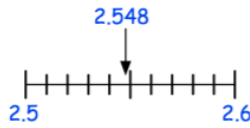
(a) 4.282



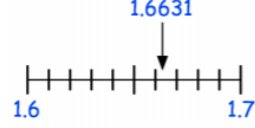
(b) 7.725



(c) 2.548



(d) 1.6631

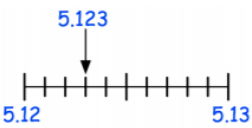


Question 4: Round each of the numbers below to the nearest tenth (1 decimal place)

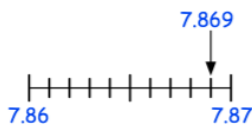
- (a) 5.191 (b) 8.246 (c) 10.087 (d) 39.555 (e) 0.831
 (f) 93.2941 (g) 38.3152 (h) 7.26229 (i) 0.54868696

Question 5: Round each of the numbers below to 2 decimal places.

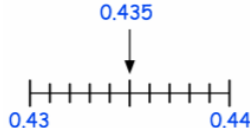
(a) 5.123



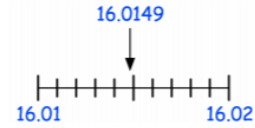
(b) 7.869



(c) 0.435



(d) 16.0149



Question 6: Round each of the numbers below to 2 decimal places

- (a) 3.487 (b) 2.613 (c) 1.984 (d) 10.046 (e) 8.155

Exam Questions

(a) Round the number 7.819 to one decimal place. (1)

(b) Round the number 7.819 to two decimal places. (1)



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Tutorial #24—Mathematics

Rounding



	<u>Question</u>	<u>Answer</u>	<u>Correct Answer</u>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Score



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***“Anyone can do something
when they want to do it.
Really successful people do
things when they don't want
to do it.***

- P. McGraw



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