



Year 9

Knowledge & Gwaith Cartref

Materials

AutumnTerm

2026-2027

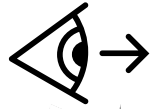
Name _____

Tutor group _____

HOW DO I USE MY KNOWLEDGE BOOKLET?

4 simple strategies to memorise information:

LOOK, COVER, WRITE, CHECK



1) LOOK at a box of information, a diagram, or the definition of a word.



2) COVER it up



3) WRITE down the information/definition or draw the diagram from memory.



4) CHECK your work and use a different colour pen to correct any mistakes.

Keep doing this until you get it completely right

FLASHCARDS

- 1) To make a flashcard, write a question on one side of a piece of paper/card, and the answer on the other.
- 2) Mix up your flashcards from different subjects.
- 3) Use them to quiz yourself or a friend.

The best flashcards are simple, numerous and overlapping.

Q: What is an integer?

A: A whole number.

Q: What is the mathematical word for a whole number?

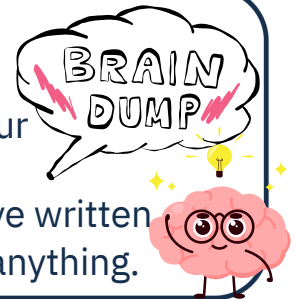
A: An integer.

FILL IN THE BLANKS

- 1) Copy out part of the Knowledge Booklet with key words, formula, dates, etc. missing.
- 2) Fill in the blanks without looking at the original.
e.g. 14th October ...10...6...6... : The Battle of ...H...a...sti...n.g.s

BRAIN DUMP

- 1) Without looking at it, write down everything you can remember from your Knowledge Booklet on a piece of paper.
- 2) When you're done, compare what you've written to the original to see if you've missed anything.



HOW TO USE QR CODES

- 1) Open the camera on your device.
- 2) Hold your device over a QR Code so that it's clearly visible within your screen.
- 3) The device will automatically scan the code and a pop-up will appear on your screen. Tap the pop up to open the link.



You will use your Knowledge Booklet consistently throughout the entire half term. It will play a crucial role in your lessons, homework, and revision. Your teachers will provide guidance on which sections to concentrate on at any given moment.

CWRE
RSE

If you see either of these acronyms (CWRE/RSE), this is what they mean:

CWRE: This task is giving you an opportunity to explore a job role or future career/job skill.

RSE: This task will be linked to relationships and sex education

CREATIVITY



YSGOL
AFON WEN
CREATIVITY
FACULTY



This page helps you understand the key skills and knowledge you will develop in this unit. Use it to support your work in lessons and Gwaith Cartref.

Key definitions and concepts

Term	Definition
Atmosphere	The mood or feeling of a story, often dark, mysterious or frightening.
Setting	The place where the story happens, often castles, old houses, graveyards, or isolated locations.
Supernatural	Things that cannot be explained by science, such as ghosts, curses or strange powers.
Suspense	A feeling of tension or excitement that makes the reader want to know what happens next.
Pathetic Fallacy	When the weather reflects the mood of the story, such as storm during scary or sad moments.
Symbolism	When an object, place or event represents a deeper meaning or idea. For example, darkness might symbolise fear.

Inference is working out information that is not directly stated. Readers use clues from the text and their own knowledge to understand deeper meanings. Think: "What does this suggest?"
e.g. Emily's candle trembled in her hand as she crept down the dark corridor, glancing behind her at every sound.

Inference:

- Emily is frightened or nervous.
- She feels unsafe.

Subject Specific Skills Developed:

- Inference and Deduction
- Analysis of how writers use language and structure to convey meaning
- Identifying themes
- Understanding symbolism
- Evaluating the writer's methods
- Varying sentence structures
- Using descriptive language and imagery
- Technical accuracy
- Structuring narratives for impact
- Selecting ambitious and precise vocabulary
- Discussing interpretations of texts



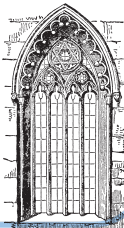
Key words

Sinister	Ominous	Macabre
Spectral	Malevolent	Desolate

Below are a range of activities for you to complete independently whilst we are learning about the Gothic genre. You will be set these tasks by your English teacher as part of the YAW Gwaith Cartref Cycle.

1

Choose a room in your house or the school and describe it as if it were a gothic setting. Include 5 gothic adjectives.



4

Watch a short clip from a Gothic film (e.g., *Dracula* or *Coraline*) and identify 3 Gothic symbols used in the setting or costumes. Explain each one.



2

List 5 common characteristics of Gothic protagonists and explain why these traits make the story more suspenseful.



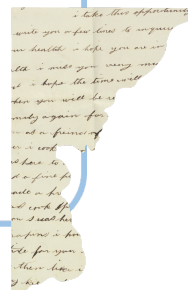
5

Sketch a basic plot outline for a Gothic story, including setting, main character, conflict, and resolution.



3

Write a letter from a Gothic story character to a loved one, describing a frightening event they have just experienced.



6

Write a diary entry from the perspective of a Gothic story character, describing their fears and surroundings.



Tick off and date the ones you have completed

1. Description of setting	2. Protagonist Characteristics	3. Informal Letter
4. Film Clip Symbols	5. Plot Outline	6. Diary Entry

Byw'n iach

Cwestiynau - Questions

C: Beth wyt ti'n bwyta? Beth ydy dy hoff bwyd?
Q: What do you eat? What is your favourite food?
 A: Dw i'n bwyta (**Bwyd**) (**Amlder**). Fy hoff bwyd ydy (**Bwyd**).
A: I eat (Food) (Frequency). My favourite food is (**Food**).
 A: Dw i'n yfed (**Diod**) (**Amlder**).
A: I drink (Drink) (Frequency).

C: Beth fwyaist ti ddoe?
Q: What did you eat yesterday?
 A: Bwytais i, i frechwast/ i ginio / i swper (**Bwyd**).
A: I ate, for breakfast/ for lunch/ for dinner (Food).

C: Wyt ti'n gallu coginio?
Q: Can you cook?
 A: Dw i'n gallu coginio (**Bwyd**).
A: I can cook (Bwyd).

C: Beth ddylen ni fwya i fod yn iach?
Q: What should we eat to be healthy?
 A: Dylen ni fwya mwy o / llai o (**Bwyd**).
A: We should eat more / less (Food)
 A: Mae pobl yn bwyta gormod o (**Bwyd**).
A: People eat too much (Food).
 A: Dydy pobl ddim yn bwyta digon o (**Bwyd**).
A: People don't eat enough (Food).

C: Beth mae bwyd cyflym yn cynnwys?
Q: What does fast food contain?
 A: Mae bwyd cyflym yn (**Disgrifiad**).
A: Fast food is (Description).

C: Sut wyt ti'n cadw'n heini?
Q: How do you keep fit?
 A: I gadw'n heini, dw i'n (**Berfau**).
A: To keep fit, I (Verb).

Bwyd - Food

ffrwythau	fruit	sglodion	chips
llysiau	vegetables	bisgedi	biscuits
cnau	nuts	siocled	chocolate
salad	salad	creision	crisps
cig	meat	menyn	butter
bara	bread	peis	pies
pysgod	fish	pwdin	pudding
pylsau	pulses	losin	sweets
reis	rice	hufen ia	ice cream
	grawnfwyd		cereal
	brechdanau		sandwiches

Amser Gorffennol

I	- ais i
You (s)	- aist ti
He	- odd e
She	- odd hi
We	- on ni
You (p)	- och chi
They	- on nhw

ED's will roll EG's will
break IOUA fiver.

Amser Amodol

I should	Dylwn i
You should (s)	Dylet ti
He should	Dylai e
She should	Dylai hi
We should	Dylen ni
You should (p)	Dylech chi
They should	Dylen nhw

I would	Baswn i
I could	Gallwn i
I would like to	Hoffwn i

Berfau - Verbs

bwyta	eat
yfed	drink
coginio	coginio
cerdded	walk
rhedeg	run
nofio	swim
codi pwysau	lift weights
paffio	box
mynd am dro	go for a walk
myfyrio	meditate
siarad	speak
ymlacio	relax
cysgu	sleep
ymarfer	exercise
seiclo	cycle
cymryd cyffuriau	take drugs
eisiau	want
yfed alcohol	drink alcohol
ysmygu	smoke
fepio	vape

Amlder - Frequency

bob dydd	every day
yn aml	often
yn rheolaidd	regularly
weithiau	sometimes
nawr ac yn y man	now and again
unwaith yr wythnos	once a week

Enwau - Nouns

Brecwast	Breakfast
Cinio	Lunch
Swper	Dinner
Byrbrydau	Snacks
Gampfa	Gym
Parc	Park
Gwely	Bed
Pwll	Pool
Paned	Cup
Botel	Bottle
Gwydr	Glass

Diod - Drink

dŵr	water
sudd	juice
llaeth	milk
coffi	coffee

Ansoddeiriau - Adjectives

fiaidd	disgusting
berylus	dangerous
wastraff arian	waste of money
ddrwg i chi	bad for you
pwysig	important
iachus	healthy
flasus	tasty
sbeislyd	spicy
gaethiwus	addictive
melys	sweet
hallt	salty
ymlaciol	relaxing

Disgrifiad - Description

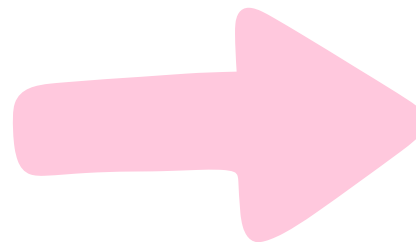
llawn o fraster	full of fat
llawn o halen	full of salt
llawn o sigwr	full of sugar
llawn o mwynau	full of minerals
peryglus i'r galon	dangerous for your heart



Below are a range of activities for you to complete independently whilst we are learning about byw'n iach. You will be set these tasks by your Welsh teacher as part of the YAW Gwaith Cartref Cycle.

1

Please scan the QR code and use Quizlet to learn the vocabulary ready for a vocabulary test next lesson

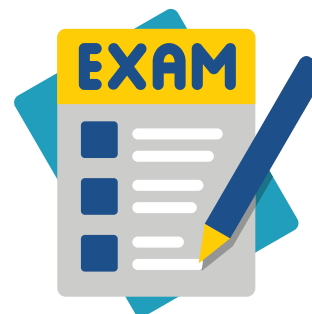


SCAN ME



2

Please complete the exam style questions that have been posted to your Google Classroom.



3

Please write a diary entry of the food you have eaten and the exercise you have done and submit it to your teacher on Google Classroom.



Vocabulaire – Year 9

Questions et réponses - Questions and answers



Q: Es-tu comment? *What are you like?*
R: J'ai les cheveux bruns et courts. Je suis grand et timide. *I have brown short hair. I am tall and shy.*

Q: Comment est ta famille? *What are your family like?*
R: Ma sœur est petite et paresseuse. *My sister is short and lazy.*

Q: Qu'est-ce que tu aimes faire et pourquoi? *What do you like to do and why?*
R: J'aime jouer aux jeux vidéo avec mes amis parce que c'est amusant. *I like playing video games with my friends because it's fun.*

Q: Quand tu étais petit(e), comment étais-tu? *What were you like when you were little?*
R: J'étais gros et drôle. J'avais les yeux bleus et les cheveux blonds et bouclés. *I had blue eyes and blonde curly hair.*

Q: Qu'est-ce que tu as fait le week-end dernier? *What did you do last weekend?*
R: J'ai mangé une pizza avec ma famille et j'ai regardé un film avec mon ami. *I ate a pizza with my family and I watched a film with my friend.*

Les mots utiles – Useful words
et and ou or
mais but avec with
aussi also / too cependant however

intensifieurs – intensificateurs

très	very
trop	too
un peu	a bit
un petit peu	a little bit
vraiment	really
extrêmement	extremely
assez	quite
tellement	so

Opinions Les opinions

j'aime	I like
Je n'aime pas	I don't like
j'adore	I love
je déteste	I hate
je préfère	I prefer
je pense que...	I think that...
parce que	because
c'est...	it's / it is



Adjectifs -

sympa
gentil / gentille
gros / grosse
mince / maigre
beau / belle
joli / jolie
paresseux / paresseuse
timide
drôle

Adjectives

nice
kind
fat
slim
handsome / beautiful
pretty (m/f)
lazy (m/f)
shy
funny



Tu es comment? – What do you look like?

j'ai / il a / elle a	I have / he has / she has
les yeux bleus	blue eyes
les yeux noisette	hazel eyes
les cheveux longs et blonds	long blonde hair
les cheveux courts, noirs, ondulés	Short, black, wavy hair
les cheveux mi-longs et bouclés	medium length curly hair
les cheveux longs, raides et roux	long straight ginger hair
les cheveux courts, gris et frisés	short, grey, wavy hair
je suis...	I am...
grand / grande	tall (m/f)
petit / petite	short / little (m/f)

Les gens

mes parents	my parents
mes amis	my friends
ma famille	my family
ma mère	my mum
ma sœur	my sister
mon père	my dad
mon frère	my brother
ma grand-mère	my nan
mon grand-père	my grandad

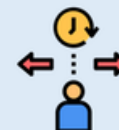


Les lieux - places

Je vais...	I go...
au cinéma	To the cinema
au parc	To the park
au café	To the café
au restaurant	To the restaurant
au collège	To high school
à l'école	To school
chez moi	home



Present tense - présent



je suis	I am
il est	He is
elle est	She is
on est	We are
j'ai	I have
il a	He has
elle a	She has
on a	We have
je m'entends bien	I get on well
je ne m'entends pas bien	I don't get on well
j'habite	I live
je joue (au foot)	I play (football)
je regarde (la télé)	I watch (TV)
je fais (de la danse)	I do (dancing)
je vais (au cinéma)	I go (to the cinema)
je finis (mes devoirs)	I finish (my homework)
je mange (une pizza)	I eat (a pizza)
je bois (un coca)	I drink (a coke)



Perfect past tense – Le passé composé

J'ai joué	I played
J'ai regardé	I watched
J'ai mangé	I ate
J'ai fini	I finished
J'ai fait	I did
J'ai bu	I drank
Je suis allé(é)	I went (f)

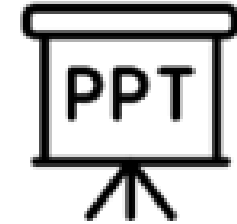
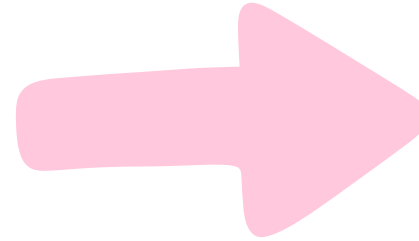
Imperfect past tense - L'imparfait (was / used to)

J'étais	I was
Il était	He was
Elle était	She was
J'avais	I had
Il avait	He had
Elle avait	She had

Below are a range of activities for you to complete independently whilst we are learning about byw'n iach. You will be set these tasks by your Welsh teacher as part of the YAW Gwaith Cartref Cycle.

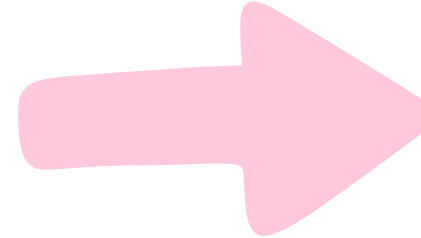
1

Create a slideshow about you and your family using the present tense. Describe their appearance and personality traits.



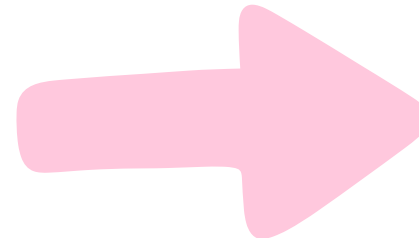
2

Complete a diary extract saying at least 3 things you did last weekend and with whom.



3

Complete the reading comprehension that can be found on google classroom.



Classroom

Expressive Arts

Term 1

Unit: What is the nature and purpose of creative expression?

Theme: Independent Exploration



This page helps you understand the key skills and knowledge you will develop in the 'Independent Exploration' unit. Use it to support your work in lessons and Gwaith Cartref.

Key Definitions and Concepts

Term	Definition
Chord	Two or more notes played at the same time.
Triad	A three note chord that uses the 1st, 3rd and 5th notes of the scale.
Technique	How a task or activity is accomplished.
Improvisation	Creating a piece of drama or music as you perform.
Physical Theatre	A genre of performance that uses the human body for storytelling. It emphasizes movement, gesture, mime and dance.
Abstract	A non-representational style that does not attempt to depict visual reality accurately.
Shape & Form	Geometric (squares, circles) or biomorphic/organic (nature-inspired, flowing).
Line	Gestural, fluid, angular, scratchy, or deliberate.

Google Classroom
Code: t7tomtw

Abstract Artists
BBC documentary

Devising
Skills



Keyboard Skills



No piano?
No problem!
Scan the QR code to
use a virtual keyboard



Below are a range of activities for you to complete independently this term.
You will be set these tasks by your expressive arts teachers as part of the YAW Gwaith Cartref Cycle.

1

Complete the pupil voice quiz on the Year 9 Expressive Arts google classroom.



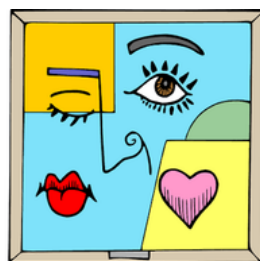
2



What is devising drama?
What is an essential strategy for devising drama? Give an example of a technique.

3

Apart from Pablo Picasso can you find the names of four other famous Abstract Artists in the History of Art?



4

Continue to develop your keyboard technique by practising your chord sequences. Can you make up a chord sequence of your own?



5

Watch the video. What are the 5 top tips for making theatre? Use the google form on your classroom to note your answers.



6

Evaluate and compare the paintings by Kandinsky and Mondrian. Which do you prefer? Be prepared to discuss your thoughts in lesson.



Tick off and date the ones you have completed

1	2	3
4	5	6

INNOVATION



**FACULTY OF
INNOVATION**

LAWS OF INDICES



These laws are true for any non-zero numbers a and b , and integers m and n .

LAW	RULE	EXAMPLE
1 Product of powers	$a^m \times a^n = a^{m+n}$	$2^3 \times 2^4 = 2^{3+4} = 2^7 = 128$
2 Quotient of powers	$a^m \div a^n = a^{m-n}$ (where $m \geq n$)	$5^6 \div 5^2 = 5^{6-2} = 5^4 = 625$
3 Power of a power	$(a^m)^n = a^{mn}$	$(3^2)^4 = 3^{2 \times 4} = 3^8 = 6561$
4 Power of a product	$(ab)^n = a^n b^n$	$(2x)^3 = 2^3 x^3 = 8x^3$
5 Power of a quotient	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ (where $b \neq 0$)	$\left(\frac{2x}{3}\right)^2 = \frac{(2x)^2}{3^2} = \frac{4x^2}{9}$
6 Zero index	$a^0 = 1$ (where $a \neq 0$)	$7^0 = 1 \quad x^0 = 1$
7 Negative index	$a^{-n} = \frac{1}{a^n}$ (where $a \neq 0$)	$2^{-3} = \frac{1}{2^3} = \frac{1}{8} \quad y^{-2} = \frac{1}{y^2}$

COMBINED EXAMPLE

$$\begin{aligned} & \text{Simplify } \frac{2^3 \times x^{-2} \times (3x)^2}{4x^0} \\ &= \frac{8 \times x^{-2} \times 9x^2}{4 \times 1} = \frac{72 \times x^{(-2+2)}}{4} = \frac{72 \times x^0}{4} = \frac{72 \times 1}{4} = 18 \\ & \quad (7 \text{ and } 6 \text{ laws}) \quad (1 \text{ and } 3 \text{ laws}) \end{aligned}$$

SIMPLIFYING SURDS



A surd is a square root that cannot be simplified any further.

To simplify a surd:

- Write the number as a product of prime factors.
- Take pairs of the same factors out of the square root.
- Leave the factor(s) without a pair inside the square root.

EXAMPLE

$$\begin{aligned} & \sqrt{50} \\ &= \sqrt{25 \times 2} \\ &= \sqrt{25} \sqrt{2} \\ &= 5\sqrt{2} \end{aligned}$$

MORE EXAMPLES

$\sqrt{72}$	$\sqrt{125}$	$\sqrt{98}$	$\sqrt{48}$
$= \sqrt{36 \times 2}$	$= \sqrt{25 \times 5}$	$= \sqrt{49 \times 2}$	$= \sqrt{16 \times 3}$
$= \sqrt{36} \sqrt{2}$	$= \sqrt{25} \sqrt{5}$	$= \sqrt{49} \sqrt{2}$	$= \sqrt{16} \sqrt{3}$
$= 6\sqrt{2}$	$= 5\sqrt{5}$	$= 7\sqrt{2}$	$= 4\sqrt{3}$

ADDING (AND SUBTRACTING) LIKE SURDS

You can only add or subtract surds that have the same surd part (the same number under the square root). First, simplify each surd.

EXAMPLE Simplify and add together: $5\sqrt{3} + 2\sqrt{12} + \sqrt{27}$

STEP 1 Simplify each surd:

$$\begin{aligned} 5\sqrt{3} + 2\sqrt{12} + \sqrt{27} &= 5\sqrt{3} + 2\sqrt{4 \times 3} + \sqrt{9 \times 3} \\ &= 5\sqrt{3} + 2(2\sqrt{3}) + 3\sqrt{3} \\ &= 5\sqrt{3} + 4\sqrt{3} + 3\sqrt{3} \end{aligned}$$

STEP 2 Add the coefficients:

$$5\sqrt{3} + 4\sqrt{3} + 3\sqrt{3} = (5 + 4 + 3)\sqrt{3} = 12\sqrt{3}$$

KEY POINT

The surd part ($\sqrt{3}$) is the same in every term, so we can add the coefficients.

% PERCENTAGES %

NON-CALCULATOR

A. BASIC PERCENTAGES – KNOW THESE!

Find these first. They are the building blocks for other percentages.

1%

$$= 1/100$$

Example:

$$\begin{aligned} 1\% \text{ of } 360 \\ &= 360 \div 100 \\ &= 3.6 \end{aligned}$$

10%

$$= 1/10$$

Example:

$$\begin{aligned} 10\% \text{ of } 360 \\ &= 360 \div 10 \\ &= 36 \end{aligned}$$

25%

$$= 1/4$$

Example:

$$\begin{aligned} 25\% \text{ of } 360 \\ &= 360 \div 4 \\ &= 90 \end{aligned}$$

50%

$$= 1/2$$

Example:

$$\begin{aligned} 50\% \text{ of } 360 \\ &= 360 \div 2 \\ &= 180 \end{aligned}$$



TIP

Use division by 100, 10, 4 or 2 to find these quickly.

B. USING BUILDING BLOCKS TO FIND OTHER PERCENTAGES

Break the percentage down into the basic percentages above, then add them.

11% of 360

$$\begin{aligned} &= 10\% + 1\% \\ &= 36 + 3.6 \\ &= 39.6 \end{aligned}$$

15% of 360

$$\begin{aligned} &= 10\% + 5\% \\ &= 36 + 18 \\ &= 54 \\ &\text{(5% is half of 10\%)} \end{aligned}$$

26% of 360

$$\begin{aligned} &= 25\% + 1\% \\ &= 90 + 3.6 \\ &= 93.6 \end{aligned}$$

37% of 360

$$\begin{aligned} &= 25\% + 10\% + 1\% + 1\% \\ &= 90 + 36 + 3.6 + 3.6 \\ &= 133.2 \end{aligned}$$

C. PERCENTAGE INCREASE (NON-CALCULATOR)

Method:

- 1 Find the percentage of the original amount.
- 2 Add this to the original amount.

Example:

A jacket costs £60. It increases by 15%.

- 1 15% of £60 = 10% + 5% = £6 + £3 = £9
- 2 New price = £60 + £9 = £69

D. PERCENTAGE DECREASE (NON-CALCULATOR)

Method:

- 1 Find the percentage of the original amount.
- 2 Subtract this from the original amount.

Example:

A jacket costs £60. It is reduced by 15%.

- 1 15% of £60 = 10% + 5% = £6 + £3 = £9
- 2 New price = £60 - £9 = £51

★ REMEMBER

- Break the percentage down into 1%, 10%, 25% and 50%.
- Find the percentage of the original amount first, then add or subtract it.

CALCULATOR



★ **Key idea:** Convert the percentage to a decimal by dividing by 100, then use your calculator.

$$p\% = p \div 100$$

A. FINDING A PERCENTAGE OF AN AMOUNT

Use the formula:

$$p\% \text{ of } a = (p \div 100) \times a$$

EXAMPLE

Find 35% of 240.

$$35\% = 35 \div 100 = 0.35$$

$$0.35 \times 240 = \mathbf{84}$$

B. PERCENTAGE INCREASE (CALCULATOR)

Use the formula:

$$\text{New amount} = \text{Original amount} \times (1 + p \div 100)$$

TIP: Use brackets on your calculator.

EXAMPLE

A bike costs £80.

The price increases by 15%.

$$\begin{aligned} \text{New price} &= 80 \times (1 + 15 \div 100) \\ &= 80 \times 1.15 \\ &= \mathbf{£92} \end{aligned}$$

C. PERCENTAGE DECREASE (CALCULATOR)

Use the formula:

$$\text{New amount} = \text{Original amount} \times (1 - p \div 100)$$

TIP: Use brackets on your calculator.

EXAMPLE

A jacket costs £60.

It is reduced by 25% in a sale.

$$\begin{aligned} \text{Sale price} &= 60 \times (1 - 25 \div 100) \\ &= 60 \times 0.75 \\ &= \mathbf{£45} \end{aligned}$$



REMEMBER

- Convert the percentage to a decimal ($\div 100$).
- Multiply by the amount.
- Use brackets.

QUICK CONVERSIONS

$$\begin{aligned} 10\% &= 0.10 & 25\% &= 0.25 & 50\% &= 0.50 \\ 75\% &= 0.75 & 100\% &= 1 \end{aligned}$$

STANDARD FORM

10^x

Standard form (or scientific notation) is written as $a \times 10^n$ where $1 \leq a < 10$ and n is an integer.

A. CONVERTING NUMBERS TO AND FROM STANDARD FORM

TO STANDARD FORM

- Write the number with the decimal point after the first non-zero digit.
- Count how many places the decimal point has moved.
- If it has moved left, the power of 10 is positive.
If it has moved right, the power of 10 is negative.

Examples

- $4\,600\,000 = 4.6 \times 10^6$ (moved 6 places left)
- $0.00037 = 3.7 \times 10^{-4}$ (moved 4 places right)
- $82.5 = 8.25 \times 10^1$ (moved 1 place left)
- $0.091 = 9.1 \times 10^{-2}$ (moved 2 places right)

FROM STANDARD FORM

- Look at the power of 10 (the index).
- If it is positive, move the decimal point that many places to the right.
- If it is negative, move the decimal point that many places to the left.

Examples

- $3.6 \times 10^5 = 360\,000$
- $2.1 \times 10^{-3} = 0.0021$
- $7.4 \times 10^2 = 740$
- $5.08 \times 10^{-1} = 0.508$

B. MULTIPLYING NUMBERS IN STANDARD FORM

Multiply the numbers.

For the powers of 10, add the indices.

$$(a \times 10^m) \times (b \times 10^n) = (a \times b) \times 10^{m+n}$$

Then write the answer in standard form.

Examples

- $(2 \times 10^3) \times (4 \times 10^5) = 8 \times 10^{3+5} = 8 \times 10^8$
- $(3.5 \times 10^{-2}) \times (2 \times 10^4) = 7 \times 10^{-2+4} = 7 \times 10^2$
- $(6 \times 10^4) \times (1.2 \times 10^{-6}) = 7.2 \times 10^{4-6} = 7.2 \times 10^{-2}$

C. DIVIDING NUMBERS IN STANDARD FORM

Divide the numbers.

For the powers of 10, subtract the indices.

$$(a \times 10^m) \div (b \times 10^n) = (a \div b) \times 10^{m-n}$$

Then write the answer in standard form.

Examples

- $(8 \times 10^6) \div (2 \times 10^3) = 4 \times 10^{6-3} = 4 \times 10^3$
- $(7.2 \times 10^{-1}) \div (3 \times 10^{-4}) = 2.4 \times 10^{-1-(-4)} = 2.4 \times 10^3$
- $(9 \times 10^5) \div (4.5 \times 10^2) = 2 \times 10^{5-2} = 2 \times 10^3$

★ KEY POINTS

- In standard form, a must be 1 or more, but less than 10.
- When multiplying, add the indices.
- When dividing, subtract the indices.

EXPANDING AND FACTORISING

$(x+3)$

A. EXPANDING SINGLE BRACKETS

Multiply each term in the bracket by the term outside the bracket.

Examples

- $3(x + 4) = 3x + 12$
- $5(2x - 7) = 10x - 35$
- $-2(3x + 1) = -6x - 2$
- $-4(2x - 5) = -8x + 20$

B. EXPANDING DOUBLE BRACKETS (FOIL)

Multiply each term in the first bracket by each term in the second bracket.

FOIL:

First **O**uter **I**nner **L**ast

- $(x + 3)(x + 2) = x^2 + 2x + 3x + 6 = x^2 + 5x + 6$
- $(2x - 1)(x + 4) = 2x^2 + 8x - x - 4 = 2x^2 + 7x - 4$
- $(x - 5)(x - 2) = x^2 - 2x - 5x + 10 = x^2 - 7x + 10$
- $(3x + 1)(2x - 4) = 6x^2 - 12x + 2x - 4 = 6x^2 - 10x - 4$

C. FACTORISING INTO SINGLE BRACKETS

Take out the common factor (the highest common factor of all the terms).

Examples

- $6x + 9 = 3(2x + 3)$
- $15x - 20 = 5(3x - 4)$
- $12x^2 + 18x = 6x(2x + 3)$
- $4x^2 - 8x = 4x(x - 2)$

D. FACTORISING QUADRATICS

For quadratics of the form $x^2 + bx + c$:

- Find two numbers that:
 - multiply to give c
 - add to give b
- Write the two brackets.

Examples

- $x^2 + 5x + 6$
(numbers 2 and 3: $2 \times 3 = 6$ and $2 + 3 = 5$)
 $= (x + 2)(x + 3)$
- $x^2 + 7x + 12$
(numbers 3 and 4: $3 \times 4 = 12$ and $3 + 4 = 7$)
 $= (x + 3)(x + 4)$
- $x^2 - 5x + 6$
(numbers -2 and -3: $(-2) \times (-3) = 6$ and $-2 + (-3) = -5$)
 $= (x - 2)(x - 3)$
- $x^2 + x - 6$
(numbers 3 and -2: $3 \times (-2) = -6$ and $3 + (-2) = 1$)
 $= (x + 3)(x - 2)$

★ KEY POINTS

- Multiply every term in the bracket.
- For double brackets, use FOIL.

- When factorising, always take out the highest common factor first.
- For quadratics, check: When you expand your answer, do you get the original expression?

Gwaith Cartref Tasks

Below are a range of activities for you to complete independently during the Autumn Term.
You will be set these tasks by your Mathematics teacher as part of the YAW Gwaith Cartref Cycle.

1

Laws of Indices: Scan the QR code on the right and complete the worksheet. Label the page in your book "Gwaith Cartref" and write your answers in so they can be marked in class.



4

Standard Form: Your teacher will set a task on MathsWatch called "Y9H Gwaith Cartref - Standard Form".

2

Simplifying Surds: Scan the QR code on the right and complete all of questions 1, 5 and 8. Label the page in your book "Gwaith Cartref" and write your answers in so they can be marked in class.



5

Your teacher will give you a paper worksheet on percentages

3

Simplifying and Adding Surds: Scan the QR code from task 2 (same worksheet) and complete questions 4, 6, 11, and 12. Label the page in your book "Gwaith Cartref" and write your answers in so they can be marked in class.

Pitch it up... Complete questions 9 and 10.

6

Algebraic Manipulation: Your teacher will set a task on MathsWatch called "Y9H Gwaith Cartref – Expanding and Factorising".

Tick off and date the ones you have completed

1. Laws of Indices	2. Simplifying Surds	3. Simplifying and Adding Surds
4. Standard Form	4. Percentages	5. Algebraic Manipulation

Food technology

Term 1



Homework

Submit tasks via Google Classroom

Task A:

Using the word bank and success criteria, evaluate your practical lessons to identify areas of weakness and success.

Use the resources linked to support your written task and cooking skills.

Task B:

Test your lesson recall by naming at least 3 facts you learnt in the lesson.

Food technology

Term 1

Success Criteria

When evaluating you should consider:

- Can you follow the recipe steps in the correct order.
- Can you use kitchen tools and equipment safely.
- Can you measure ingredients accurately.
- Can you keep your workspace clean and organised.
- Can you work well with others and communicate respectfully.
- Does your final dish match the expected appearance and taste.
- How would you describe your dish?

Optional sentence starters:

I believe my dish was 'successful / unsuccessful' because.....

Next time, to improve my dish I will.....

The three key words I would use to describe my dish are:



Technology- Desk Lamp Project



Term 1

Product Analysis



Answer as many of the questions as you can to create a detailed response for each heading in the task.

Watch the video explaining a product analysis then try it out on the next page.

ACCESS FM		
AESTHETICS What does it look like? What shape is it? What colours? What style? Do you like it? Why?	SAFETY Are there any sharp edges/corners? Are there any loose bits? Is there anything that could come off or harm a child?	FUNCTION What does it do? How does it work? Easy to use? Does it have many or a single function?
COST How much does this cost? Is it good value for money? Why? Does the brand name make it more expensive? Why do you think this?	SIZE What are the key dimension? Is it suitable for it's task? What makes it suitable?	MATERIAL What is it made from? Are the materials appropriate? Why? How is it made? Is it well made? What components are there?
CUSTOMER Who is the product aimed at? Age range? Interests? Taste & Style? What would they use it for? How?	DESIGN SPECIFICATION Use each of the ACCESS FM headings & answer the questions to describe in detail all the elements of your design. Write each point as a justified sentence: 'It must/ There should be.... because.....'	
ENVIRONMENT Does it produce harmful chemicals? Does it make other people uncomfortable? Did the manufacture cause pollution? What? Does it use energy? What? What is the effect of this energy?	PRODUCT ANALYSIS Analyse existing products to understand what is commercially successful. Explore all aspects of the product using these headings. Give your personal opinions about each of the headings. A visual or actual disassembly of the product will help you to understand how the product was manufactured.	

Technology- Desk Lamp Project

Term 1



Product Analysis

Product Information:

This is a burger themed desk lamp that adds a playful touch to your workspace. Designed to lift up from a compact burger shape into a functional lamp, it features a flexible stem and adjustable lampshade so you can direct light exactly where you need it. Made from strong, durable ABS plastic, it's lightweight, long-lasting, and available in a range of colours. Perfect for desks, bedside tables, or small spaces. This can be purchased online for £10

Aesthetics

Cost

Customer

Size

Safety

Function

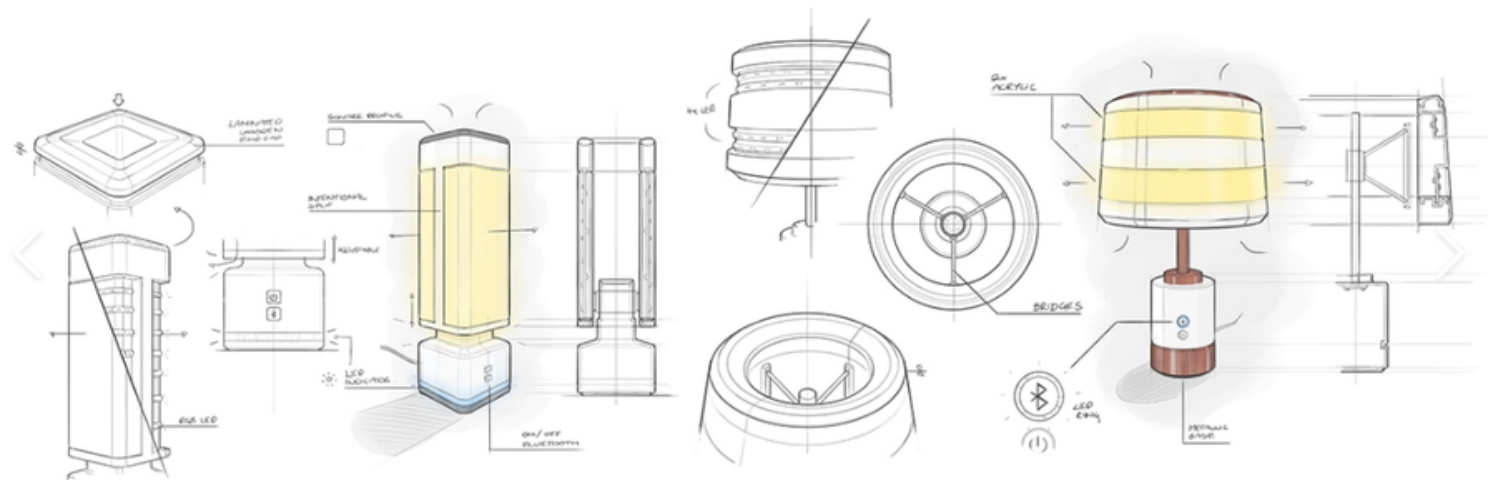
Materials

Personal Opinions

Watch both videos using the QR code to develop your sketching and shading techniques. Have a go on the following page at designing your own lamp!



Rendering techniques



Technology- Desk Lamp Project

Term 1



Initial Idea

Use this space to sketch your initial idea of your desk lamp here. You can have a theme of your choice and you can choose the colour scheme. Be creative, you do not have to stick to a basic shape, add features to make your idea personalised and original!

In the space provided, explain what you themes and colours you have chosen. What do you like? Dislike? What could be improved?

.....

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Technology- Graffiti Project

Term 1



Product Analysis



Answer as many of the questions as you can to create a detailed response for each heading in the task.

Watch the video explaining a product analysis then try it out on the next page.

ACCESS FM		
AESTHETICS What does it look like? What shape is it? What colours? What style? Do you like it? Why?	SAFETY Are there any sharp edges/corners? Are there any loose bits? Is there anything that could come off or harm a child?	FUNCTION What does it do? How does it work? Easy to use? Does it have many or a single function?
COST How much does this cost? Is it good value for money? Why? Does the brand name make it more expensive? Why do you think this?	SIZE What are the key dimension? Is it suitable for it's task? What makes it suitable?	MATERIAL What is it made from? Are the materials appropriate? Why? How is it made? Is it well made? What components are there?
CUSTOMER Who is the product aimed at? Age range? Interests? Taste & Style? What would they use it for? How?	DESIGN SPECIFICATION Use each of the ACCESS FM headings & answer the questions to describe in detail all the elements of your design. Write each point as a justified sentence: 'It must/ There should be.... because.....'	
ENVIRONMENT Does it produce harmful chemicals? Does it make other people uncomfortable? Did the manufacture cause pollution? What? Does it use energy? What? What is the effect of this energy?	PRODUCT ANALYSIS Analyse existing products to understand what is commercially successful. Explore all aspects of the product using these headings. Give your personal opinions about each of the headings. A visual or actual disassembly of the product will help you to understand how the product was manufactured.	



Product Analysis

Product Information:

This bold Street Art/Graffiti Backpack, priced at £14.99, features a colourful all-over graffiti design that makes it a standout choice for school or everyday use. Bags like this are typically made from durable polyester, which is strong, lightweight, and ideal for vibrant printed designs. It includes a spacious main compartment, a front zip pocket, and adjustable straps for comfortable carrying.

Aesthetics

Cost

Customer

Size

Safety

Function

Materials

Personal Opinions

Technology- Graffiti Project

Term 1



Graffiti Sketching



Watch both videos using the QR code to develop your sketching and shading techniques. Have a go on the following page at designing your own graffiti artwork!

Rendering techniques



Technology- Graffiti Project

Term 1



Initial Idea

Use this page to sketch your street art/ graffiti for Pontypridd Town Centre. Be creative, explore the different texts and styles used in street art. Consider famous words, people or landmarks in the area to use in your design.

In the space provided, explain what you have chosen for your design. Explain your colours/ text/ image selection. What do you like? Dislike? What could be improved?



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LIFE



FACULTY OF LIFE

Humanities

Term 1

Unit: Issues of Good and Evil



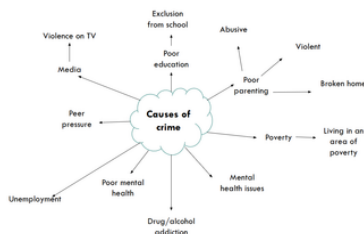
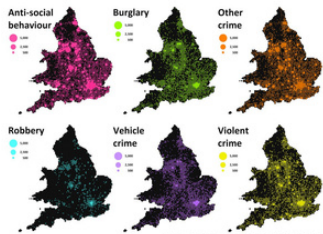
This page helps you understand the key skills and knowledge you will develop in the Issues of Good and Evil unit. Use it to support your work in lessons and Gwaith Cartref.

Sanctity of Life - The belief that life is precious, or sacred because humans are made 'in God's image'. For many religious believers, only human life holds this special status.

Keyword: -

Justice – Fairness; where everyone has equal provisions and equality of opportunity and receives what they are due.

Christianity	Islam
Christians believe that everyone was created with free choice to accept or reject God's way.	The Qur'an teaches that believers should make the choice between good and evil deeds.
If people do sin and commit crimes then justice must follow, but Jesus also taught the importance of forgiveness.	Punishment is seen as an important aspect of justice but forgiveness is also important. Allah is also known as Ar-Rahman (the Merciful), Ar-Rahim (the Compassionate) and Al-Karim (the generous).
Most Christians believe that at the end of life God will be the final judge.	Allah will be the final judge on the Judgement Day (Qiyamah).
Jesus taught compassion and revenge – Christians follow his example.	Qur'an 16:90 teaches that God sets the rules and shows the way and admonishes as a way of reminding.
	Some countries exercise Shari'ah law system which sets laws and punishment based on the Qur'an and Sunnah.



Moral evil

Moral evil is the result of human actions and is caused by humans acting in a way that is considered morally wrong.

Can you think of some examples?

Natural evil

Events that have nothing to do with humans and which are to do with the way the world is, for example, natural disasters such as volcanic eruptions, floods or earthquakes, are examples of natural evil.

Christian attitudes to good

In Genesis, it says that God made the earth 'and it was good'.

The world that God has created is basically good. God has, however, given people free will – the ability to choose between right and wrong for themselves.

In the story of Adam and Eve in the Garden of Eden, Adam and Eve chose to disobey God by eating fruit from the Tree of Knowledge of Good and Evil. This explains how free will can be used to stray from what is good.

God has shown people how they should live a good life through both rules of behaviour found in the Bible, for example, the Ten Commandments (a list of religious and moral rules), and through religious teachings.

Christianity is a religion that places good qualities at its core – tolerance, compassion and love. Jesus demonstrated all of these qualities through his life.

Muslim attitudes to good

Everyone is born with a natural instinct to understand the difference between right and wrong (fitrah).

All humans have free will and they must choose between right and wrong.

Doing good and having the right belief go hand in hand in Islam. The Qur'an speaks of true Muslims very often as 'those who believe and do good deeds'.

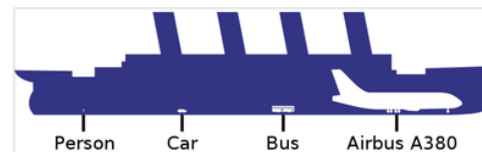
The Qur'an and Prophet Muhammad (PBUH) outline the qualities required for goodness, including truthfulness, patience, humility and kindness to others.

God will judge each person individually, according to their faith and their good actions. God will show mercy and fairness in his judgement. According to Islam, those who believe in God and perform good deeds will be rewarded in heaven.

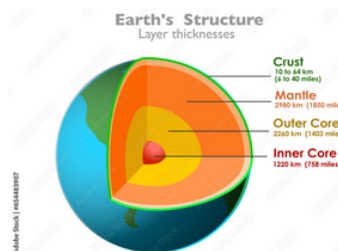
Why was Titanic so special?

At the time of her construction, Titanic was the largest passenger steamship in the world.

Titanic's maximum speed was 23 knots (26 MPH).



1. Use the first person voice.
2. Write in chronological order.
3. Use the past tense.
4. Use emotive language.



In 1912, a German scientist called **Alfred Wegener** proposed that all the continents were once joined together as one big land mass called Pangaea and this was intact until about 200 million years ago.



The idea that continents are slowly shifting their positions is called **continental drift**.



Humanities Unit: Issues of Good and Evil

Term 1 Gwaith Cartref Tasks



Below are a range of activities for you to complete independently whilst we are learning about Issues of Good and Evil . You will be set these tasks by your Humanities teacher as part of the YAW Gwaith Cartref Cycle.

1



Society of Life Gwaith Cartref

1 What is meant by the society of life?

2 Read through the Parable of the Good Samaritan



In the Parable of the Good Samaritan, Jesus uses the example of the Jew and the Samaritan, who would not, ordinarily have been friendly towards each other. However, out of all those who could have helped the Jew, only the Samaritan did. Jesus tells of a man who was travelling from Jerusalem to Jericho and was attacked by robbers on the way. He was badly beaten and left for dead.

The first person to pass the injured man was a priest, who crossed the road and continued walking.

The second person to pass the injured man was a Levite, a priest's assistant. He also crossed the road and continued walking without helping the man.

The third person to come by was a Samaritan, a person from Samaria. The Samaritans were hated by the Jews. When the Samaritan saw the man, he took pity on him. He bandaged his wounds and cleaned his wounds. He then put him on the back of his donkey and took him to an innkeeper, whom he paid to look after him.

The parable ends with Jesus giving a commandment to go out and do the same as the Samaritan had done. The teaching of loving one's enemies is also reflected in Matthew's Gospel.

3 How does Jesus show the value of human life in the Parable?

3

Use your boarding pass to research what happened to the passenger named on your ticket.

Extra credit available for additional research.



4

Research the sinking of the RMS Titanic and compare it with another famous shipwreck, such as the RMS Lusitania, HMHS Britannic, or MV Wilhelm Gustloff.

Create a one-page report that includes:

When and where each ship sank.

The cause of each disaster.

How many people were on board and how many survived.

Similarities and differences between the two shipwrecks.

Which disaster you think had the greatest impact on history and why.

Challenge: Include pictures, a timeline, or a map showing where the shipwrecks occurred. Write a short paragraph explaining what lessons were learned from these disasters.

5

Task: Research the structure of the Earth and tectonic plate boundaries.

Create a fact sheet, poster, or one-page report that includes:

The four main layers of the Earth: crust, mantle, outer core, and inner core.

A labelled diagram showing the Earth's structure.

An explanation of what tectonic plates are.

Descriptions of the three main types of plate boundary:

Constructive (divergent)

Destructive (convergent)

Conservative (transform)

An example of a real-world location for each type of boundary.

Challenge: Explain how plate movements can cause earthquakes and volcanoes. Include a case study of a recent earthquake or volcanic eruption and describe its effects.

2

The Problem of Evil asks an important question: If God is all-powerful and loving, why is there suffering in the world?

Task: Research the Problem of Evil and write a short paragraph (150–200 words) explaining:

What the Problem of Evil is.

Examples of suffering or evil in the world (such as natural disasters or human actions).

How religious believers might respond to this question.

Your own opinion on whether suffering makes it difficult to believe in God.

Challenge: Explain the difference between moral evil (caused by human actions) and natural evil (caused by nature), giving one example of each.

Include a reason why some people believe suffering can have a purpose.

6

Watch this clip
create a fact file
on the natural
hazards -
include how it
happens, the
impacts and
effects.



Tick off and date the ones you have completed
