Term 3

St Laurence School
Year 7 Knowledge Organiser

Name & Tutor Group: _____

Learning Group: _____

SLS Knowledge organisers

How to use them?

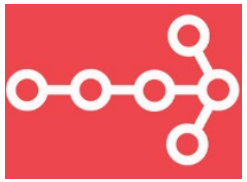
Students remember more if they…

GREAT REVISION IS …		
	Pair it	Have you created a set of questions and answers that someone else can test you on? Paired retrieval questions can extend learning.
	Look, Cover, Write, Check it	Have you read the notes, covered them up, and written down everything you can remember? Add the information not recalled in red pen.
	Mind map it	Have you sorted the important information into chunks? Add colours, images, and make connections between the information.
	Judge it	Have you completed a *but* sentence showing why someone might not agree with an idea? Or can you give a non-example?

SLS Knowledge organisers

How to use them?

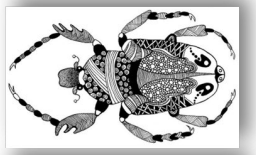
Students remember more if they…

GREAT REVISION IS …		
	Draw it	Have you turned the information into a picture, image, or diagram? Dual coding is a powerful way to get information to stick.
	Flash card it	Have you shrunk the information down to the most essential parts? Have a key word on one side and the definition on the back of the card. You can sort cards, rank cards or get someone to quiz you.
	Map it	Have you created a diagram or hierarchy to help you link the concepts and judge the most important to least important.
	Test it	Have you completed a self-quiz, where you have key words or questions and have to respond to the answer or give the definition.

Year 7 Art

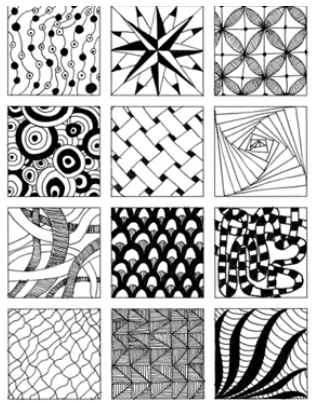
Insects

Brief overview of project
In this project, you will explore the theme of insects. You will work in an A4 sketchbook. At first, you will begin with an assessed tonal drawing. Learn how to draw using proportion, practise and learn Zentangle pattern making, and explore further mark making, using various pencils, fine liner and paint. Next you will have a brief introduction to colour theory.
You will use the work of other artists to inspire your own painting composition, applying your knowledge of colour theory.
You will go on to produce a collaborative piece of work either with clay; inspired by Japanese Netsuke, or with paint or mixed media.



This year we will study:
- Drawing – how to use tone effectively
- Zen doodle patterns, to create effective designs
- How to mix and apply watercolour
- Different cultures such as Japanese Netsuke, West African Adinkra and Mexican Day of Dead
- How to use a sketchbook to present your work

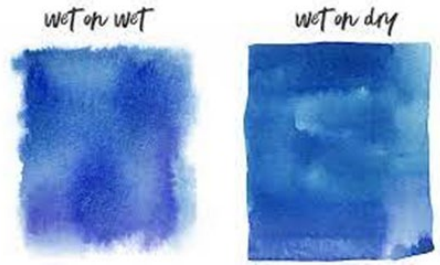
Zendoodle Drawings



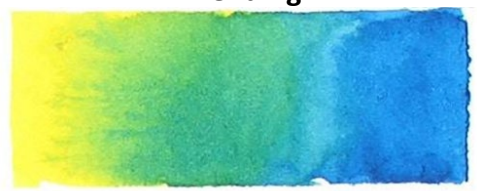
Artist: Christopher Marley

Japanese Netsuke

Watercolour Painting Techniques



Blending



Experimentation

Oil Pastels

Subject Dance

Topic: Shadows

Choreography

This topic you will be choreographing and responding to the set stimulus shadow poem. Using the words in the poem you will select dance actions that link to the poem. You will also be introduced to dance relationships, and you will select relationships that help communicate the ideas in the poem.

Choreography actions

Gesture
Turn
Travel
Jump (elevation)
Travel
Floor work
Transfer weight
Use of different body parts
Falling

Using literacy in dance
The Shadow Poem

On Sunny days I ‘m never free
I have a friend who comes with me. Six foot tall and stretched out wide. There is no place that I can hide.

I twist and turn and curl up tight.
I reach and pause then spring to flight. I travel in a new direction.
But he comes to as my reflection.

I pull and push and spin around.
I tilt I freeze then fall to ground.
It traces every move I make.
A bust of speed can't make the break.

Up- Side down or face to face.
He follows me as if to chase.
The clouds come over and hide the sun.
I leap up high and he is gone.

Key Words

Stimulus
Shadow
Respond
Create
Motif
Action
Space
Dynamics
Relationships

Dance Relationships

Lead and Follow
Mirroring
Contrast
Complementary
Formation

Choreographic devices

Unison
Canon
Highlight
Climax

Year 7 Design Technology

Food (Healthy Eating)

Key Practical Skills

Chopping and Knife Skills - fruit salad and pasta salad

Rubbing in method - scones and fruit crumble

Creaming method - fruit muffins and pineapple upside down cake

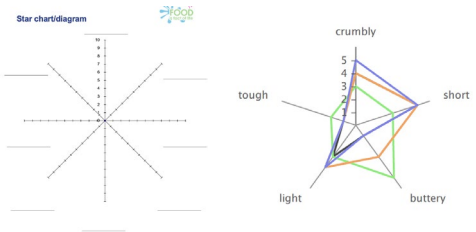
Melting method - flapjack

A combination of some of the above skills along with rolling and shaping – **Funny Face Pizzas**

Keywords

- Bacteria
- Bridge
- Cooker
- Claw
- Equipment
- Evaluate
- Healthy
- Hygiene
- Measure
- Safety
- Sensory analysis
- Time management
- Weigh

Sensory Analysis



Sensory analysis tasks are used to examine the properties e.g texture, taste, appearance and odour.

We use this to compare shop bought products but also evaluate your home-made products.

Knife Skills

Bridge hold

Claw hold

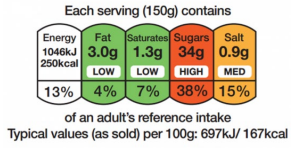
Peeling

Health and Safety Rules in the Kitchen

- Tie long hair up
- Wash your hands with warm soapy water
- Wear a clean apron
- Listen to instructions
- No running or shouting in the kitchen
- Leave bags and coats outside on the rack
- Remove nail varnish/ acrylic nails
- Do not sneeze or cough over food
- Wash up and tidy away the equipment that you use.

Healthy Eating

The Eatwell Guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.



The traffic light labelling system will tell you whether a food has high, medium or low amounts of fat, saturated fat, sugars and salt. It will also tell you the number of calories and kilojoules in that particular product.

Year 7 Design Technology: Resistant Materials

Key Practical Skills

Measuring and marking material – All project require accurate use of rules and try squares

Cutting with a tenon saw – Learn the correct technique for safety and efficiency with a hand saw

Use of basic machinery – Belt sanders and pillar drills are used on several projects

Communicating designs – Designing of block bot project looks at how to design to a brief and effectively communicate your idea

Key theory topics

Timber

Hardwoods – Trees lose their leaves over winter, take a long time to grow and are expensive.

Softwoods – Trees are evergreen and keep their leaves, grow quicker and more affordable

Polymers (plastic)

Thermosetting – Plastics that can be heated and shaped once. After they will go hard and will burn if heated.

Thermoforming – Can be heated and reshaped multiple times

Metals

Ferrous – Ferrous metals contain iron. They are magnetic and can rust.

Non-ferrous – Any metal that does not contain iron. Not magnetic and will not rust.

Alloy – A combination of a metal and another element.

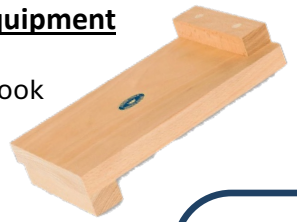
Health and Safety rules

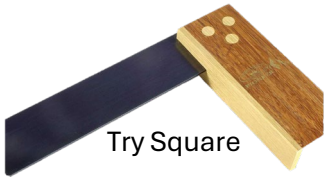
- Tie up long hair
- Wear an apron
- Listen to instructions
- Wear goggles when using machines
- Only two people on a workbench
- Be aware of your surroundings
- No running
- No eating or drinking
- Use tools and machines only as instructed
- The workshop is tidy and clean after every lesson

Tools and Equipment

Tenon Saw

Bench Hook





Try Square

Belt Sander

Key words

- Hardwoods
- Softwoods
- Manufactured boards
- Polymers
- Ferrous & non-ferrous metals
- Design brief

Year 7 Design Technology: Textiles (Tie Dye Cushion Cover)

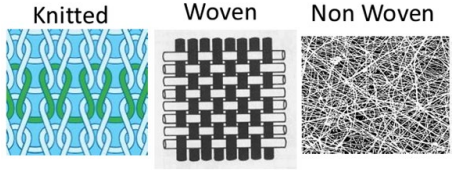
Terminology

Design Specification - a list of design criteria that the finished product must meet.
Client - also known as the user; the person or group of people who will buy and/or use the design solution.
Client profile - a summary of the client's likes, dislikes and interests.
Analysis - looking at a product in more detail to understand more about it.
Annotation – Labels on designs commenting on fabrics, colour, technique and who your user is.

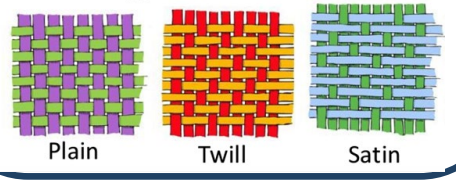
Keywords

- Tie Dye
- Embroidery
- Appliqué
- Design
- Pattern
- Iron
- Thread
- Sewing machine
- Stitching (zig-zag, straight, decorative)
- Cotton
- Polycotton
- Polyester
- Linen
- Wool
- Nylon

Fabric Construction



Types of Weaves



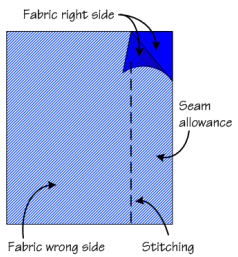
Equipment

Thread - a long strand of fibres (cotton, polyester, nylon) used for joining, creating or decorating textiles.

Bondaweb - A double-sided adhesive to bond fabrics together simply by ironing. Used for securing applique in place and to prevent the edges from fraying.

Practical skills

Seam allowance - is the area between the fabric edge and the stitch line on two pieces of material sewn together. A seam allowance is 1.5cm from the fabric edge.

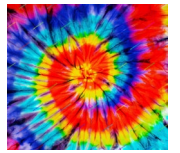


Hem – An edge is turned over twice to create a neat finish, ironed and sewn in place so there is no raw edge to your cushion cover.

Decorative Techniques

Appliqué – A French word meaning 'to apply'. Decorative technique made by sewing fabric shapes onto another surface.

Tie Dye - A hand method of producing patterns in textiles by tying portions of the fabric with string so that it will not absorb the dye and leave colourful patterns in the fabric.



Hand Embroidery - Stitching on fabric with a hand needle and embroidery thread to add colour and texture to the surface.

Decorative Stitches - A series of detailed stitches sewn by machine in a continuous line to decorate hems.

Drama

Term 3: Shakespeare

Key Facts

•**Full Name:** William Shakespeare 1564 - 1616
•**Occupation:** Playwright, Poet, Actor
•**Career Highlights:** Member and part-owner of the Lord Chamberlain's Men, later known as the King's Men. Shakespeare also acted in some of his plays, though he was more famous as a playwright

Why we study him

Shakespeare's works continue to be a cornerstone of English literature and drama, offering timeless stories and characters that captivate audiences young and old.

Mysteries: Some aspects of Shakespeare's life remain mysterious, leading to speculation and theories about his works and identity

His Plays

Genres: Comedies, Tragedies, Histories, and Romances.

First Folio: In 1623, seven years after Shakespeare's death, his friends published the First Folio, a collection of 36 of his plays.

Famous works include: Macbeth, Romeo and Juliet, A Midsummer Night's Dream and Hamlet

The Globe Theatre

The most famous theatre associated with Shakespeare, located in London. It opened in1599 on the South Bank

A replica of the original building was built in 1997 and audiences today can still experience a little bit of Shakespeare's world.

The cheapest ticket at the Globe is £5 – but you have to stand up!

Language and Style:

•**iambic pentameter:** A rhythmic pattern consisting of ten beats - an unstressed syllable followed by a stressed syllable, used in most of his plays.
•**Soliloquies:** Speeches where a character speaks their thoughts aloud, often when alone, giving insight into their inner thoughts.
•**Invented Words and Phrases:** Shakespeare created many words and phrases still used today, such as "bedroom," "gloomy," "lonely," and phrases like "break the ice" and "heart of gold."

Shakespeare's Legacy:

•**Influence:** His works have influenced English literature, drama, and the arts for over 400 years.
•**Translations:** His plays have been translated into every major living language and are performed more often than those of any other playwright.
•**Cultural Impact:** Shakespeare's stories, characters, and themes continue to be relevant and are studied worldwide.

Subject ENGLISH

Topic Narrative Poetry

CONTEXT

The Ballad of Charlotte Dymond: the true story of a young woman murdered on the Cornish moors in 1844 and how her supposed killer might have been framed. (Charles Causley 1958)

The Listeners: a story of a traveller who arrives at a cottage in the wood and calls for the inhabitants to come down and greet him at the door. (Walter de la Mere 1912)

The Lady of Shallott: the story of a cursed woman who falls in love with a knight and has to endure the Curse that has been placed upon her. Loosely based on tales from King Arthur and Camelot. (AL Tennyson 1832)

MAIN CHARACTERS

Charlotte Dymond – a Cornish young woman
Matthew – her lover
The Listeners – inhabitants of the cottage
The traveller – the rider in the wood
Lady of Shallot – young woman cursed for life
Lancelot – a knight of King Arthur's Round Table
You! – writing your best creative writing story

SUBJECT VOCABULARY

Metaphor
Verse
Stanza
Rhyme scheme
Rhythm
Simile
Stress
Syllable
Metre
Narrative

USEFUL VOCABULARY

Framed
Murder
Elope
Ghostly
Spirits
Phantom
Curse
Camelot
Arthur
Lancelot

ACADEMIC VOCABULARY

Creative, interpretation,
personal response,
narration, perspective, empathy,
sympathy,
poetic techniques,
use of tenses, dialogue,
speech marks and rules,
paragraphing,

BIG IDEAS, THEMES AND QUESTIONS

Love and betrayal – how is Charlotte betrayed by the people around her?
Preconceptions – what does an audience expect when we read or hear a poem?
Promises – should we always keep our word/promises – even when no-one can prove that we have done so?
Frustrated life and loves – what would you be prepared to give up for love?
Fate – should we accept our fate or not?
Creative Writing – using our imagination to write our own narratives. Taking an idea and then using it as a stimulus.

French

My School

L'emploi du temps	***The timetable***
le lundi	*on Mondays*
le mardi	*on Tuesdays*
le mercredi	*on Wednesdays*
le jeudi	*on Thursdays*
le vendredi	*on Fridays*
À (neuf heures) j'ai (sciences).	*At (nine o'clock) I've got (science).*
le matin	*(in) the morning*
l'après-midi	*(in) the afternoon*
le mercredi après-midi	*on Wednesday afternoon*
la récréation/la récré	*breaktime*
le déjeuner	*lunch*

Quelle heure est-il?	***What time is it?***
Il est …	*It's …*
huit heures	*eight o'clock*
huit heures dix	*ten past eight*
huit heures et quart	*quarter past eight*
huit heures et demie	*half past eight*
neuf heures moins vingt	*twenty to nine*
neuf heures moins le quart	*quarter to nine*
midi	*midday*
minuit	*midnight*
midi/minuit et demi	*half past twelve (midday/midnight)*

Les matières scolaires	***School subjects***
le français	*French*
le théâtre	*drama*
la géographie/la géo	*geography*
la musique	*music*
la technologie	*technology*
l'anglais (m)	*English*
l'EPS (f)	*PE*
l'histoire (f)	*history*
l'informatique (f)	*ICT*
les arts plastiques (m)	*art*
les mathématiques/maths (f)	*maths*
les sciences (f)	*science*

zone culturelle

How is Mardi Gras celebrated in France?

Les mots essentiels	***High-frequency words***
à	*at*
et	*and*
aussi	*also*
mais	*but*
très	*very*
trop	*too*
assez	*quite*
un peu	*a bit*
pourquoi?	*why?*
parce que	*because*
beaucoup (de)	*a lot (of)*
tous les jours	*every day*
aujourd'hui	*today*
pardon	*excuse me*
merci	*thank you*
est-ce que (tu) … ?	*do (you) …?*
qu'est-ce que (tu) … ?	*what (do you) … ?*
avec	*with*

Les opinions	*Opinions*
Tu aimes/Est-ce que tu aimes … ?	*Do you like … .?*
J'aime …	*I like …*
J'aime beaucoup …	*I like … a lot.*
J'aime assez …	*I quite like …*
J'adore …	*I love …*
Je n'aime pas …	*I don't like …*
Je déteste …	*I hate …*
C'est ma matière préférée.	*It's my favourite subject.*
Moi aussi.	*Me too.*
T'es fou/folle.	*You're crazy.*

Les raisons	*Reasons*
C'est …	*It's …*
intéressant	*interesting*
ennuyeux	*boring*
facile	*easy*
difficile	*difficult*
génial	*great*
nul	*rubbish*
marrant	*fun/funny*
On a beaucoup de devoirs.	*We have a lot of homework.*
Le/La prof est sympa.	*The teacher is nice.*
Le/La prof est trop sévère.	*The teacher is too strict.*

le monde du travail

Find out how languages are important to journalists

How to learn new words …

Cognates and not quite cognates!

A cognate is spelt the same in English as in French. Most of the time they mean exactly the same too, for example:

pizza - pizza

In French there are also lots of words that look similar to English words but are not identical. Often these words have exactly the same meaning as the English:

difficile

géographie

intéressant

musique

Term 3 Checklist

- say what subjects I like and dislike ☐
- use accents and cedillas correctly ☐
- ask questions using intonation and *Est-ce que* ☐

- ask someone why he/she likes/dislikes something ☐
- give reasons for liking/disliking subjects ☐
- agree and disagree with people ☐
- use intensifiers with adjectives ☐
- join sentences using *parce que* ☐

- say what time it is ☐
- understand a French school timetable ☐
- describe my timetable ☐

- understand information about French schools ☐
- describe my school day ☐
- use *on* to say what we do ☐
- pronounce the sound *on* correctly ☐

- say what I eat/I'm eating ☐
- use the partitive article with food ☐
- use *qu'est-ce que* and *est-ce que* correctly ☐
- pronounce cognates correctly ☐
- use an *s* to make nouns plural ☐

un verbe important	aimer = to like
j'aime – I like	nous aim**ons** – we like
tu aim**es** – you like	vous aim**ez** – you like
il/elle/on aim**e** – he/she/it likes	ils/elles aim**ent** – they like

Year 7 German

My World

Meeting and greeting	
Wie heißt du?	*What's your name?*
Ich heiße ...	*My name is ...*
Hallo!	*Hello!/Hi!*
Guten Tag!	*Hello!*
Wie geht's?	*How are you?*
Gut, danke. Und dir?	*Fine, thanks. And you?*
Nicht schlecht.	*Not bad.*
Tschüs!	*Bye!*
Auf Wiedersehen!	*Goodbye!*
Wie alt bist du?	*How old are you?*
Ich bin ... Jahre alt.	*I am ... years old*

Where do you live?	
Ich wohne in ...	*I live in ...*
Er/Sie/Es wohnt in ...	*He/She/It lives in ...*
...England	*England*
...Irland	*Ireland*
...Nordirland	*Northern Ireland*
...Schottland	*Scotland*
...Wales	*Wales*
...Deutschland	*Germany*
...Österreich	*Austria*
...der Schweiz	*Switzerland*

Verbfokus	wohnen = to live
ich wohne – I live	wir wohn**en** – we live
du wohn**st** – you live	ihr woh**nt** – you live
	Sie wohn**en** – you live
er/sie/es woh**nt** – he/she/it lives	sie wohn**en** – they live

High frequency words	
und	*and*
(und) auch	*(and) also*
aber	*but*
oder	*or*
sehr	*very*
ziemlich	*quite*
nicht	*not*

Question words	
Wie?	*How?*
Was?	*What?*
Wo?	*Where?*
Woher?	*Where ... from?*
Wer?	*Who?*

Berufsprofil

Find out about these German companies

Lufthansa

KNORR-BREMSE

Hapag-Lloyd

BMW

BAYER

SIEMENS

adidas

ALDI

BOSS HUGO BOSS

Beiersdorf

COMMERZBANK

TUI

What are you like?

Ich bin …	*I am …*
Er/Sie	*He/She is …*
faul	*lazy*
freundlich	*friendly*
intelligent	*intelligent*
kreativ	*creative*
launisch	*moody*
laut	*loud*
lustig	*funny*
musikalisch	*musical*
sportlich	*sporty*

I have …

Ich habe …	*I have …*
einen Computer	*a computer*
einen iPod	*an iPod*
einen Fußball	*a football*
eine Gitarre	*a guitar*
eine Wii	*a Wii*
eine Schlange	*a snake*
ein Handy	*a mobile phone*
ein Keyboard	*a keyboard*
ein Skateboard	*a skateboard*

Numbers 0–19

null	*0*	zehn	*10*
eins	*1*	elf	*11*
zwei	*2*	zwölf	*12*
drei	*3*	dreizehn	*13*
vier	*4*	vierzehn	*14*
fünf	*5*	fünfzehn	*15*
sechs	*6*	sechzehn	*16*
sieben	*7*	siebzehn	*17*
acht	*8*	achtzehn	*18*
neun	*9*	neunzehn	*19*

How to learn new words …

Ask yourself:

1. Do I know what it means when I see it?
2. Can I pronounce it?
3. Can I spell it correctly?
4. Can I use it in a sentence?

Look, Say, Cover, Write, Check Use these five steps to learn the meaning, pronunciation, and spelling of new words.

1. Look carefully at the word. Close your eyes and try to picture the word in your mind. This uses your visual memory.
2. Say the word out loud to yourself. This uses your auditory memory.
3. Cover the word - say it and 'see' the word in your mind.
4. Write the word out from memory.
5. Check your word against the original. Did you get it right? Combining seeing, listening, and doing strategies makes memorising more effective.

Verbfokus	sein = to be
ich bin – I am	wir sind – we are
du bist – you are	ihr seid – you are
	Sie sind – you are
er / sie / es ist – he / she / it is	sie sind – they are

My favourite things

Mein Lieblingssport	*My favourite sport*
Mein Lieblingsmonat	*My favourite month*
Meine Lieblingsmusik	*My favourite music*
Meine Lieblingszahl	*My favourite number*
Meine Lieblingssendung	*My favourite programme*
Meine Lieblingsfußballmannschaft	*My favourite football team.*
Mein Lieblingsspiel	*My favourite game*
Mein Lieblingsland	*My favourite country*
Mein Lieblingsauto	*My favourite car*

Term 1 Checklist

- [ ] introduce myself and greet others
- [ ] recognise the three words for 'the' in German
- [ ] pronounce German words and predict spellings

- [ ] use the numbers 0–19
- [ ] ask how old someone is and give my age
- [ ] use the verb ***sein*** (*ich*, *du* and *er/sie/es* forms)

- [ ] use the German alphabet to understand how words are spelled
- [ ] ask and say how a word is spelled
- [ ] use the verb ***wohnen*** (*ich*, *du* and *er/sie/es* forms)

- [ ] describe my character
- [ ] talk about some favourite things
- [ ] use ***mein/meine*** and ***dein/deine*** correctly
- [ ] use cognates to decode meanings
- [ ] use the connectives ***und***, ***aber***, (***und***) ***auch*** and the qualifiers (***nicht***) ***sehr***, ***ziemlich***

- [ ] ask questions using questions words (***wie***, ***was***, ***wo***, ***wer***, ***woher***)

- [ ] check genders and capital letters of nouns
- [ ] check spellings
- [ ] write sentences from memory and then check my work
- [ ] use a variety of connectives and qualifiers to increase the length and interest of my sentence

Kulturzone

Find out about Austria's National Day

German

Free time

Hobbies	
Was machst du gern?	*What do you like doing?*
Ich chille	*I chill*
Ich fahre Rad	*I ride my bike*
Ich fahre Skateboard	*I go skateboarding*
Ich fahre Ski	*I ski*
Ich fahre Snowboard	*I snowboard*
Ich gehe einkaufen	*I go shopping*
Ich gehe ins Kino	*I go to the cinema*
Ich gehe in den Park	*I go to the park*
Ich gehe in die Stadt	*I go into town*
Ich höre Musik	*I listen to music*
Ich lese	*I read*
Ich mache Judo	*I do judo*
Ich mache Karate	*I do karate*
Ich mache Sport	*I do sport*
Ich reite	*I go horse riding*
Ich schwimme	*I swim*
Ich sehe fern	*I watch TV*
Ich spiele Gitarre	*I play the guitar*
Ich spiele Xbox oder Wii	*I play Xbox or on the Wii*
Ich tanze	*I dance*

Sports			
Ich bin (sehr/ziemlich/nicht sehr) sportlich		*I am (very/quite/not very) sporty*	
Was spielst du?		*What do you play?*	
Ich spiele ...		*I play ...*	
Ich spiele gern ...		*I like playing ...*	
Ich spiele ziemlich gern ...		*I quite like playing ...*	
Ich spiele nicht gern ...		*I don't like playing ...*	
Federball	*badminton*	Basketball	*basketball*
Eishockey	*ice hockey*	Fußball	*football*
Handball	*handball*	Rugby	*rugby*
Tennis	*tennis*	Tischtennis	*table tennis*
Volleyball	*volleyball*	Wasserball	*water polo*

High frequency words	
Wie oft?	How often?
(sehr/ziemlich/nicht so) oft	(very/quite/not so) often
einmal/zweimal/dreimal	once/twice/three times
pro Woche/pro Monat	a week/a month
jeden Tag	every day
jeden Morgen	every morning
manchmal	sometimes
immer	always
nie	never
am Wochenende	at the weekend
am Abend	in the evening
heute	today
morgen	tomorrow
am Montag	on Monday
nächste Woche	next week
in zwei Wochen	in two weeks

How to learn new words ...

High-frequency words

These are words that come up again and again, no matter what you are talking about. Every *knowledge organiser* page has a list of these words, but there are many more.

Here are a few to get you started:

der, die, das, ein, eine, einen, und, aber, in, ich, es gibt, gern, ...

Verbfokus	spielen = to play
ich spiele – I play	wir spielen – we play
du spielst – you play	ihr spielt – you play
	Sie spielen – you play
er / sie / es spielt – he / she / it plays	sie spielen – they play

Kulturzone

Find out about Karneval in Cologne

Online actitivies

Was machst du am Computer?	*What do you do on the computer?*
Was machst du auf deinem Handy?	*What do you do on your*
Ich chatte mit Freunden/auf Facebook	*I chat with friends on Facebook*
Ich lade Musik herunter	*I download music*
Ich mache Fotos oder Filme	*I take photos or make films*
Ich sehe Videos	*I watch videos*
Ich simse	*I text*
Ich spiele Computerspiele	*I play computer games*
Ich suche und lese Infos für die Hausaufgaben	*I look for and read information for my homework*
Ich surfe im Internet	*I surf the internet*
Ich telefoniere mit Freunden	*I call my friends*
Ich mache ziemlich viel auf meinem Handy	*I do quite a lot of things on my mobile*

Giving an opinion

Ich finde es ...	*I think it's ...*
Es ist ...	*It's ...*
irre	*amazing*
super	*super*
toll	*great*
cool	*cool*
gut	*good*
nicht schlecht	*not bad*
okay	*okay*
langweilig	*boring*
nervig	*annoying*
stinklangweilig	*deadly boring*
furchtbar	*awful*

Berufsprofil

Click on this QR code to learn about languages help in your career

Term 3 Checklist

- talk about the sports I play and ask others about what they play
- use the verb ***spielen*** (all parts)
- use ***gern*** and **qualifiers** with a verb to say what I like doing

---

- talk about my leisure activities
- give my opinion using ***ich finde*** and ***es ist*** with adjectives
- use the ***er/sie/es*** forms of irregular verbs

- talk about what I do in my free time
- say how often I do things
- use correct word order when starting sentences with a time phrase

---

- say how I use mobiles and computers
- talk about how often I and others do things
- use the ***wir*** forms of verbs, including ***sein***
- talk about the future with the present tense and future time phrases
- make sound-writing links to predict pronunciation of new words

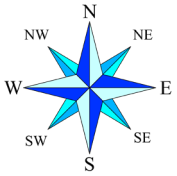
---

- use visual and textual clues to anticipate the overall theme of a text
- predict possible answers by working out the meaning of questions and prompts
- use pre-listening strategies to tackle longer listening tasks

---

- identify good features from a model text
- express opinions in a variety of ways
- refer in my writing to what others do
- vary word order by starting my sentences with a time phrase
- use a checklist to plan and assess my own and my partner's work

Subject: Geography



Topic: Is the Earth running out of natural resources?

Formation of oil

1. Crude oil, coal and natural gas are fossil fuels.
2. These are fuels that have formed over millions of years.
3. They are formed by the action of heat and pressure in the absence of oxygen.
4. They are made from the dead remains of plants and animals.
5. The dead matter get squashed under layers of sedimentary rock. Over millions of years oil, coal and gas are formed from them.

Key Terms

Natural Resources
Materials from the Earth used to support life and meet people's needs

Renewable
A resource that is not depleted when used.

Non-Renewable
A resource of finite quantity.

Fossil Fuels
A natural fuel formed in the geological past

Hydrosphere
All water on the planet

Atmosphere
All gases surrounding the earth.

Lithosphere
The rocky outer part of the Earth.

Biosphere
The region of earth occupied by living things.

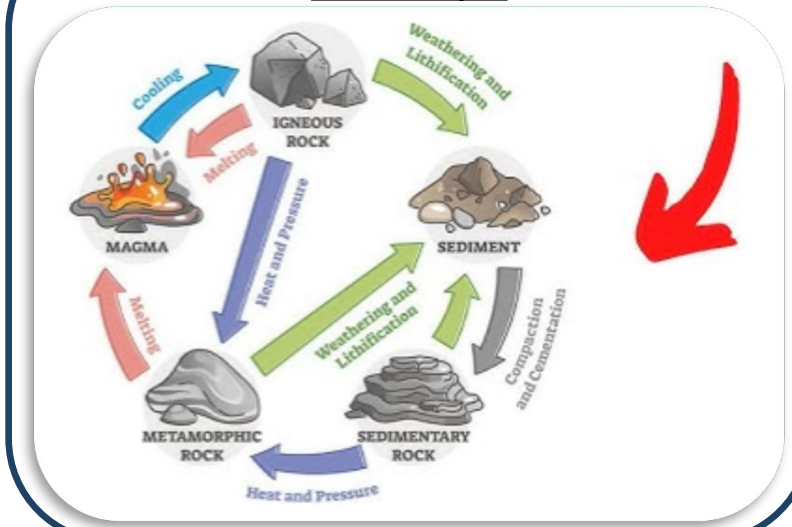
Weathering
The process of wearing something away due to exposure to the atmosphere and elements.

Social
Society or its organization.

Economic
Relating to money.

Environmental
The natural world.

The Rock Cycle



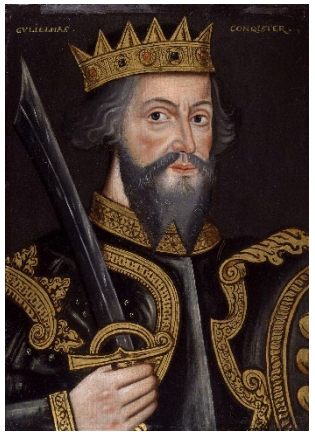
Sustainability

"Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs."
The Brundtland Report 1987

Year 7 History

‘Arrogant, warlike and very pleased with themselves’: What were the Normans really like?

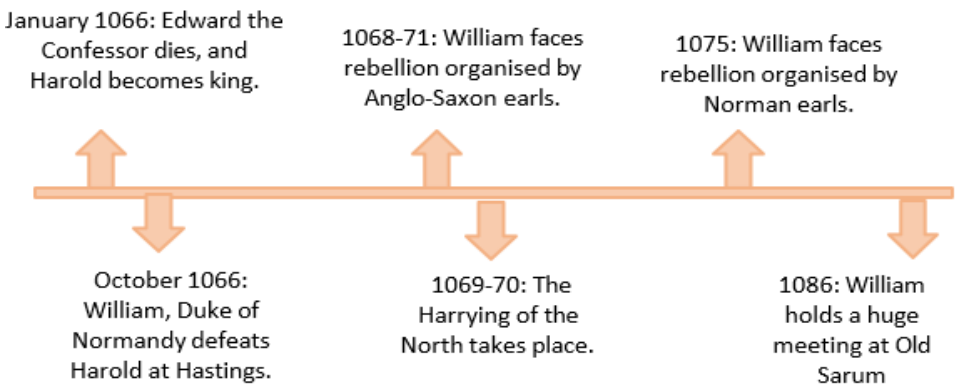
Key events:	How did William behave/respond?
The Battle of Hastings:	William proved himself to be an effective leader, perhaps organising the clever ‘fake retreat’.
Rebellions by the Anglo- Saxons:	William showed that he was clever and forward-thinking, forgiving some earls for rebelling against him. He also paid off Viking invaders as a way of getting rid of them.
Rebellion in the north:	William crushed unrest and rebellion against him, destroying people’s crops, seeds and houses.
Problems in the Church:	William was a religious man, and wanted to make the Pope happy. He organised for the Church in England to be reformed, and new bishops/archbishops appointed.
Assembly at Salisbury:	William wanted to recognise his loyal earls, revealing the results of the Domesday Survey (and how much land the Normans owned). He knew how useful a big display of power could be.

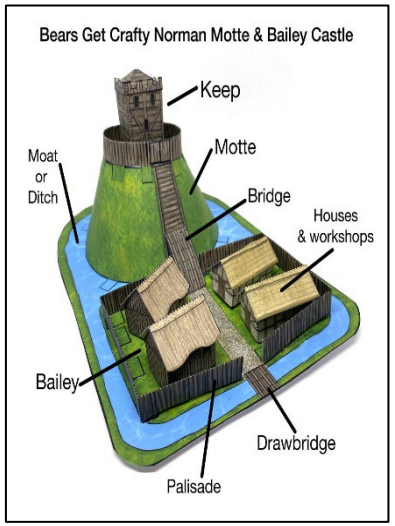


William of Normandy

Key terms:	
Contemporary source	An account that was written at the time (or soon after) the events described.
Anglo-Saxon	People who lived in England from the 400s. They were dominant by the time of the Norman Conquest.
Norman	People who came from Normandy in France (led by William the Conqueror).
Conquer	To take control by military force.
Earl	An important and wealthy man who ruled over a part of England.
Thegn	An Anglo-Saxon term for a man who owned a large amount of land.
Knight	Someone who served their leader (like William) as a soldier in battle.
Archbishop	A high-ranking member of the Church. In England, the Archbishop of Canterbury is the most influential Church official.
Rebellion	An act of resistance to the leader.
Harrying	Carrying out violent attacks against a group of people.
Slavery	The system where some people are forced to work (for free) for others.
Motte-and-bailey castle	A type of castle where a wooden or stone fort is built on a raised area of ground.
Oath of allegiance	A promise to be loyal and faithful.
Domesday Book	A record taken of all the land and who owned it across England.

Key dates:





Year 7 Maths

Expressions & Equations

Key Learning

Arithmetic Procedures With Integers and Decimals

- Understand the structures that underpin addition and subtraction strategies.
- Understand the structures that underpin multiplication and division strategies.
- Use conventions of arithmetic to calculate efficiently

Expressions and Equations

- Understand substitution into formula.
- Understand collecting like terms
- Expanding and factorizing single brackets

Coordinates & Graphs

- Understand plotting coordinates (in 4 quadrants)

Useful Links for revision

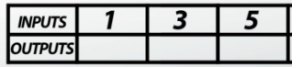
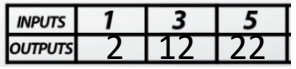
MyMaths

Latest - MyMaths Library
www.mymaths.co.uk

Corbettmaths

www.corbettmaths.com
Corbettmaths – Videos, worksheets, 5-a-day and much more

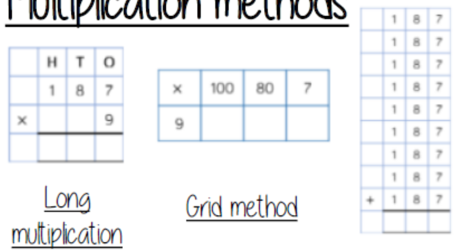
Keywords

Term	Definition	Example
Commutative:	changing the order of the operations does not change the result	2 x 3 x 4 = 4 x 3 x 2 24 = 24
Associative:	when you add or multiply you can do so regardless of how the numbers are grouped	(2 + 3) + 4 = 4 + (3 + 2) 9 = 9
Distributive	multiplying a group of large 2 or 3-digit numbers will create the same value as those numbers being partitioned, multiplied and added together.	**49 x 6** = (40 x 6) + (9 x 6) = 240 + 54 = 294
Inverse:	the operation that undoes what was done by the previous operation. (The opposite operation)	8 + 4 = 12 Inverse: 12 – 4 = 8
Function:	a relationship that instructs how to get from an input to an output.	$f(x) = 5x - 3$
Input:	the number/ symbol put into a function.	
Output:	the number/ expression that comes out of a function.	
Substitute:	replace one variable with a number or new variable.	Y = 5x – 3, when x = 2 Y = 5 x (2) - 3 = 7
Quadrant:	four quarters of the coordinate plane.	Quadrant 1
Coordinate:	a set of values that show an exact position.	(2,5)

Year 7 Maths

Expressions & Equations

Multiplication methods



Long multiplication (column)

Grid method

Repeated addition

Less effective method especially for bigger multiplication

Estimations: Using estimations allows a 'check' if your answer is reasonable

Multiplication with decimals

Perform multiplications as integers

e.g. 0.2 x 0.3 ⟶ 2 x 3

Make **adjustments** to your answer to match the question: 0.2 x 10 = 2

0.3 x 10 = 3

Therefore 6 ÷ 100 = 0.6

Division methods

3584 ÷ 7 = 512

Short division

$$7 \overline{)\,3\;{}^{3}5\;8\;{}^{1}4}$$ = 5 1 2

Complex division

÷ 24 = ÷ 6 ÷ 4

Break up the divisor using factors

Division with decimals

The placeholder in division methods is essential – the decimal lines up on the dividend and the quotient

24 ÷ 0.02 ⟶ 24 ÷ 0.2 ⟶ 240 ÷ 2

All give the same solution as represent the same proportion.
Multiply the values in proportion until the divisor becomes an integer

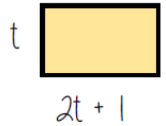
Form expressions

For unknown variables, a letter is normally used in its place

More than – ADD
Less than/ difference – SUBTRACT

e.g. 4 more than t ⟶ t + 4
8 less than k ⟶ k - 8

Only similar terms can be grouped together



e.g. Find the perimeter of this shape
(Perimeter = length around outside of shape)

t + 2t + 1 + t + 2t + 1 ⟶ 6t + 2

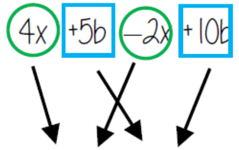
Collecting like terms ≡ symbol

The ≡ symbol means equivalent to.
It is used to identify equivalent expressions

Collecting like terms

Only **like terms** can be combined

4x +5b –2x + 10b



2x + 15b

Substitution into expressions

4y ⟵ 4 lots of 'y'

If y = 7 this means the expression is asking for 4 'lots of' 7

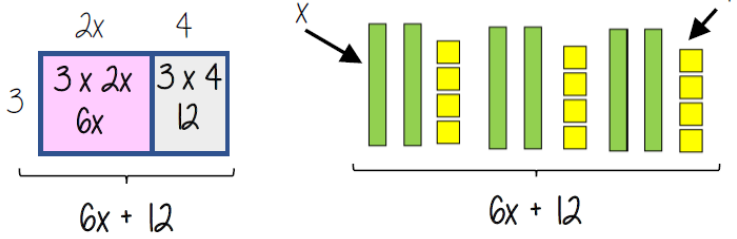
4 x 7 OR 7 + 7 + 7 + 7 OR 7 x 4 | = 28

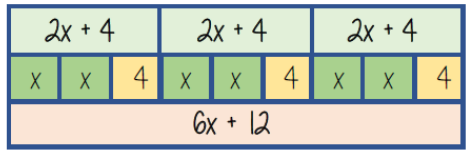
e.g. : y – 2
= 7 – 2 = 5

Year 7 Maths

Expressions & Equations

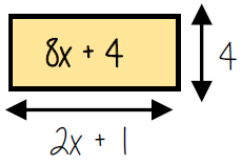
Multiply single brackets $3(2x + 4)$





Different representations of $3(2x+4) = 6x + 12$

Factorise into a single bracket $8x + 4$



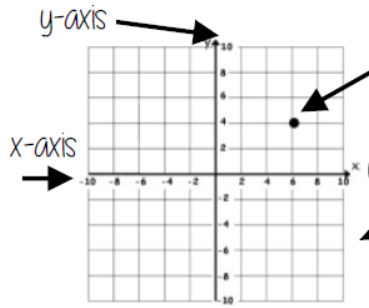
Try and make this the highest common factor

The two values **multiply** together (also the area) of the rectangle

$8x + 4 \equiv 4(2x + 1)$

Note:
$8x + 4 \equiv 2(4x + 2)$
This is factorised but the HCF has not been used

Coordinates in four quadrants



(x, y)

Always the position on the x axis first

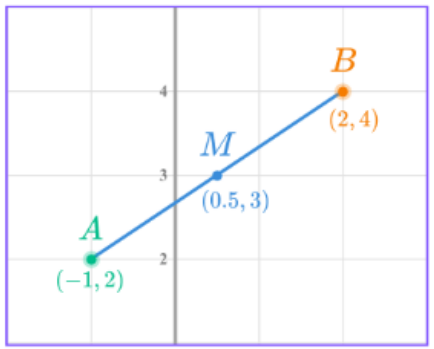
Always the position on the y axis second

(0, a) Will be always be a point on the y axis. (a can be any number)

(a, 0) Will be always be a point on the x axis. (a can be any number)

Midpoint of a line

The **midpoint of a line** segment is a point that lies exactly halfway between two points.



To find the coordinates of the midpoint M, take the averages of the x and y coordinates of the endpoints A and B:

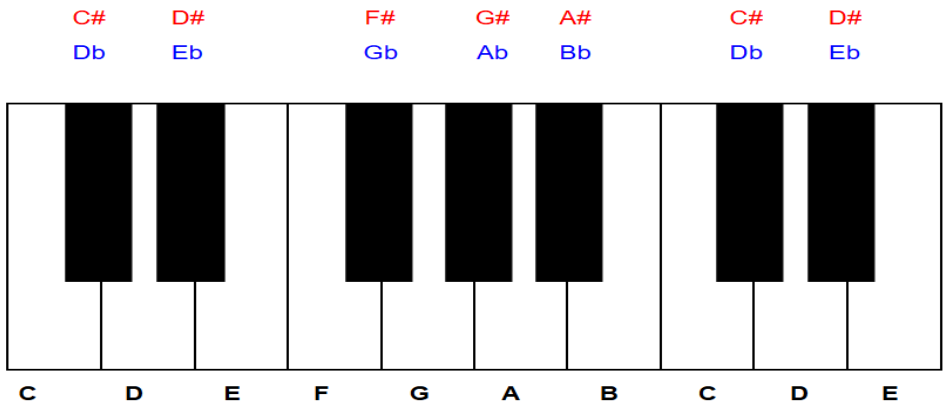
Average of the x coordinates is $\frac{-1+2}{2} = \frac{1}{2} = 0.5$

Average of the y coordinates is $\frac{2+4}{2} = \frac{6}{2} = 3$

Subject: MUSIC

Topic The Keyboard

The feature which all keyboard instruments have in common is the set of 'keys' which are pressed in order to produce the sound. These keys are ordered so that the white keys produce the ***natural*** notes, while the black keys are the ***sharps*** and ***flats***.



- The note C is always a white note just BEFORE a group of 2 black notes.
- The black notes all have 2 names.
- A sharp is always a black note just ABOVE a white note.
- A flat is always a black note just BELOW a white note.

Which Family?

Is the piano a ***stringed*** instrument? – the sound is produced by strings inside the instrument…

Or is it a ***percussion*** instrument? – the sound is produced when little hammers hit the strings…

Which family does the **organ** belong to? – the sound is produced when air is blown through different length pipes…..

Subject: MUSIC

Topic Ostinato

Unpitched percussion – percussion instruments which do not have different pitches and are therefore unable to play tunes/melodies.

Pitched percussion – percussion instruments which are tuned to different pitches and are able to play tunes/melodies.

Ostinato – a repeating musical pattern. Use this term when referring to classical, world or folk music.

Loop – a repeating musical pattern. Use this term when referring to music which has a strong technology component.

Riff – a repeating musical pattern. Use this term when referring to rock, pop or jazz.

Castanets **Claves**
Tambourine **Triangle**
Guiro **Glockenspiel**
Maracas **Xylophone**

Subject PE

Topic Football

Key Terminology

Goal – The scoring system in football. To score a goal the ball must travel over the goal line. The game is restarted with a kick-off in the centre circle by the team that conceded

Corner – Given when a ball last hits a defensive player and goes wide of the goal. The attacking team restart the game from the quadrant in the corner.

Throw-in – Given when the ball leaves the pitch on one of the sides.

Free-kick – Given when a player is fouled outside of the penalty area. A player can shoot from this. All opposition players must be 10 yards away.

Penalty – when a player is fouled inside the penalty area. A player has a free shot from the penalty spot against the goalkeeper.

Offside – when an attacking player is passed the ball while closer to the goal than any of the defenders. Play restarts with a free-kick for the defending team

Key Skills

- ✓ Dribbling
- ✓ Passing
- ✓ Receiving
- ✓ Shooting
- ✓ Tackling
- ✓ Communication
- ✓ Teamwork

Key Rules

- ✓ Game is started with a kick-off on the halfway line.
- ✓ A full match is 11-a-side with a maximum of 5 substitutions to be made
- ✓ One referee and two assistant referees officiate the game
- ✓ A full match lasts 90 minutes. This is split into two 45 minute halves.

Equipment Required/Safety:

- ✓ St Laurence PE Kit
- ✓ Studded Boots
- ✓ Shinpads
- ✓ Hair Tied Up
- ✓ Jewellery Removed

Passing

- Short pass – use the inside of your foot and pass the ball along the floor. Non-kicking foot next to the ball
- Lofted pass – use your laces, kick the bottom half of the ball and lean back slightly to create loft on the ball

Dribbling

- Use the 'top' of your foot (just below the laces) and take little touches
- Keep your head up to see where defenders and teammates are positioned

Defending

- Jockeying – 'silver surfer' body shape and on toes ready to react with the movement of the attacker
- Keep eyes on the ball to help time your tackle and block the attacker

Subject PE

Topic Badminton

Key Terminology

Racket/Shuttlecock – The equipment used in the game of badminton
In/Out – A shuttle that lands inside the dimensions of the court is in, if it lands outside it is out.
Singles/Doubles – Singles refers to matches that are 1v1 while doubles is 2v2
Serve – Each point starts with a serve from the service box. This must travel diagonally to land in the service box of the opponent. If the server is on an even number of points they serve from the right. If it is an odd number of points it is from the left
Clear – A shot in badminton that travels long and high towards the back of the opponents side of the court
Drop Shot – A shot that travels short and low over the net to land at the front of the court
Net Shot – A shot that is played at the net to land at the front of the court
Smash – An attacking shot with lots of power and a downwards trajectory

Key Skills

- ✓ Serve
- ✓ Forehand/Backhand
- ✓ Clear
- ✓ Drop Shot
- ✓ Net Shot
- ✓ Smash
- ✓ Knowledge of Rules

Key Rules

- ✓ Each point starts with a serve
- ✓ Serve must be played below the ribs
- ✓ Sets are played to 21 points.
- ✓ Serve from the right if on an even number of points. Serve from the left if on a odd number of points
- ✓ Singles court is long and thin. Doubles court is short and wide

Equipment Required/Safety:

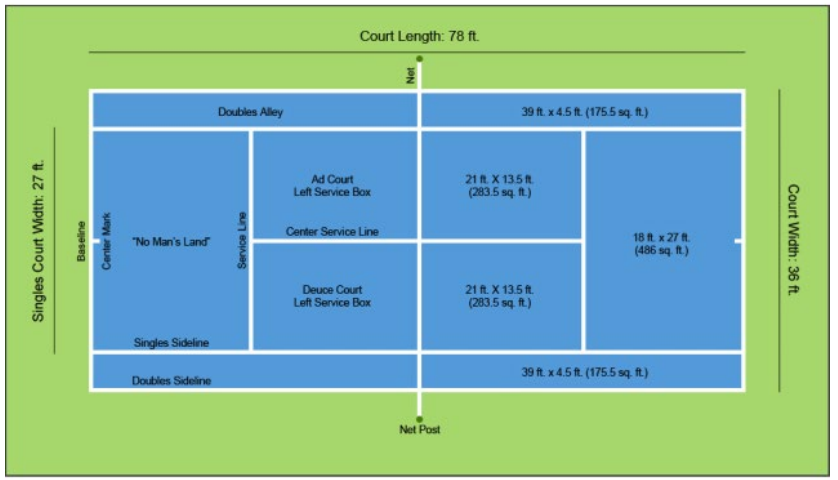
- ✓ St Laurence PE Kit
- ✓ Trainers
- ✓ Hair Tied Up
- ✓ Jewellery Removed

Serve

- Stand at the front of the service box and side on
- Hold the shuttle out in front of you with the feathers facing away
- Backhand serve – hold racket parallel to the net. Flick the wrist to push the shuttle short and low over the net
- Forehand serve – full forehand clear technique to whip the shuttle high and long over the net

Overhead Shots

- Play the shuttle at its highest point
- Non-playing hand pointing to the shuttle for accuracy
- 'Whip' the racket for clear or smash shots
- 'Push' the shuttle over the net for drop shots



Subject PE

Topic Fitness

Key Terminology

Heart Rate – the number of times your heart beats per minute
Breathing Rate – the number of breaths you take per minute
DOMS – Delayed Onset Muscle Soreness. Caused by the presence of lactic acid in the muscles following exercise
Repetitions – the number of times you perform the same movement in a row
Sets – grouping repetitions together to perform multiple times
Cardiovascular Endurance – the ability of the heart and lungs to supply muscles with oxygen. Also known as stamina
Muscular Endurance – the ability of the muscles to undergo repeated contractions without tiring
Strength – the ability to overcome a resistance

Key Skills

- ✓ Performing various fitness techniques
- ✓ Planning a fitness session
- ✓ Measuring heart rate
- ✓ Understanding impacts of exercise

Key Rules

- ✓ Only use the equipment that the teacher has shown you
- ✓ Only perform techniques that the teacher has shown you
- ✓ Check your surroundings while performing each exercise.
- ✓ Place equipment safely and neatly back in its place

Equipment Required/Safety:

- ✓ St Laurence PE Kit
- ✓ Trainers
- ✓ Water bottle
- ✓ Hair Tied Up
- ✓ Jewellery Removed

Immediate effects of exercise
- Heart rate increases
- Breathing rate increases
- Body temperature increases
- Sweating
- Fatigue/Tiring
- Increased blood flow

Long term effects of exercise
- Resting heart rate decreases
- Heart becomes more efficient and stronger
- Muscles grow and become stronger
- Breathing becomes more efficient
- Improvement in components of fitness

Subject PE

Topic Gymnastics

Key Terminology

Balance – using a part or multiple parts of the body to hold a shape/ Patch balances refer to using larger parts of the body to balance while point balances refer to smaller parts of the body to balance with
Tension – using core muscles to hold a balance as still as possible for a period of time
Control – showing stability and skill to enter, hold, and complete a balance
Travel – the various movements shown to move around an area for a routine
Flight – using jumping and springboards to enter the air during a routine
Shapes – the movement of the body while in the air
Aesthetics – how good a performance looks
Routine – the combination of a number of movements and techniques together to form a performance

Key Skills

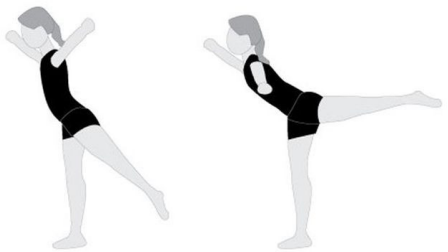
- ✓ Balance
- ✓ Tension
- ✓ Control
- ✓ Travel
- ✓ Rolls
- ✓ Flight
- ✓ Resilience
- ✓ Perseverance

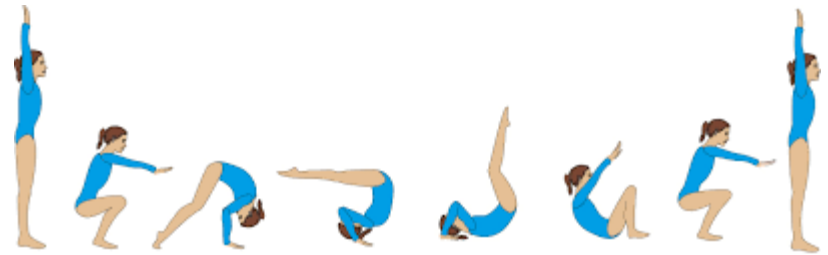
Key Rules

- ✓ Only perform movements that the teacher has shown you
- ✓ Shoes and socks to be removed for health and safety
- ✓ Only use equipment your teacher has given you
- ✓ Use the mats provided to perform techniques on

Equipment Required/Safety:

- ✓ St Laurence PE Kit
- ✓ Shoes and socks off
- ✓ Water bottle
- ✓ Hair Tied Up
- ✓ Jewellery Removed





Subject PSHE

Topic Careers

What is a Career? A career is a journey through your working life. It includes the jobs you do, the skills you learn, and the progress you make over time. Careers are not just one job but a series of roles you may do during your life. Everyone's career path is different, and it can change as you develop new skills or interests.

Why is it Important to Learn About Careers in Year 7?

Inspiration: Early exploration helps you discover what you might want to do in the-setting**: Helps you understand what subjects and skills are important for certain careers.

Decision-making: Learning about different jobs helps you make informed choices later on in school and beyond.

Different Types of Jobs

Part-time Jobs: Jobs where you work fewer hours, often while still in school (e.g., weekend retail jobs).

Full-time Jobs: Jobs where you work around 35-40 hours a week.

Volunteering: Working for a cause without getting paid to gain experience and develop skills.

Pathways to Different Careers

Education: Many careers require specific qualifications (e.g., GCSEs, A-levels, degrees).

Apprenticeships: Learning a job while getting paid and earning qualifications.

Work Experience: Short periods of working in a job to gain insight and experience.

Vocational Training: Courses that teach you skills for a particular job (e.g., hairdressing, mechanics).

Career Sectors (Examples of Career Fields)

STEM (Science, Technology, Engineering, Mathematics):

Careers like scientist, software engineer, doctor, or architect.

Creative Industries: Roles such as graphic designer, musician, actor, or author.

Public Services: Jobs like police officer, firefighter, teacher, or healthcare worker.

Business and Finance: Careers such as accountant, entrepreneur, or marketing manager.

Hospitality and Tourism: Roles like chef, hotel manager, or travel agent.

Construction and Trades: Jobs like electrician, builder, or plumber.

Key Concepts in Careers

Skills: Abilities you develop that can help you in any job (e.g., communication, teamwork, problem-solving).

Qualities: Personal traits like resilience, leadership, and responsibility that employers look for.

Interests: What you enjoy doing can guide your career choices (e.g., working with animals, designing things, or helping people).

Aspirations: The hopes or goals you have for your future.

Key Vocabulary

Career Path: The steps you take to progress in your career.

Apprenticeship: A way of learning a job while working and getting paid.

Skill: An, like solving problems or using a computer.

Qualification: A certificate or degree that shows you've achieved certain skills or knowledge.

Work Experience: Spending time in a workplace to learn about a job.

Subject RE

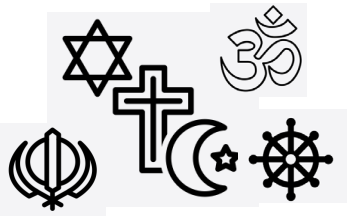
Topic What does it mean to be religious?

Ways of describing religious belief	
Secular	non-religious,
Atheist	a person that is certain God doesn't exist
Agnostic	A person who is unsure if God exists and is withholding judgement
Religious Plurality	Many different religious beliefs

Ways of describing religion	
Religio	A sense of something greater or beyond themselves. For example, God
Religare	Something done with careful attention to detail. For example, prayer
Pick and mix religion	A person that choose parts of religion that best helps them in their lives. For example, Yoga helps relieve stress
World View	Your personal values, beliefs and stories through which you see the world

Ways of describing help for the community	
Social problem	Condition or behaviour that has bad consequences for a large number of people
Role	The behaviour or function expected of a person
Agape	Selfless love
Charity	An act or organisation that provides help for those in need

Key evidence
2001 census = 76 percent of the uk is religious
2011 census = 75 percent religious
Examples of world views: veganism, humanism



Science

Topic: Reproduction

Human reproduction

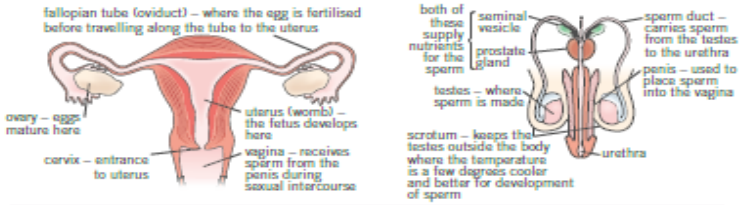
Adolescence

The time during which you change from being a child to being an adult is called **adolescence**. The physical changes that happen between the ages of 9–14 are called **puberty**.

These changes include:

Girls	Girls and Boys	Boys
breasts develop, ovaries start to release egg cells, periods start, hips widen,	pubic and underarm hair grows, body odour develops, emotional changes, growth spurt	voice breaks, sexual organs develop, testes start to produce sperm, shoulders widen, hair grows on face and chest

Reproductive systems



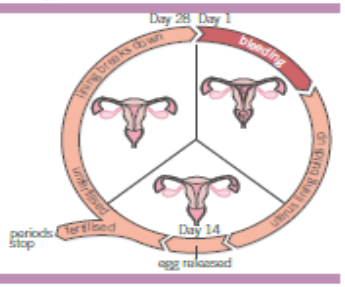
The menstrual cycle

Day 1 – blood from uterus lining leaves the body through the vagina.

Day 5 – bleeding stops. Uterus lining begins to re-grow.

Day 14 – an egg cell is released from one of the ovaries (**ovulation**).

The egg cell travels through the oviduct towards the uterus.



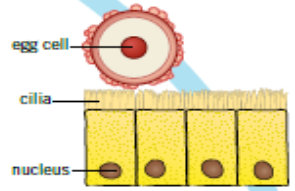
Methods of contraception

Condoms – A thin layer of latex rubber that prevents semen being released into the vagina.

Contraceptive pill – a daily tablet that contains hormones. It prevents pregnancy by stopping ovulation.

Fertilisation

An egg is released every month.



The egg cell is moved along the oviduct towards the uterus by **cilia**.

Sperm cells are produced in the **testicles/testes**.

Sperm are mixed with nutrients and fluid from the glands to form **semen**.

During sexual intercourse a man will release semen into the vagina (**ejaculation**).

If a sperm meets the egg **fertilisation** may happen.

The fertilised egg may then **implant** in the uterus lining and form an **embryo** (ball of cells)

the main steps in a baby's development (**gestation**) during pregnancy

There are three important structures in the uterus during gestation:

placenta – where substances pass from mother to **fetus**

umbilical cord – connects the fetus to the placenta

fluid sac – shock absorber that protects the baby.

Plant reproduction

Parts of a flower

Stamen

male part of the flower

- the **anther** produces pollen
- the **filament** holds up the anther

Carpel

female part of the flower

- the **stigma** is sticky to catch grains of pollen
- the **style** holds up the stigma
- the ovary contains **ovules**

Pollination

Pollination is the fertilisation of the ovule, which occurs when pollen is transferred from an anther to the stigma. Pollination can occur due to insects or the wind.

cross-pollination between two **different** plants

self-pollination between the male and female parts of the **same** plant

Fertilisation

Germination

When a seed starts to grow it is called **germination**.

To germinate, seeds need:

- water – for the seed to swell and the embryo to start growing
- oxygen – for respiration and transferring energy for germination
- warmth – to help speed up the reactions in the plant.

Key terms Make sure you can write definitions for these key terms.

adolescence anther carpel cervix cilia contraception ejaculation embryo fertilisation fetus filament gestation germination implant menstrual cycle ovary oviduct ovulation ovule placenta pollen pollination puberty semen sperm duct stamen stigma style testes umbilical cord uterus urethra vagina

Science

Topic: Acids & Alkalis

C1 Chapter 4: Acids and alkalis
Knowledge organiser

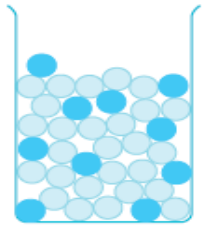
Activate
Question • Progress • Succeed

Acids and alkalis

Acids and **alkalis** are special solutions which are chemical opposites to each other.
If a solution is between acid and alkaline it is **neutral**.

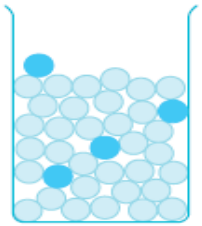
Acids and alkalis can be:

concentrated



Lots of acid/alkali particles for the amount of water.

dilute



A small number of acid/alkali particles in the same amount of water.

Acids and alkalis are **corrosive**
This means that they can cause burns if they get on your skin.

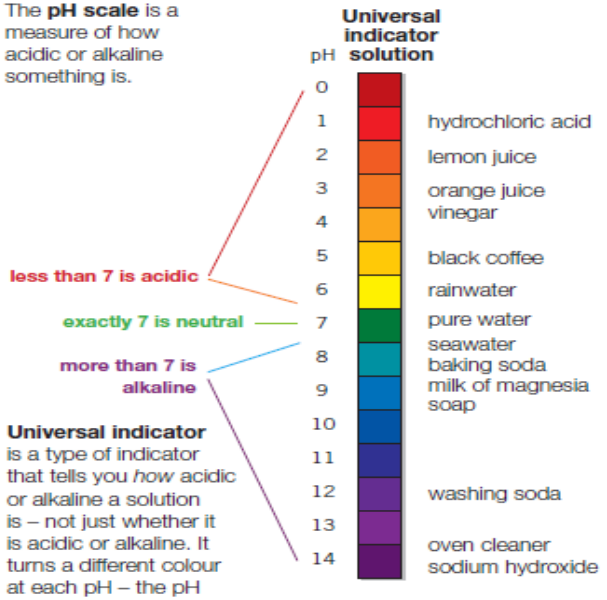
Acids and alkalis can be extremely dangerous, depending on the type of acid/alkali and its concentration.
As a general rule the more concentrated the solution, the more dangerous it can be.

Indicators

If you want to know if something is acidic or alkaline, you need to use an **indicator**. Indicators contain a dye that turns different colours in acidic and alkaline solutions.

Litmus paper is a type of indicator. It can be either **pink** paper or **blue** paper.
- in acid – **blue** paper turns **pink**
- in alkali – **pink** paper turns **blue**

The **pH scale** is a measure of how acidic or alkaline something is.



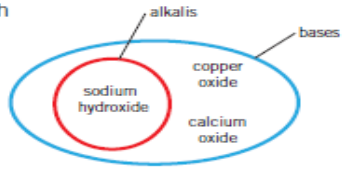
Universal indicator is a type of indicator that tells you *how* acidic or alkaline a solution is – not just whether it is acidic or alkaline. It turns a different colour at each pH – the pH scale shows the colours of universal indicator in solutions of different pH.

Reactions with acids

When an acid reacts with a metal element or compound a **salt** is formed.
The hydrogen atoms of the acid are replaced with atoms of the metal element.

$Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$
zinc + sulfuric acid → zinc sulfate + hydrogen

A **base** is a compound that can react with an acid to make a neutral solution.
This is called **neutralisation**.
Bases that are soluble in water are alkalis.



Neutralisation reactions produce water and a salt.

acid + base → salt + water

for example,
sodium hydroxide + hydrochloric acid → sodium chloride + water
copper oxide + sulfuric acid → copper sulfate + water

Metals can also react with acids, but they produce a salt and hydrogen gas.
for example,
magnesium + hydrochloric acid → magnesium chloride + hydrogen

Naming salts

The name of the metal comes first, for example, **magnesium** chloride.

Different acids produce different types of salt:
- hydrochloric acid produces metal **chlorides**
- sulfuric acid produces metal **sulfates**
- nitric acid produces metal **nitrates**

Key terms Make sure you can write definitions for these key terms.

acid · alkali · base · concentrated · corrosive · dilute · indicator · litmus · neutral · neutralisation · pH scale · salt · universal indicator

Science

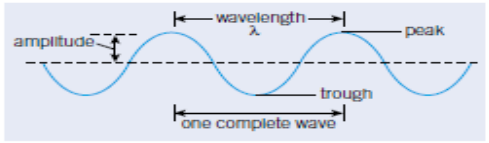
Topic: Sound

P1 Chapter 2: Sound
Knowledge organiser

Activate
Question • Progress • Succeed

Properties of waves

A wave is an **oscillation** or **vibration** that transfers energy. Matter is not transferred. Waves can be longitudinal or transverse.



Amplitude – distance from the middle to the top or bottom of the wave

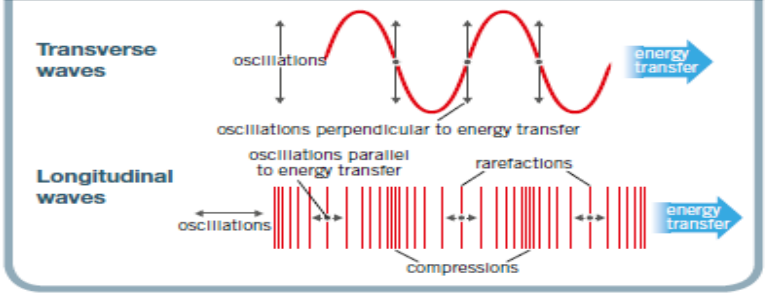
Wavelength – distance between a point on the wave to the same point on the next wave

Trough – bottom of the wave **Peak** – top of the wave

Frequency – how many waves go past a particular point in a second, measured in **hertz** (Hz) or kHz

If waves meet they **superpose**. This means they add up or cancel out, depending on if they are in time with each other or not.

Transverse and longitudinal waves



Sound waves

Sound is produced by vibrations, which make air molecules oscillate.

Sound is a longitudinal wave.

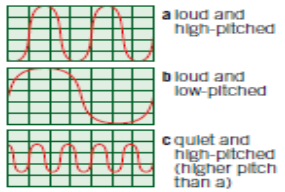
speed of sound

- fastest – in solids (e.g., steel ≈ 5000 m/s)
- in liquids (e.g., water ≈ 1500 m/s)
- slowest – in gases (e.g., air ≈ 340 m/s)

Waves can be **reflected** from a surface. The wave hitting the surface is the **incident wave**, and the wave bouncing off is the **reflected wave**. A reflected sound wave is heard as an echo. The time delay of an echo can be used to work out the distance to an object.

Ultrasound (waves >20 kHz) is used to make images of unborn babies, in medical scans, and for underwater (sonar) searches.

Measuring sound



Oscilloscopes display sound waves.

Humans can hear frequencies 20 Hz to 20 kHz. Above this is ultrasound. Below this is **infrasound**.

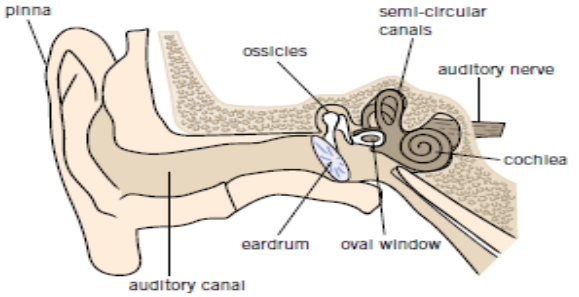
Sound volume is measured in **decibels** (dB). The decibel scale is not linear – a 10dB increase is 10 times the volume.

Recording and playing sounds

In a microphone sound waves hit a **diaphragm** making it vibrate. This produces an electrical signal by moving a coil of wire over a magnet. Speakers are the opposite to microphones – an electrical signal is turned into sound by moving a cone backwards and forwards.

Hearing

Your ear is made of many specially adapted structures that detect and transmit sound waves, allowing you to hear noises.



Part of ear	Structure	Function
outer ear	**pinna**	directs sound into auditory canal
	auditory canal	sound travels through it to reach the eardrum
	eardrum	vibrates and passes vibrations to the ossicles
middle ear	**ossicles**	tiny bones that **amplify** sound
inner ear	**cochlea**	filled with thousands of tiny hairs and liquid – sound makes the hairs move, which sends an electrical signal to your brain
	semi-circular canals	helps you keep your balance

Hearing damage be caused by a number of factors, for example:

- a hole in the ear drum (grows back naturally)
- canal blocked with wax (curable)
- loud sounds or injury, causing damage to the hairs in the cochlea (permanent).

Key terms Make sure you can write definitions for these key terms.

amplify amplitude auditory canal auditory nerve cochlea compression decibel diaphragm eardrum frequency hertz incident wave infrasound longitudinal oscillation oscilloscope ossicle oval window peak pinna pitch rarefaction reflected semi-circular canal superpose transverse trough ultrasound vibration wavelength