# Science Knowledge Organiser Year 5 Summer 1 and 2



#### Links to Prior Learning

Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. (Year 3)

Observe how magnets attract or repel each other and attract some materials and not others. (Year 3)

Objects are things that you can touch or see. Objects are made from materials.

Some materials are natural while others are man -made. (Year 1)

# Unbalanced Force 400 N 300 N 300 N 300 N 400 N 300 N

#### Key Questions

- · What is a force?
- What types of forces exist?
- What are levers, pulleys, gears and springs?

# Forces

#### Enquiry Skills - Science Disciplines

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Using test results to make predictions to set up further comparative and fair tests.
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.
- Identifying scientific evidence that has been used to support or refute ideas or arguments.

#### Key Knowledge

- Explain that unsupported objects fall towards the Earth because
  of the force of gravity acting between the Earth and the falling
  object.
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Essential Vocabulary		
Lever	A lever is a simple machine which helps us to lift objects.	
Pulley	A small wheel with a grooved rim used with a rope or Chain to Change the direction of a pulling force	
Şir Isaac Newton	Sir Isaac Newton made one of the greatest scientific discoveries – gravity.	
Newton meter	A Newton meter is a piece of equipment that is used to measure the forces acting on an object.	
Gravity	an invisible force that pulls objects toward each other. Earth's gravity is what keeps you on the ground	

## Persuasive Information Poster



#### Key Knowledge

Our learning this half term will be inspired by the book 'The Paperbag Prince' by Colin Thompson. It is a story based on a man who lives in a railway Carriage on a rubbish dump. He soon realizes that even rubbish sometimes, Can Contain treasure. He relies on the greatness of nature to heal the Countryside and make the green come again.

Throughout this half term Children will explore the features of fiction text by participating in discussions, presentations, performances, role play, improvisation and debates. They will enhance their knowledge and understanding on distinguishing between fact and opinion and develop their ability to provide reasoned justifications for their views. To conclude the unit of work the children will write a persuasive leaflet to give information about waste management, selecting an appropriate audience to present this to.

Links to Prior Lea	rning
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- Science- (KS1 and KS2) Materials
- English- (KS1 and KS2) Fiction texts
- Geography- (KS1 and KS2) knowledge of the Earth and pollution

#### Key Questions

- How can you encourage people to look after our planet?
- Why do you think that the man old man chooses to stay where he lives?
- How can 'nature heal the countryside'?

Essential Vocabulary		
Modal Verbs	A modal verb is used along with a main verb to express possibility, ability, permission, or necessity.  e.g. You <u>must</u> leave.	
Fronted adverbial	Phrases placed at the beginning of a sentence used to describe the action that follows.  E.g. Before sunrise, Zach ate his breakfast.	
Parenthesis	Used to enclose additional information and to not disrupt the flow of a sentence.	
Relative clause	Adds information to sentences by using a relative pronoun-who, that or which. e.g. She lives in York, which is a Cathedral City.	
Adverb	A word that modifies a verb. e.g. <mark>very</mark> tall, he sings <mark>loudly</mark> .	
Expanded noun phrase	More than one adjective used to give detail about a noun. e.g. Bright, blue sky.	
Conjunction	A word used to connect clauses. e.g. For And Nor Because Of Yet So (FANBOYS)  Paperbag Prince Calif Thomas	

# PSHE/RSE Knowledge Organiser Year 5 Summer 1



# How can drugs common to everyday life affect our

# Promison Control

#### addiction

Addiction is like being stuck in a really strong habit that's hard to break. It's when you feel like you need something, even if it's not good for you, and you have a hard time controlling how much of it you use or do. Addiction can happen with things like drugs, alcohol, gambling, or even certain behaviors like playing video games or using social media. Addiction can be really tough to overcome, but with support and help, it's possible to improve this.

#### drugs

brain work. Some drugs, like medicine prescribed by a doctor, can help you feel better when you're sick or in pain. These are often called medications or pharmaceutical drugs. However, some drugs, can be harmful and dangerous if not used properly. These drugs can affect your brain and body in negative ways, leading to addiction or serious health problems Drugs come in many forms, including pills, powders, liquids, and plants. It's important to be cautious and informed about the drugs you take, and to only use them as directed by a doctor or trusted grown up.

Drugs are like chemicals that can change the way your body and

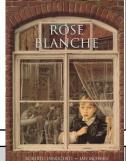
#### Key Knowledge

- understand why people might choose, or not choose, to use certain drugs
- learn that some drugs are legal (but may have laws restricting their use) and some are illegal
- understand that such laws exist to keep us sage from harm
- understand that sometimes taking a drug Can become a habit that Can be hard to break.
- know there is support to help people to stop taking a drug (e.g. smoking) and there is someone to talk to if they're worried about someone's drug use.

#### Key Questions

- why do people take drugs?
- are drugs simply good or bad?
- why are some drugs legal and some illegal?
- what is drug addiction?
- who can help with a problem with drugs?





#### No Outsiders

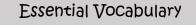
Rose Blanche by Ian McEwan Children will discuss making difficult decisions and how we justify them.

#### Links to Prior Learning.

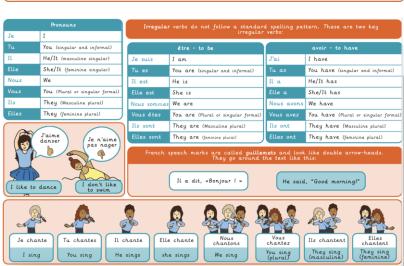
- EYFS who helps me stay safe?
- Y2 what helps us stay healthy?
- Y3 what keeps us safe?

# Verbs in a French week Year 5 Summer 1









#### Key Questions

- Can you find infinitive verbs in a dictionary?
- Can you recognise some regular verbs in the present tense?
- Can you identify verbs that do not follow regular patterns?
- Can you build and deliver a short presentation, choosing and using a range of action verbs?

#### Key Skills

- Listening and selecting information from short audio passages to give an appropriate response.
- Reading and responding to a range of authentic texts.
- Identifying key information in simple writing.
- Using a range of language detective strategies to decode new vocabulary
- Speaking in full sentences using known vocabulary.
- Formulating their own strategies to remember and apply pronunciation rules.
- Using adapted phrases to describe an object, person or place.
- Writing a short text using word and phrase Cards, knowledge organisers and a bilingual dictionary to model or scaffold.

#### Key Knowledge

- To know all subject pronouns in French and that **je** contracts to **j'** when the verb begins with a vowel.
- To know that the endings of French verb groups (er/ir/re) determine the pattern for how the verb is conjugated.
- To know that the same verb is not always used in English and French for a given phrase
- To know that ne is contracted to n' when followed by a vowel

### Danish Longball

Essential Vocabulary		
Kickers/ batters	The bowler pitches the ball to the kicker/batter, who must hit the ball.	
The square	The area that is the field of play.	
kicking/ batting zone	Where the ball must be hit from.	
bowling circle	Where the ball must be bowled from.	
safe zone	Kicker/batter must then run to the other side of the square to a 'safe zone'.	

#### Key Knowledge

- · What position I need to get into to throw well
- The importance of anticipation in sport and reading others' body language.
- To call my name if taking responsibility for a high catch.
- To play with composure under pressure
- · How to find space and be aware of others.
- That having too many people shouting instructions can confuse people

# Lime Tree Primary Academy BRIGHT FUTURES EDUCATIONAL TRUST

#### Key Questions

- How can I ensure my throws are powerful and accurate?
- How can I communicate to my team so they know I am taking a high catch?
- Think of ways to keep calm under pressure from my team.
- How can you pick up a ball whilst it is moving along the ground?
- How Can I throw a 'dummy'?

#### Links to Prior Learning

In this unit children use their throwing and Catching skills to play games where they look to use their strengths and identify their opponent's weaknesses. The game Calls for accurate throwing, good dodging and excellent decision making under pressure. They will recall their prior knowledge from invasion and target games in KS1 as well as teamwork from handball, netball and ultimate frisbee.

#### Key Skills

- · Throw with accuracy at a still target.
- Work with and against others cooperatively
- Pick up a ball on the run using one hand or two hands as appropriate.
- Act decisively under pressure
- Send and receive whilst on the move.
- Make good decisions in the heat of a game
- Disguise my throws
- · Intercept a ball
- Track an opponent's run Make increasingly good decisions when working under pressure





# Shape - Geometry

Essential Vocabulary		
Angle	Where two lines meet at a point	
Acute angle	An angle of less than 90°	
Obtuse angle	An angle greater than 90° but less than 180°	
Reflex angle	An angle greater than 180° but less than 360°	
Degrees (°)	The unit of measure for angles	
Regular shape	Where all interior angles and sides measure the same	
Irregular shape	Where interior angles and sides are different	
Horizontal axis	The line on a graph/quadrant that runs horizontally	
Vertical axis	The line on a graph/quadrant that runs vertically	

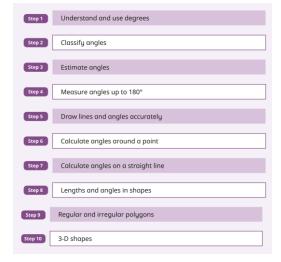
#### Links to Prior Learning

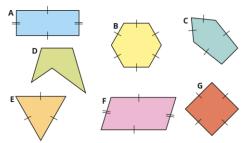
- Recognise features and name 2D and 3D shapes through EYFS, KS1 and Year 3 and 4.
- In Year 4 recognising angles in a turn and different types of angles

#### Our KIRF this half term:

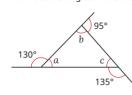
 Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 – encourage Children to look out for any patterns they notice and make links

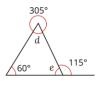
#### Our Small Steps of Learning





Work out the angles in the triangles.







#### Key Questions

- What is a right angle? How many right angles are there in a full turn?
- If there are 360° in a full turn, how many degrees are there in a right angle/quarter turn/half turn/three-quarter turn?
- How many degrees are there in a right angle/on a straight line?
- What does "acute"/"obtuse" mean?
- Is the angle acute, obtuse or reflex? How do you know?
- What unit do you use to measure an angle?
- How can you use a protractor to draw a given angle accurately?
- How can you accurately draw a polygon if you know the measurements?
- Do you need to add or subtract to find the unknown angle? How do you know?
- If all the angles around a point are equal in size, how can you work out the size of each one?
- If you know the size of angle x in the shape, how Can you work out the sizes of other angles in the shape?
- How many faces/edges/vertices are there on this 3-D shape?

#### Key Knowledge

- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- Draw given angles, and measure them in degrees (°)
- Identify angles at a point and 1 whole turn (total 360°)
- Identify: angles at a point and 1 whole turn (total 360°); angles at a point on a straight line and half a turn (total 180°)
- Use the properties of rectangles to deduce related facts and find missing lengths and angles
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

## Position and Direction - Geometry

Essential Vocabulary	
Reflection	Where a shape is flipped to Create a mirror image
Translation	Moving a shape without moving or flipping it
Vertex	A point where two or more lines meet
Coordinates	A point on a grid which has two numbers to define its position
Mirror line	A line that Can be drawn to show both sides have reflective symmetry
Horizontal axis	The line on a graph/quadrant that runs horizontally
Vertical axis	The line on a graph/quadrant that runs vertically

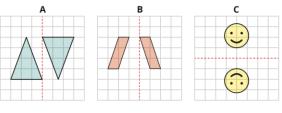
#### Links to Prior Learning

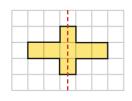
- In Year 4, describe positions using coordinates.
- In KS1 use positional language to describe turns.
- In Year 4 draw polygons using coordinates

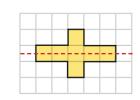
#### Our KIRF this half term:

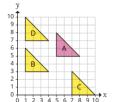
 Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 – encourage Children to look out for any patterns they notice and make links

# Our Small Steps of Learning Step 1 Read and plot coordinates Step 2 Problem solving with coordinates Step 3 Translation Step 4 Translation with coordinates Step 5 Lines of symmetry Step 6 Reflection in horizontal and vertical lines











#### Key Questions

- What is a coordinate grid?
- · What are the two axes called?
- What are coordinates?
- What happens to the x-/y-value of the coordinates when you move a point to the left/right/up/down by 1 square?
- What does it mean to translate a shape?
- How does a shape change when it is translated? How does it stay the same?
- If you know how a point is translated, how can you work out what the new coordinates will be?
- How is reflection different from translation?

#### Key Knowledge

 Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not Changed

#### Non-European study - How modern was the Islamic Empire?



	Essential Vocabulary
Scholar	A specialist in a particular branch of
	study, especially the humanities.
Merchant	A person or company involved in
	wholesale trade, especially one dealing
	with foreign countries
	or supplying goods to a particular
	trade.
Manuscript	A book or document written by hand
	rather than typed or printed.
Mosque	A Muslim place of worship
Caliph	A spiritual leader of Islam.
Muhammad	Muhammad was the founder of Islam.
Empire	A group of states or countries ruled
	over by a single monarch
Legacy	The long-lasting impact of particular
	events, actions, etc. that took place
	in the past, or of a person's life.

#### Key Knowledge

- In the middle ages, the Islamic empire was ruled by a Muslim government called the Caliphate.
- The Caliphate began in AD 632 after the death of Muhammed.
- The Caliph was the actual ruler and was believed to have been descended from the prophet Muhammed.
- 762 The city of Baghdad is built.
- Baghdad was famous because it became the new capital of the Islamic empire. It was known as the "Round City" because it was built around two semi-circles with a mosque in its centre.
- 1258 After hundreds of years of outstanding cultural progress the city of Baghdad is sacked by the Mongols. This marks what most historians believe to be the end of the Golden Age of Islam.

#### Key Questions

- Where did the Islamic empire come from?
- Why did Islam spread so quickly?
- How did goods and ideas move around the early Islamic Civilisation?
- Who were the citizens of Baghdad?
- Why did Early Civilisation end in Baghdad?
- Were all cities in the Islamic Empire like Baghdad?
- What was England like in the 11<sup>th</sup> century?
- What is the legacy of Islamic Civilisation?

#### Links to Prior Learning

- Link to Ancient civilisations covered in Year 3.
- Contrasts with British History covered in K\$1
- Comparing Human and Physical features.



Year 5 - Summer Term - History



#### The Music Year Theme: Musical Theatre (Summer 1) and Film Music (Summer 2)

	Essential Vocabulary
Pulse	The regular heartheat of the music; its steady
	beat
Rhythm	Long and short sounds or patterns that happen
	over the pulse.
Tempo	The speed of music; fast, slow or in between.
Pitch	The position of the note.
Dynamics	How loud or quiet the music is (use of new
	terminology such as mezzo forte - medium loud
	and mezzo piano - medium quiet).
Texture	How layers of music within a piece interact with
	each other.
Timbre	The particular note that distinguishes a sound of
	combination of sounds.

#### Key Questions

#### Listening

- What is the mood/feeling of pieces of the piece of music?
- Who is the composer/writer?
- Which genre is the piece of music?
- Can you comment on the pieces of music in relation to the vocabulary list?

#### Singing

- What are the key principles to warming up our voices?
- Is your voice ready for singing? Why/why not?

#### Perform (Vocal)

- What were your reflections on the live/recorded performance?
- How do you respect fellow performers?

#### Composition

 Can you identify the steady beat that you are improvising over?

#### Links to Prior Learning

In Spring, Year 5 have composed a piece of music with an opening section, following section and then a repetition of the opening section; the piece creates a specific mood.

#### Key Knowledge

- The differences between pieces of music from the 20th Century and 80s synth/pop genres
- How pieces of music are constructed through its elements (pulse, rhythm, tempo, pitch, dynamics, texture, timbre, structure and notation).
- How to own the performance space and engage with the audience.



# Wider Opportunities Listening suggestions for this term Do Re Mi by Richard Rodgers The Time of My Life by Bill Medley and Jennifer Warnes Defying Gravity from Wicked

#### Music groups in our local area

- Trafford Music Service (choirs and instrument lessons)
- Sale Youth Choir
- One Education Music Centre
- Greater Manchester Music Hub

Year 5 - Summer 1 and Summer 2 - Music

## If God is everywhere, why do people go to a place of worship?

Essential Vocabulary		
Worship	The feeling or expression of love.	
Assembly	A group of people gathered together in one place for a Common purpose.	
Meditation	focus your mind for a period of time, in silence or with the aid of chanting, for religious or spiritual purposes or as a method of relaxation.	
Deity	A god, goddess or a being of divine status, quality or nature.	
Shrine	A place regarded as holy because of its associations with a divinity or a sacred person or relic, marked by a	

#### Key Knowledge

- Pilgrimage in Hinduism is seen as a wider part of worship. This concerns the need for Hindus to be seen by the deity worshipping at a particular shrine.
- Places of worship such as churches or synagogues are considered houses of God. A place where God resides.
- 'synagogue' = 'house of assembly' (a place to get together), also Called 'schul' = school (a place to learn).

#### · Key Skills

- Explain connections between questions, beliefs, values and practices in different belief systems.
- Explain how and why differences in beliefs are expressed.
- Recognise and explain the impact of beliefs and ultimate questions on individuals and communities.
- Suggest lines of enquiry to address questions raised by the study of religions and beliefs, using relevant sources and evidence.



#### Key Questions

- Where might people say or feel God is somehow more 'present'?
- Is God concentrated more intensely in particular places?
- Will God only listen if you go to a place of worship?
- Are there different ways of worship that don't include a particular place?
- What if someone can't go to a place of worship?
- What if a crowded place isn't suitable for some?

#### Links to Prior Learning

building or other construction.

- Who is a Christian and what do they believe? Year 1.
- What do different people believe about God? Year 3.
- Why is Jesus inspiring to some people?
- Why is the Bible important to Christians?



atmosphere

interactive

location

revolution

Scaled down

Special effects

props

Installation art



joyful.

particular place.

abrupt Changes.

was planned to be.

Essential Vocabulary

The place behind an artwork.

Everyday objects used in installation art.

Forms of art that have gone through periodic,

To make something smaller than it was or than it

An image or sound that is created in television,

as an explosion) or imaginary (such as a monster).

radio, or movies to represent something real (such



The mood of an artwork, for example, mysterious or

Three dimensional art that aims to transform a

Interactive art is a form of art that involves the spectator in a way that allows the art to achieve its purpose. Some interactive art installations achieve this by letting the observer walk through, over or around them; others ask the artist or the

spectators to become part of the artwork in some

# 5- Sculpture and 3d- Interactive Installation

#### Key Knowledge

- Research an artist who has created installation artwork.
   Experiment with ideas using sketches in your sketchbook.
   Make a scaled down model of your installation
- Explore displaying everyday objects in different positions and orientations to present your artwork.
- Consider how adding lighting effects or sound could enhance your display or evoke an emotion.
- Think about the message you want to convey to your spectator-this could local to you or a global issue such as global warming, world peace or endangered animals.

# Key Questions

- How can I plan and test out my ideas for an installation artwork?
- How Can I transform and manipulate ordinary objects into sculpture?
- · What effects can I use to display my artwork?
- Can I communicate messages through my artwork?
- Where Can I see installation artwork by well known artists in the UK?

#### Artists

- Cal Guo-Qiang (1957) from the Fujian Province, China grew up during China's Cultural Revolution when explosions were part of everyday life. His art explores culture, politics and science and sometimes features explosions.
- Olafur Eliasson (1967) from Copenhagen, Denmark aimed to recreate a sunset using mirrors, lighting and artificial mist.



#### Key skills

Immersing the spectator in the artwork using the five senses



#### Where can I see sculptures?

#### Locally

Liz West an artist from South Yorkshire created the installation artwork 'Through No.4' which encourages the viewer to look at heir surroundings in a different light. The artwork can be viewed in Media City, Manchester.

#### Nationally

Yayoi Kusama an artist from Tokyo who uses dots to Create her artwork. She hosted an artwork installation in Manchester in the summer of 2023 called You, Me and the Balloons' and currently has an exhibition in the Tate gallery called 'Infinity Mirror Rooms'.





# Links to Prior Learning

- EYFS- Sculpture and 3d- Creation Station
- · Year 1- Sculpture and 3d- Paper Play
- Year 2- Sculpture and 3d- Clay Houses
- Year 3- Sculpture and 3d-Abstract Shape
   Year 4- Sculpture and 3d- Mega Materials

Year 5 - Summer 1- Art

# Year 5 - Summer 1 - Computing

#### Vector Graphs

Essential Vocabulary		
Vector	A graphic that can be resized without losing quality.	
Drawing Tools	Tools for creating digital art.	
Toolbar	Buttons for common functions.	
Resize	Make an object bigger or smaller.	
Colour	Visual perception of light.	
Rotate	Spin an object.	
Zoom	Magnify the view.	
Select	Choose an object.	
Align	Arrange objects evenly.	
Modify	Change an object's appearance.	
Layers	Separate levels in a design.	
Paste	Insert Copied Object.	
Group	Combine objects.	
Ungroup	Separate grouped objects.	
Vector	A graphic that can be resized without losing quality.	

#### Links to Prior Learning

This unit progresses children's knowledge and understanding of digital painting and has some links to the Year 3 'Creating media – Desktop publishing' unit, in which learners used digital images.

#### Key Knowledge

- Recognise that vector drawings are made using shapes
- Experiment with the shape and line tools
- Discuss how vector drawings are different from paper-based drawings
- Identify the shapes used to make a vector drawing
- Explain that each element added to a vector drawing is an object
- Move, resize, and rotate objects I have duplicated
- (Jse the zoom tool to help me add detail to my drawings
- Explain how alignment grids and resize handles can be used to improve consistency
- Modify objects to create a new image
- Identify that each added object creates a new layer in the drawing
- Change the order of layers in a vector drawing
- (Jse layering to Create an image
- Copy part of a drawing by duplicating several objects
- Recognise when I need to group and ungroup objects
- Reuse a group of objects to further develop my vector drawing
- Create a vector drawing for a specific purpose
- Reflect on the skills I have used and why I have used them
- Compare vector drawings to freehand paint drawings

# Key Skills (NC Skills)

Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and Create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.



#### Key Questions

What makes vectors unique, and why do we use them in digital design? How do drawing tools aid in Creating digital artwork?

Why are layers and order significant in digital design?

Explain resizing, rotating, and their uses in digital design.

How do grouping and ungrouping help in organizing digital elements?

#### Online Safety

#### Health, wellbeing and lifestyle

I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault.

I can describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups).