

Science Knowledge Organiser Year 6 Summer 1 and 2

Electricity

Links to Prior Learning

- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Year 4)
- Recognise some common conductors and insulators, and associate metals with. (Year 4)
- Materials which are good **thermal conductors** allow heat to move through them easily, such as a saucepan. (Year 5)

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

Key Knowledge

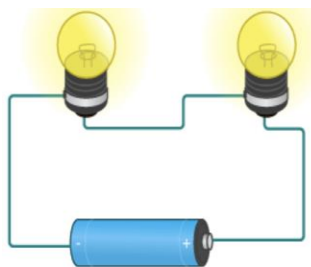
Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
Use recognised symbols when representing a simple circuit in a diagram.

Essential Vocabulary

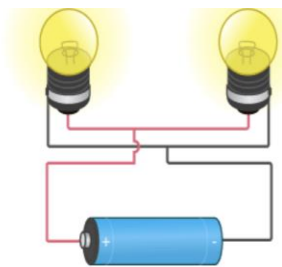
Electricity	Electricity is the flow of tiny particles called electrons and protons.
Series circuit	A series circuit consists of a single pathway through which electricity can flow.
Parallel	Parallel is the term used to describe things that remain the same distance apart all the time.
Battery	A battery is a sort of container that stores energy until it is needed. Chemicals inside the battery store the energy.

Key Questions

- How does a switch control a circuit?
- What is a conductor/insulator?
- How does an ammeter work?
- How do you change the brightness of a bulb?



Series circuits



Parallel circuits

Recount - Biography



Key Knowledge
<p>Our writing will be inspired by the book and biography 'Man Fish' by Jacques Cousteau. Jacques grew up to become a champion of the seas and one of the worlds best oceanographers in the world.</p> <p>Throughout this half term children will explore the features of biography 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 multi-modal biography of Jacques Cousteau selecting the appropriate appropriate register to do so and include a section on how he inspired them, linked to their class debate.</p>

Links to Prior Learning
<ul style="list-style-type: none"> • Science- (KS1 and KS2) Animals Including Humans • English- (KS1 and KS2) Non-Fiction texts • Geography- (KS1 and KS2) knowledge of the Oceans

Key Questions
<ul style="list-style-type: none"> • How has Jacques Cousteau inspired you? • Why is the ocean referred to as the 'silent world'? • What did Jacques' curiosity prompt him to do as he got older? • What qualities did he possess in order for him to become known as 'Champion of the seas'?

Essential Vocabulary	
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.
Conjunction	A word used to connect clauses. e.g. For And Nor Because Of Yet So (FANBOYS)
Omitted relative pronoun	Used to introduce a relative clause that gives further information about the preceding noun or phrase. e.g. The ball that I threw.
Thematic language	Relevant language linked directly to the genre or topic of the book.
Colon	: Used to introduce a list.
Semi-colon	; Used in-between two parts of a sentence, usually when two parts of the sentence could form grammatical sentences on their own.
Formal language	Used when writing for professional or academic purposes. It does not use colloquialisms, contractions or first person pronouns.



PSHE/RSE Knowledge Organiser Year 6 Summer Term

What will change as we become more independent? How do friendships change as we

Essential Vocabulary

relationship	the way in which people regard and behave towards each other
puberty	the body begins to develop and change towards adulthood
responsibilities	the opportunity to act or take decisions independently
intimate	familiar, close, private

Links to Prior Learning.

- Know about puberty and how bodies change during puberty, including menstruation and menstrual wellbeing.
- Understand how puberty can affect emotions and feelings
- Learn how personal hygiene routines change during puberty and how to ask for advice and support about growing and changing and puberty

Key Knowledge

- Understand that people have different kinds of relationships in their lives, including romantic or intimate relationships
- Know that people who are attracted to and love each other can be of any gender, ethnicity or faith and explore the way couples can care for one another
- Know that adults can choose to be part of a committed relationship or not, including marriage or civil partnership. Understand that marriage should be wanted equally by both people and that forcing someone to marry against their will is a crime
- Know how puberty relates to growing from childhood to adulthood
- know how growing up and becoming more independent comes with increased opportunities and responsibilities
- Understand how to manage changes in friendships, including moving to secondary school; how to ask for support or where to seek further information and advice regarding growing up, changing and worries about starting High school.

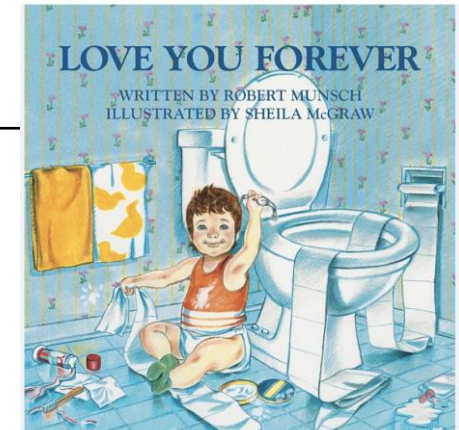
Key Questions

- What is a relationship?
- How will our relationships change as we get older?
- What will happen to us during puberty?
- Who can we ask for advice?

RSE No Outsiders

No Outsiders - Love You Forever by Robert Munsch

Children will discuss how humans change as they grow older and what happens at different stages.



Visiting a town in France

Year 6 Summer 1



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Essential Vocabulary

 un parc a park	 un musée a museum	 une plage a beach	 un marché a market	 une piscine a swimming pool
 une gare a train station	 un supermarché a supermarket	 une école a school	 une bibliothèque a library	 une boulangerie a bakery
 la gauche left	 la droite right	 tourne à gauche turn left	 tourne à droite turn right	 la deuxième à gauche/à droite the second on the left/right

Opinions	
C'est ...	It is ...
bon pour la santé	healthy
amusant	fun
bruyant	noisy
intéressant	interesting
relaxant	relaxing

Prepositions	
près de	near to
loin de	far from

Prepositions			
 Où est la boulangerie ? Where is the bakery?	 La boulangerie est près du parc. The bakery is near the park.	 Où est la piscine ? Where is the swimming pool?	 La piscine est à côté de l'école. The swimming pool is next to the school.

Key structure -
J'aime visiter + place + parce que + c'est adjective.

J'aime visiter le musée parce que c'est intéressant mais je préfère visiter la piscine parce que c'est relaxant et aussi bon pour la santé.

I like visiting the museum because it's interesting but I prefer to visit the swimming pool because it is relaxing and also healthy.

Comment vas-tu à l'école ?
How do you go to school?

Je vais à l'école en voiture et aussi à pied.
I go to school by car and also by foot.

Key Questions

- Can you describe your route to school?
- Can you ask for and give directions to places in a town?
- Can you use role play to demonstrate travelling to France?
- Can you express and justify an opinion on where to visit in a town?
- Can you analyse a text and identify grammatical features?

Key Skills

- Listening to information from an extended audio passage using language detective skills.
- Reading short authentic texts for enjoyment or information.
- Planning, asking and answering extended questions.
- Developing extended sentences to justify a fact or opinion.
- Engaging in conversation and transactional language.
- Using existing knowledge of vocabulary and phrases to create new sentences.
- Constructing a short text on a familiar topic.
- Using a wide range of descriptive phrases.

Key Knowledge

- To know that partitive articles describe where something is placed
- To know a range of prepositions to describe the position of objects.
- To know that the way verbs change to match the pronoun is called conjugation.
- To know that some verbs do not follow regular patterns, including **avoir** (to have), **être** (to be) and **aller** (to go).
- To know that **parce que** (because) can be used to extend a sentence and give a justification.

Gymnastics - Flight



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Essential Vocabulary	
Mount	the skill used to get on the apparatus
Dismount	the skill used to get off the apparatus
Leapfrog	leap over the person, spreading your legs like a frog.
Dynamic take off	the overall power of moving onto the apparatus in the gymnastics routine
Cat spring	Straddle. Pupils jump forwards to take weight on hands and arms. Hips are kept high and feet are brought to outside of hands.
Canon	perform the same movement one after the other
Unison	perform the same movement at exactly the same time as each other

Key Knowledge
<ul style="list-style-type: none"> • How to land safely. • How to create various shapes in the air. • How to make my jumps aesthetically pleasing. • To take off one foot and then spring from two into flight. • What safe mounts and dismounts look like. • What canon and unison are. • Different ways of linking movements and jumps. • How to leapfrog safely

Key Questions
<ul style="list-style-type: none"> • How do you land safely? • Describe a safe mount. • Describe a safe dismount. • What is a Canon? • What is a unison? • How do you leapfrog safely? • Demonstrate a Cat spring?

Key Skills
<ul style="list-style-type: none"> • Take off from one foot and two feet • Gain elevation from a powerful run and dynamic take off. • Take off from one foot and two. • Create shapes whilst in flight. • Land with soft knees and in a strong symmetrical position. • Share space and apparatus safely with others • Mount and dismount the apparatus safely in imaginative ways. • Leapfrog. • Perform jumps gracefully • How to Cat spring • Explore different levels in my sequences to include flight and travelling close to the ground.

Links to Prior Learning
<ul style="list-style-type: none"> • Children learn how to jump in different ways and perform shapes in flight which are varied and aesthetically pleasing. • They will build on prior knowledge on KS2 of linking skills to perform actions and sequencing movements as well as evaluating others' work using the correct technical language.





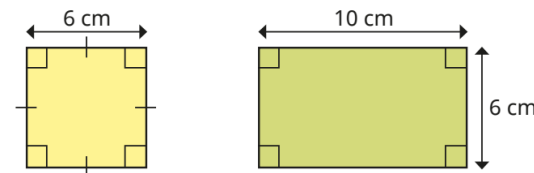
Essential Vocabulary	
Degrees (°)	The unit of measure for angles
Regular shape	Where all interior angles and sides measure the same
Irregular shape	Where interior angles and sides are different
Isosceles triangle	A triangle that has two equal length sides
Equilateral triangle	A triangle that has sides that are all of equal length
Scalene triangle	A triangle that has 3 lengths and angles that are all different lengths/degrees
Net	What a 3D shape would look like if it was unfolded

Our Small Steps of Learning	
Step 1	Measure and classify angles
Step 2	Calculate angles
Step 3	Vertically opposite angles
Step 4	Angles in a triangle
Step 5	Angles in a triangle - special cases
Step 6	Angles in a triangle - missing angles
Step 7	Angles in a quadrilateral
Step 8	Angles in polygons
Step 9	Circles
Step 10	Draw shapes accurately
Step 11	Nets of 3-D shapes

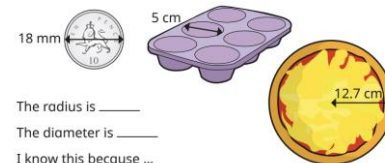
Key Questions
<ul style="list-style-type: none"> What are the four types of angles? How many degrees are there in a right angle? How can you describe an acute/obtuse/reflex angle? How can you calculate angles without using a protractor? Which angles are already given? How can you use these to calculate the missing angle? What number sentences can you write about vertically opposite angles? What does "interior" mean? How many interior angles does a triangle have? How can you measure the angles in a triangle? If a triangle is equilateral, what do you know about its sides/ angles? How can you work out the size of one of the angles? What are the properties of an isosceles triangle? What do angles in a right angle/on a straight line/around a point add up to? What 3-D shape will this net create?

Links to Prior Learning
<ul style="list-style-type: none"> 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 Know the different type of angles in Year 5 and measure and draw angles accurately.

Our KIRF this half term:
<ul style="list-style-type: none"> Know common fraction, decimal and percentage equivalents, make sure children can recall them quickly and accurately



Find the radius and the diameter for each object.



The radius is _____
The diameter is _____
I know this because ...

Key Knowledge
<ul style="list-style-type: none"> Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Draw given angles, and measure them in degrees (°) (Y5) Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles (Y5) Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise, describe and build simple 3-D shapes, including making nets

Position and Direction - Geometry



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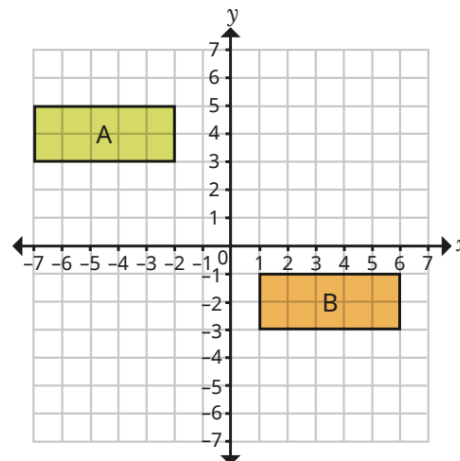
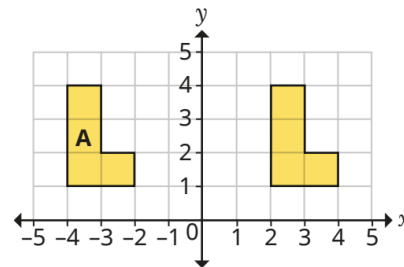
Essential Vocabulary	
Reflection	Where a shape is flipped to create a mirror image
Translation	Moving a shape without moving or flipping it
Vertex	A point where two or more lines meet
Coordinates	A point on a grid which has two numbers to define its position
Quadrant	A region where two axis intersect
Four quadrants	The coordinate plane is divided into four sections

Links to Prior Learning
<ul style="list-style-type: none"> In Year 4, describe positions using coordinates. In KS1 use positional language to describe turns. In Year 4 draw polygons using coordinates In Year 5, reflect and translate shapes through different axes

Our KIRF this half term:
<ul style="list-style-type: none"> Know common fraction, decimal and percentage equivalents, make sure children can recall them quickly and accurately

- P (-8, 3)
- Q (8, -3)
- R (8, 3)
- S (-8, -3)

Our Small Steps of Learning	
Step 1	The first quadrant
Step 2	Read and plot points in four quadrants
Step 3	Solve problems with coordinates
Step 4	Translations
Step 5	Reflections



Key Questions
<ul style="list-style-type: none"> What is a coordinate grid? What is the name of the horizontal/vertical axis? What are the coordinates of the point? What are the coordinates of the vertices of the shape? If you know the coordinates of a point, what do you know about the coordinates of a point that lies on the vertical/ horizontal line that passes through the point? What does "translation" mean? How can you translate a point? How does reflecting one vertex at a time make it easier to reflect the whole shape? How can you check if the reflected shape looks like it is in the correct place? Does the reflection of a shape always, sometimes or never face the same way as the original shape?

Key Knowledge
<ul style="list-style-type: none"> Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

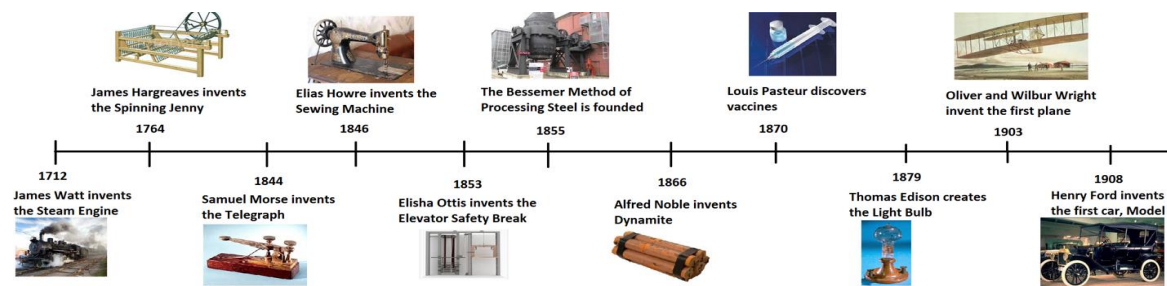
Local History Study - How did the industrial revolution change Manchester?

Essential Vocabulary	
Industry	A group of businesses that make or sell similar products or perform similar services
Trade	The buying or selling of goods/ services
Import	A product that is brought into a country from abroad
Export	A product that is sold to people outside of the country in which the product was made
Urbanisation	The process of making an area more urban (built up)
Rural	Open countryside
Smog	A combination of smoke and fog as a result of pollution

Key Knowledge
<ul style="list-style-type: none"> • Change in housing as people moved to the city for jobs. • Pollution negatively impacted people's lives and health. • Laws were passed to improve working conditions. • Inventions supported the developments in textile production. • The steam engine had a positive impact on railways. • Quarry Bank Mill was of the first cotton factories to be built. • Salford Docks allowed ocean ships from the estuary on the River Mersey the ability to bring imported goods and trade directly into Salford and Manchester.

Key Questions
<ul style="list-style-type: none"> • What were the key features of Victorian society? • How did living conditions change during the Industrial Revolution? • How did working conditions change during the Industrial Revolution? • What inventions revolutionised the lives of British people? • What political changes took place during the Industrial Revolution? • How did the industrial revolution change Manchester?

Links to Prior Learning
<ul style="list-style-type: none"> • Victorian police during Crime and Punishment topic in Year 6. • Trade, imports and exports during geography in Year 5 and 6. • Industrialisation, deforestation and urbanisation during geography in Year 5 and 6.



What matters most to Christians and to Humanists?



Essential Vocabulary	
Morals	Standards of behaviour; principles of right and wrong.
Honesty	Free of deceit; truthful and sincere.
Freedom	The power or right to act, speak, or think as one wants.
Humanist	A rationalist outlook or system of thought attaching prime importance to human rather than divine or supernatural matters.

Links to Prior Learning
<ul style="list-style-type: none"> • Who is a Christian and what do they believe? Year 1 • What do different people believe about God? Year 3 • Why do some people believe God exists? (Christians and non-religious Humanists.) Year 4

Key Knowledge
<ul style="list-style-type: none"> • Christian belief about humans being a mixture of good and bad. Key stories that give either side are the belief that Christians are made in the image of God (Genesis 1:28) and also sinful (the 'Fall' in Genesis 3). • Christian codes for living can be summed up in Jesus' two rules, love God and love your neighbour. • Jesus expects his followers to behave through the story of the good Samaritan (Luke 10:25–37) and Jesus' attitude on the cross (Luke 23:32–35). Jesus talks about actions as fruit. What does he mean? If a person's intentions are bad, can their actions produce good fruit?

Key Questions
<ul style="list-style-type: none"> • Is peace more valuable than money? • Is love more important than freedom? • Is thinking bad thoughts as bad as acting upon them? • Fairness, freedom, truth, honesty, kindness, peace. What do they look like in everyday life?

Key Skills
<ul style="list-style-type: none"> • Use religious and philosophical terminology and concepts to explain religious beliefs and values systems. • Explain some of the challenges offered by a variety of religions and beliefs in the contemporary world. • Interpret the significance and impact of different forms of religious and spiritual expression. • Identify the influences on, and distinguish between, different viewpoints within religion and beliefs.

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

Essential Vocabulary	
Pulse	The regular heartbeat 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
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> What are the key principles to warming up our voices? Is your voice ready for singing? Why/why not?
Perform (Vocal)
<ul style="list-style-type: none"> What were your reflections on the live/recorded performance? How do you respect fellow performers?
Composition
<ul style="list-style-type: none"> Can you identify the steady beat that you are improvising over?

Wider Opportunities	
Listening suggestions for this term	
	Star Wars Theme by John Williams
	Chariots of Fire by Vangelis Papathanassiou
	You're the One That I Want from Grease
Music groups in our local area	
<ul style="list-style-type: none"> Trafford Music Service (choirs and instrument lessons) Sale Youth Choir One Education Music Centre Greater Manchester Music Hub 	

Links to Prior Learning
In Spring, Year 6 have composed a piece of music with multiple sections, including repetition and contrast, whilst building knowledge of texture, timbre, structure and notation.
Key Knowledge
<ul style="list-style-type: none"> Knowledge of music and lyrics to successfully perform live to large audiences. In particular, in readiness for the Year 6 Summer term production! How pieces of music are constructed through its elements (pulse, rhythm, tempo, pitch, dynamics, texture, timbre, structure and notation).



Year 6- Sculpture and 3D- Making Memories

Essential Vocabulary	
assemblage	A three dimensional collage of collected or made items.
attribute	A quality, character or characteristic ascribed to someone or something.
embedded	Fixed into the surface of something.
identity	Who we are as individuals.
juxtaposition	Placing two things together so a contrast can be made between them.
manipulate	To change how a material looks by handling or using tools.
originality	The quality of being special and interesting and not the same as anything or anyone else.
relief	In art, relief refers to artwork that projects from a solid base.



Links to Prior Learning
<ul style="list-style-type: none"> • 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- Sculpture and 3d- Interactive Installations

Key Knowledge
<ul style="list-style-type: none"> • Art can be whatever the artist intends! It can be literal or abstract and can be created using as many or little materials as the artist chooses. • In a relief sculpture, the figures are raised above the background. • Memories can be collected and communicated in the form of 'Assemblage', using real objects or creating and representing objects or shapes using materials such as wire, clay or cardboard. • Consider the colours you use when planning your artwork and if you will use a back drop.

Key Questions
<ul style="list-style-type: none"> • How can I use art to express myself? • What is a relief sculpture? • How can I create a piece of artwork to communicate my memories of primary school? • How can I convey emotion through my artwork? • Where can I see installation artwork by well known artists in the UK?

Artists
<ul style="list-style-type: none"> • Joseph Cornell (1903) was an American artist who made art from found objects in a box. He was one of the first artists to create 'Assemblage' art. • Yinka Shonibare (1962) is a British-Nigerian artist living in the UK who creates many different types of artworks from installation art to sculpture. He is paralysed on one side of his body and so uses assistants to make works under his direction.

Key skills


Where can I see sculptures?
<p>Locally The Whitworth's extensive collection of modern and contemporary art includes paintings, sculptures, prints, textiles, and installations. Driven by a mission to use art for positive social change, The Whitworth aims to engage the community and promote a deeper understanding and appreciation of art.</p> 
<p>Nationally Nicola Anthony (1984) is a British contemporary artist known for metal text sculptures and burned paper assemblages. Her works explore contemporary issues by giving voice to unspoken stories and narratives that connect with history, people and places. Her exhibition 'Fresh Air Sculpture' can be visited this summer in Cirencester.</p> 



Essential Vocabulary

2D	Flat shapes with length and width.
3D	Objects with length, width, and depth.
Shapes	Geometric figures like squares or circles.
Move	Change an object's position.
View	Different angles or perspectives.
Handles	Points used to resize objects.
Resize	Change an object's size.
Recolour	Change an object's colour.
Combine	Merge objects together.
Cylinder	3D shape with circular bases.
Placeholder	Temporary space for objects.
Hollow	Empty interior space.
Construct	Build or create.
Results	Outcomes or findings.

Key Questions

What's the difference between 2D and 3D shapes, and why do we use both in digital design?
 How does perspective affect our view of objects in digital environments?
 What software tools do we use to modify shapes and objects?
 How do we represent data using charts in digital presentations?
 Why is evaluating results important in digital projects?

Key Knowledge

- Add 3D shapes to a project
- View 3D shapes from different perspectives
- Move 3D shapes relative to one another
- Resize an object in three dimensions
- Lift/lower 3D objects
- Recolour a 3D object
- Rotate objects in three dimensions
- Duplicate 3D objects
- Group 3D objects
- Accurately size 3D objects
- Show that placeholders can create holes in 3D objects
- Combine a number of 3D objects
- Analyse a 3D model
- Choose objects to use in a 3D model
- Combine objects in a design
- Construct a 3D model based on a design
- Explain how my 3D model could be improved
- Modify my 3D model to improve it

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
 Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Links to Prior Learning

This unit progresses children's knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners have worked with 2D graphics applications.

Online Safety

Online relationships

- I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.
- I can describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.