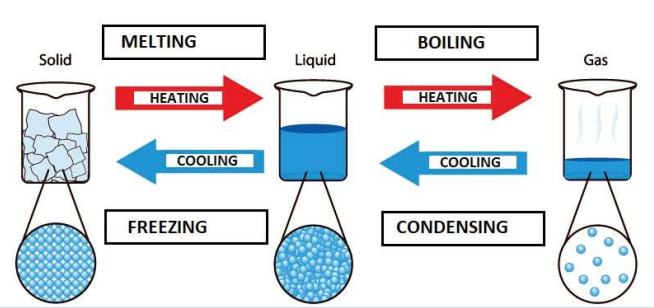
Knowledge Organiser • Phase of Matter • Year 4

There are 3 states of matter (the different forms that we find stuff around us):

State of Matter	Is it compressible?	Can it flow?	What happens to its shape in a container?
Solid	✗	✗	It keeps a fixed shape
Liquid	✗	✓	It takes the shape of the bottom of the container it is in
Gas	✓	✓	It takes up the whole container it is in

State of matter	Examples
Solid	Iron poles, Wood, Ice,
Liquid	Water, Oil, Milk, Washing up liquid
Gas	Oxygen, Carbon Dioxide, Steam,
Difficult to categorise	Oobleck, Sand, Jelly, Custard

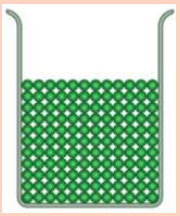


- Temperature is a measure of how hot a substance or a place is.
- Melting point is the temperature a substance changes from a solid to a liquid.
- Boiling point is the temperature a substance changes from a liquid to a gas.

Water's melting point = 0 °C.

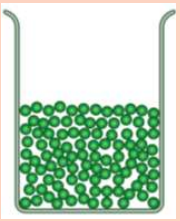
and boiling point = 100 °C

Properties of the particles in the three states of matter



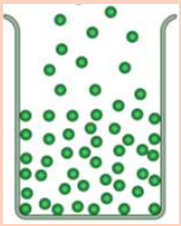
Solid:

- Particles are very close together
- In a regular pattern
- Particles cannot move but can vibrate



Liquid:

- Particles are close together
- In a random arrangement
- Particles can slide past each other



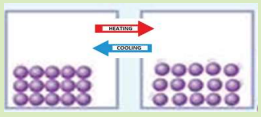
Gas:

- Particles are far apart from each other
- In a random arrangement
- Moving constantly in all directions

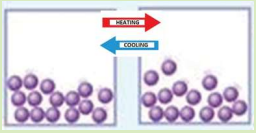
Effect of heat on particles

- Heating particles makes them move more.
- In solids, they vibrate more in their fixed position.
- In liquids and gases, they move more quickly.
- As a result, substances expand when they are heated and contract when they are cooled.

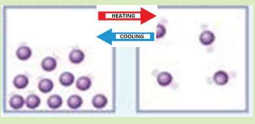
Solids:



Liquids:



Gases:



Knowledge organiser

Timeline of events	
753 BCE	Rome is founded.
264 BCE–146 BCE	Rome fights in three Punic Wars against Carthage, and becomes the most powerful empire in the western world.
55 BCE	Julius Caesar leads a failed invasion of Britain.
43 CE	Emperor Claudius orders a successful invasion of Britain.
60 CE	Celtic Queen Boudicca leads a rebellion against the Romans.
87 CE	The Roman conquest of England and Wales is complete.
312 CE	Emperor Constantine converts to Christianity, which becomes the official religion of the Roman Empire, including Britain.
476 CE	The city of Rome is conquered by Germanic barbarians. The last emperor of Rome gives up power. The Roman Empire has fallen.

Important people	
Julius Caesar	Roman general who became Rome's sole ruler, ending the Republic
Augustus Caesar	First official emperor of the Roman Empire
Aulus Plautius	Roman politician who became the first governor of Britain
Claudius	Roman emperor in charge when Britain was conquered
Boudicca	Celtic queen and leader of the Iceni tribe, who led a rebellion against the Romans
Gaius Suetonius Paulinus	Roman general who defeated Boudicca's rebellion

Vocabulary	
Amphitheatre	A type of theatre without a roof, used for entertainment
Aqueducts	Bridges of a special kind, used to transport water
Barbarian	The Roman word for people who weren't part of their empire
Citizens	Only male members of the Roman Empire
Client kings	Tribal kings allowed to continue being king, as long as they were loyal to Rome
Culture	Arts and ideas
Emperor	Man who is in sole charge of a whole empire
Empire	Group of countries all ruled by one person or state
Latin	The language used by the Romans
Rebellion	Fighting against someone who is in power

Romanisation of Britain	
Towns and cities	Large towns and cities were built in a grid pattern with baths, amphitheatres and market squares.
Villas	Large brick houses were built for the richest people.
Roads	Over 8,000 roads were built to connect towns and cities, many hundreds of miles long.
Rule	Local councils were created to collect tax and run the towns and surrounding villages.
Language	The language of Rome was Latin, which was used in towns. More people learnt to read and write.
Money	Romans introduced their own currency (coins), which could be used anywhere.
Food	The Romans introduced new animals, crops, foods and drinks.
Plumbing	Romans built aqueducts to bring fresh water into towns and cities, and drains to take dirty water out.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.1
Coding

Key Learning

- To begin to understand selection in computer programming.
- To understand how an IF statement works.
- To understand how to use co-ordinates in computer programming.
- To understand the 'repeat until' command.
- To understand how an IF/ELSE statement works.
- To understand what a variable is in programming.
- To use a number variable.
- To create a playable game.

Key Resources

purple mash

Tools

2Dos

2Chart


Free code gibbon

Key Vocabulary

Action
The way that objects change when programmed to do so. For example, move or change a property.

Background
In 2Code the background is an image in the design that does not change.

Command
A single instruction in 2Code.

Execute
This is the proper word for when you run the code. We say, 'the program (or code) executes.'

Alert
This is a type of output. It shows a pop up of text on the screen.

Button
A type of object that responds to being clicked on.

Debug/Debugging
Fixing code that has errors so that the code will run the way it was designed to.

Algorithm
A precise, step-by-step set of instructions used to solve a problem or achieve an objective.

Code blocks
A way to write code using blocks which each have an object or an action. Each group of blocks will run when a specific condition is met or when an event occurs.

Design
In coding, this is a plan for the program showing the visual look of the user interface (the screen) with the objects. The algorithm can be represented as part of the design, showing actions and events.

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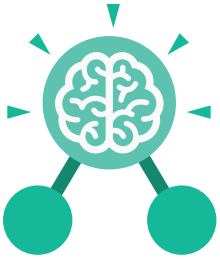


Unit: 4.1
Coding

Key Vocabulary

Event
An occurrence that causes a block of code to be run. The event could be the result of user action such as the user pressing a key (when Key) or clicking or swiping the screen (when Clicked, when Swiped). In 2Code, the event commands are used to create blocks of code that are run when events happen.

Nest
When coding commands are put inside other commands. These commands only run when the outer command runs.

Implement
When a design is turned into a program using coding.

Repeat until
In 2Code this command will repeat a block of commands until a condition is met.

Flowchart
A diagram that uses specifically shaped, labelled boxes and arrows to represent an algorithm as a diagram.

'If/Else' Statement
A conditional command. This tests a statement. If the condition is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else block' are run.

Object
Items in a program that can be given instructions to move or change in some way (action). In 2Code Gibbon, these include character, turtle, button, vehicle, animal, food, shape, number, input and label.

Predict
Use your understanding of a situation to say what will happen in the future or will be a consequence of something.

'If' Statement
A computer uses an IF statement to decide which bit of code to run. IF a condition is true, then the commands inside the block will be run.

Input
Information going into the computer. This could be the user moving or clicking the mouse, or the user entering characters on the keyboard. On tablets there are other forms such as finger swipes, touch gestures and tilting the device.

Prompt
A question or request asked in coding to obtain information from the user in order to select which code to run.

Repeat
This command can be used to make a block of commands run a set number of times or forever.

Run
Clicking the Play button to make the computer respond to the code.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.1
Coding

Key Vocabulary

Properties
These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.

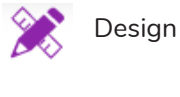
Selection
Selection is a decision command. When selection is used, a program will choose which bit of code to run depending on a condition.

Sequence
This is when a computer program runs commands in order.

Timer
In coding, use a timer command to run a block of commands after a timed delay or at regular intervals.

Variable
A named area in computer memory. A variable has a name and a value. The program can change this variable value. Variables are used in programming to keep track of things that can change while a program is running.

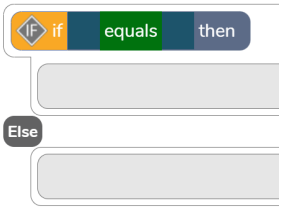
Key Images



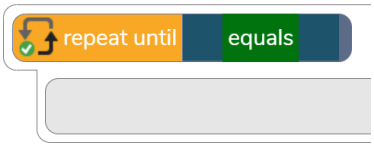
Open design mode in 2Code.

Switch to code mode in 2Code.

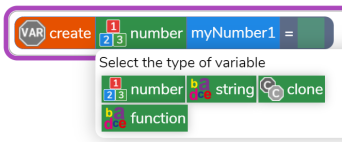
A change variable block.



An 'if/Else' command.



Repeat until.



Creating a variable in 2Code.

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Unit: 4.1
Coding

Key Questions

Explain the stages of the design, code, test, debug coding process.

This is a process to go through as you create a program using coding

- Design: create a design which could be a flowchart, a labelled diagram or a storyboard. This helps to think through the algorithms required
- Code: code the algorithms using to code and adapting the design.
- Test and Debug: see if the program works and fix any errors.

How can variables and if/else statements be useful when coding programs with selection?

The variable could be set either to 0 or 1 and this could be changed by user action or a timer. If/else statement outcomes could depend upon the value of the variable. command for selection.

What does selection mean in coding and how can you achieve this in 2Code?

The code will contain commands that require a decision and the next code to run will depend upon the outcome of this decision. In 2Code we used the 'if' command for selection.

What is the difference between the different object types in 2Code Gibbon level?

The different objects have different properties. This makes then suitable for different type of programs.

- Buttons can only be clicked and have their colour and text changed.
- Vehicles have speed and angle.
- Characters have movement in 4 directions.
- Turtles have rotation, pen up and down.

Roman Dance Knowledge Organiser - Yr 4

Prior Learning: In year 3, children created dances using a stimulus, they worked in small groups and began to evaluate and give feedback on performances. They were introduced to key movements in their dances including unison, canon, space and timing.

Key Skills

Physical Me:

Co-ordination
Balance
Agility
Strength
Power
Flexibility
Skip
Gallop
Jump
Hop
Speed
Control

Thinking Me
- To improve my dancing
- Remember dance movements

Value Me:
-Kindness
-Respect

Healthy Me:
- Warm ups
- Pulse raiser
- Cool down

Social Me
-Co-operate with others
-Respect others performing

Key Vocabulary

Inspire
Collaborate
Pathways
Choreograph
Direction
Timing
Counts
Create

Key Knowledge

Choreograph - Is the act of designing dance

Direction- Direction in dance, is the line taken by the body. Direction can refer to shapes, movements, sequences of movements or relationships between dancers.
Direction-may be forward or backward, Sideway or Diagonal

Pathways- In dance pathways refer to the path or pattern made by a body part
- Pathways can be straight, angular, curving, symmetrical or asymmetrical

Topic Vocabulary

Testudo
Tortoise formation
Colosseum
Gladiator
Sculpture
Pompeii
Gods
Goddesses

Kwik Cricket Knowledge Organiser - Year 4

Prior Learning: In Year 3, children continued to master throwing and catching a ball. They learned how to stop a ball using the long barrier method. They learned how to hit a ball off a tee. They played an adapted version of kwik cricket.

Key Skills

Physical Me

Throw/bowling - Underarm/overarm

Catching- Varying distances

Running- Chasing the ball when fielding
- Scoring runs, running to support

Co-ordination -Hand-eye (catching and hitting the ball)
- Throwing at a target

Balance- When batting, bowling, fielding

Thinking Me

- To improve my performance

Value Me:

- Honesty
- Teamwork

Social Me

- Communicate
- Co-operate

Key Knowledge

Accuracy: The ability to control movement in a direction or at different speeds

Long Barrier -A technique to control a cricket ball that is traveling along the ground.
- when kneeling down the leg creates a barrier to stop the ball

Fielders -Aim to limit the number of runs that stop the batter scoring
- Aim to get the batter out!

Batter- Aim to score runs when a player hits the ball
- Sprints between two wickets to score runs
- hits the ball with the flat side of the bat

Bowler- Aims to get the players out by hitting the wicket

Wicket- Stumps that the batsman is trying to defend

Kwik Cricket Rules

- 2 equal teams: 1 batting team and 1 fielding team

Batting: The first player to bat stands in front of the wicket ready to bat.
The remaining batters stand in the "runs zone" a safe distance behind the field of play

Fielding: The fielders spread out at least 10m away from the wicket
- Fielders try to catch the batter out, or stop the ball and pass it back to the bowler

Bowling: one player bowls
- The bowler "bowls" the ball underarm (with one bounce) to the batter
- The bowler can bowl the ball again as soon as they receive the ball, even if the batter is not back in time

Play a maximum of 6 balls (an over) for each batter

The team that scores the most runs, wins

Key Vocabulary

- Long Barrier
- Accuracy
- Batter
- Wicket
- Score
- Teamwork
- Fielder
- Bowler
- Co-operate

Year 4 - Drawing

Collaborate	Work in a group to create a shared artwork
Collage	Cutting, arranging and sticking materials like paper, fabric etc to a background
Composition	Putting different elements together in a pleasing way
Engraving	Lines cut into a hard surface which is covered in ink and printed
Printing technique	Creating prints in different ways e.g. monoprint, block print
Proportion	How big one element of an artwork appears compared to the whole thing
Shading	Drawn marks to illustrate degrees of light and dark
Tone	How light or dark something is
Wax-resist	Using wax to stop another material, like paint, from sticking permanently to a surface

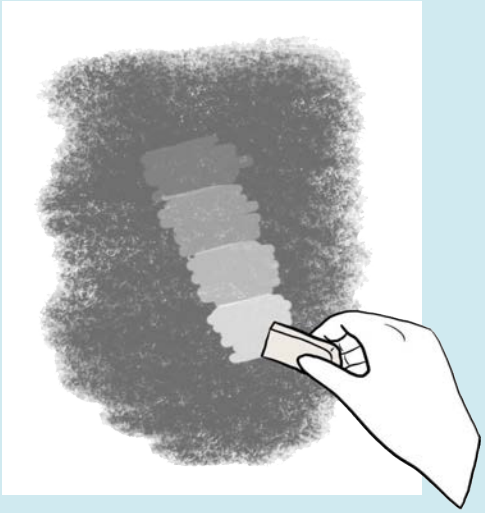
Mark making with a pencil

Hatching

Cross-hatching

Mark making with charcoal

- Use the tip of the charcoal for sharp lines
- Blend light and dark areas to create tone.
- Use a rubber to draw light tones.

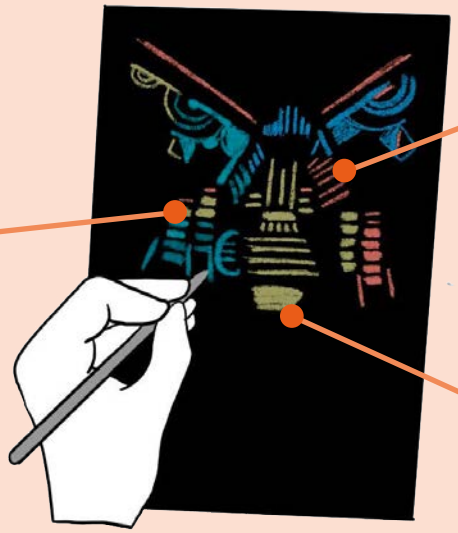


Proportion

- Use the relative size and shape of objects to help draw them in proportion.
- Artists use proportion to help make drawings look realistic.
- Artists can exaggerate proportion to draw attention to one aspect of an artwork.

Year 4 - Drawing

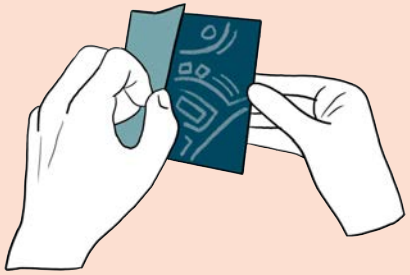
Creating contrast



- Patterns
- Textures
- Light and dark

Block printing

- Draw your design on the polystyrene block, pressing in with the pencil
- Don't press too hard!
- Apply ink or paint to the block
- Press the block ink-side down to print it



Henri Matisse

- Painted with bold shapes and colours in the 'Fauvist' style.
- Made paper cut-outs when he could no longer stand up to paint.
- He called his collage style 'Painting with scissors'.

Artists

- Georges Seurat
- Ed Ruscha
- Fernando Botero
- Alberto Giacometti
- Henry Moore

Year 4: Adapting and transposing motifs (Romans)

Musical style: Motifs

Using Roman mosaics to explore musical motifs.

Vocabulary

Motif	A short repeated pattern of notes.
Ostinato	A repeating musical pattern.
Riff	A short repeated phrase in pop music and jazz.
Rhythm	A pattern of long and short sounds (and silences) within a piece of music.
Backing track	A recorded musical accompaniment.
Transpose	Move a whole tune or piece of music up or down in key by starting it on a different note.

Sharp notes

Notes that sound a semitone higher than notes that appear on the lines and spaces of a musical staff.

Flat notes

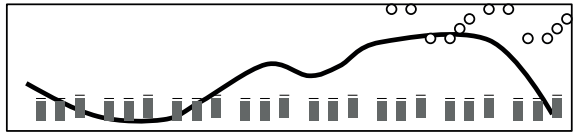
Notes that sound a semitone lower than notes that appear on the lines and spaces of a musical staff.

Notation

The way that music is written so that others can play it.

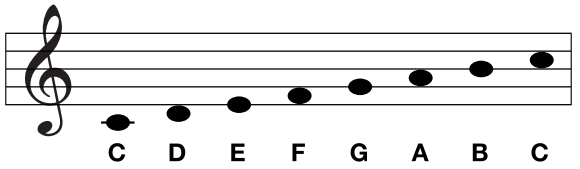
Graphic score

A way of writing music down using pictures or symbols, rather than standard music notation.



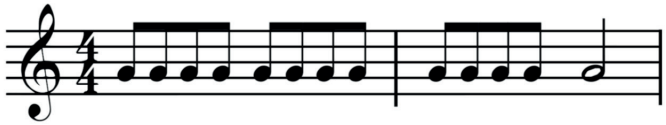
Letter notation

Writing the notes in a melody using letters.



Rhythmic notation

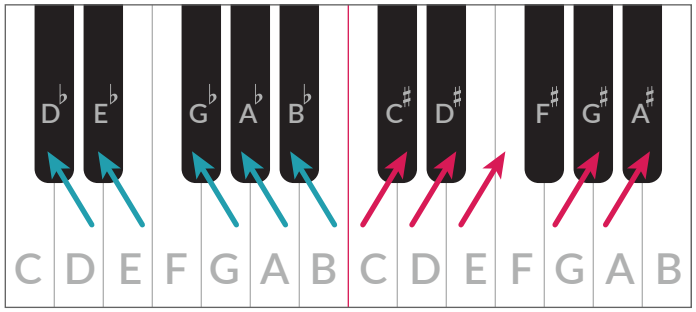
A way of writing musical notes so that the duration of each note is clear.



Did you know? The sharp and flat keys are the black keys on a piano and the top row of keys on a glockenspiel.

♯ Sharp keys

A sharp indicates a higher pitch in the music.



♭ Flat keys

A flat indicates a lower pitch in the music.

Knowledge Organiser

SCARF

Year 4 - Me and My Relationships

Key questions

Recognising Feelings

Can you tell how someone is feeling by looking at them? How?

What is body language?

What body language tells you that a person is worried? How?

Are all feelings shown by body language?

Bullying

What is the difference between bullying and teasing?

What can someone do to help themself if someone upsets them or is bullying them?

How can you help someone else who is upset?

Can you help someone who is being bullied? How?

Assertive Skills

What is being assertive?

Are there different ways to be assertive? How?

When would someone need to be assertive? Why?

Key vocabulary

ignored delighted teasing
calm confident feelings
compromise body language
emotions frightened excluded
collaborate pressure
bullying joyful excited
respectful scared
alone worried lonely

I can ...

I can give a lot of examples of how I can tell a person is feeling worried just by their body language.

I can say what I could do if someone was upsetting me or if I was being bullied.

I can explain what being 'assertive' means and give a few examples of ways of being assertive.