

Key Vocabulary

Key Learning

- To begin to simplify code.
- To create a playable game.
- To understand what a simulation is.
- To program a simulation using 2Code.
- To know what decomposition and abstraction are in computer science.
- To take a real-life situation, decompose it and think about the level of abstraction.
- To understand how to use friction in code.
- To begin to understand what a function is and how functions work in code.
- To understand what the different variables types are and how they are used differently.
- To understand how to create a string.
- To understand what concatenation is and how it works.

Key Resources



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**) or when objects interact (collision). In 2Code, the event commands are used to create blocks of code that are run when events happen.

Function

A block or sequence of code that you can access when you need it, so you don't have to rewrite the code repeatedly. Instead, you simply 'call' the function each time you want it.

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.

Output

Information that comes out of the computer e.g. **sound, prompt, alert or print to screen.**

Object

Items in a program that can be given instructions to move or change in some way (action). In 2Code Gorilla, the **object types** are button number, input, text, shape turtle, character, object, vehicle, animal.

Nesting

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

Repeat

This command can be used to make a block of commands run a set number of times, until a condition is met or forever.

Properties

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

Physical System

In this context, this is any object or situation that can be analysed and modelled. For example modelling the function of a traffic light, modelling friction of cars moving down surfaces or modelling the functions of a home's security system.

Selection

A conditional decision command. When selection is used, a program will choose which bit of code to run depending on a condition. In 2Code selection is accomplished using **'if' or 'if/else'** statements.

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. In 2Code, variables can be **strings, numbers or computer-generated** variables to control objects of a type.

Timer

Use this command to run a block of commands after a timed delay or at regular intervals.

Key Vocabulary

Abstraction

A way of de-cluttering and removing unnecessary details to get a program functioning.

Action

The way that objects change when programmed to do so. For example, move.

Algorithm

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

Concatenation

The action of linking a mixture of strings, variable values and numbers together in a series.

Debug\ Debugging

Fixing code that has errors so that the code will run the way it was designed.

Decomposition

A method of breaking down a task into manageable components. This makes coding easier as the components can then be coded separately and then brought back together in the program.

Efficient

In coding, simplified code runs faster and uses less processing memory, it is said to be more efficient.

Flowchart

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

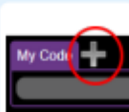
Key Images



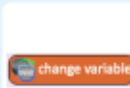
Design



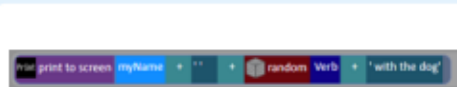
Exit Design



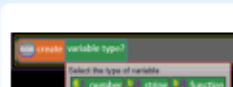
Add a new Tab to your code



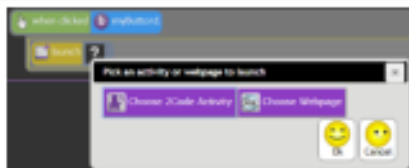
A change variable block.



Example of combining variables and strings to print to the screen



Creating a variable in 2Code



Creating a variable in 2Code

What does simulating a physical system mean?

Creating a program where the objects behave as they would in the real world. For example, a football program that uses angles, speed and friction to simulate kicking a football. When simulating a physical system, you first must break the system down into parts that can be coded (decomposition). The different parts will come together to make the full simulation.

Describe how you would use variables to make a timer countdown and a scorepad for a game.

Timer countdown: Create a timer variable and set it to the starting number of seconds. Add a Timer command that repeats and subtracts 1 every second. Add a text object in design view to display this number.

Score: Create a variable to store the score, each time the user gains a point, change and display the value of the variable.

Give examples of how you could use the Launch command in 2Code.

Clicking on a button or other object in the program to opens another 2Code program or a webpage.

Key Questions

What do the terms decomposition and abstraction mean? Use examples to explain them.

Decomposition is breaking a task into its component parts so that each part can be coded separately. If you were coding a game of chess, you could decompose into the moves of the different pieces and the setup of the playing space.

Abstraction is removing unnecessary details to get the program functioning. In the example, the colour and size of the squares is not important to game play.



410AD

Tribes invaded Britain: the Angles, Saxons, Jutes, Franks and Frisians. The two largest tribes were the Angles and Saxons.

540AD

Gildas, a British historian, wrote a book called 'On the ruin and conquest of Britain' which criticises the actions of the Anglo-Saxon kings.

597AD

Pope Gregory sent the monk Augustine to Britain to tell the Anglo-Saxons about Christianity and convert them from Pagans to Christians. Over the next 100 years, many Anglo-Saxons turned to Christianity.



871AD

Alfred became king. He is known as Alfred the Great for the way he protected and improved his kingdom.



c.700AD

Bede, an English monk, historian and scholar, wrote the 'Ecclesiastical History of the English People' which is a source of Anglo-Saxon history.



600AD

Britain was divided into seven kingdoms: East Anglia, Sussex, Wessex, Essex, Northumbria, Mercia and Kent. Each kingdom was ruled by a different group of Angles or Saxons.



886AD

King Alfred negotiated with the Danes to divide England. This was called the Danelaw.

1939





The Sutton Hoo burial was discovered by archaeologist Basil Brown. The incredible Anglo-Saxon archaeological discovery on Edith Pretty's land was donated to the British Museum.



Glossary

1	archaeologist	a person who digs up artefacts and buildings from the past and studies them
2	bretwalda	a king who claimed to be in charge of all of England
3	ceorl	a poor common person, or peasant, usually a farmer or a craftsman
4	convert	to change someone's mind, especially about religion
5	cyning	the Anglo-Saxon word for King. The war-chief and leader of many tribes
6	Danelaw	the area of land given to the Vikings in the east of England
7	Danes	another name for the Viking invaders
8	fertile	land which has lots of nutrients, so is easy to grow crops in
9	fortification	a defensive wall built to strengthen a place against attack
10	fyrd	the fyrd army was made up of any free man that the king could call upon
11	heptarchy	the name given for the seven kingdoms that were in Britain during Anglo-Saxon times
12	invasion	an armed force entering another country
13	kingdom	an area of England ruled over by one King, usually a great warrior
14	pagan	a religion other than one of the main world religions, e.g. non-Christian
15	thane	a village chief, leader of the local tribe
16	tiithing	made of 10 men responsible for each others' behaviour
17	tribe	a community of people who live and work together, with a common leader
18	wergild	'man payment' — payment given to a family if you injured or killed someone

Significant People and Places

			
Alfred the Great	Saint Augustine	Bede	Woden God of War and Wisdom
King Alfred was known as Alfred the Great because of his social, educational and military achievements.	Saint Augustine was a monk who spread the word and converted the Anglo-Saxons to Christianity.	Bede was a 9 th century historian who is known as the Father of English History because of his influential work.	The Anglo-Saxons were pagans who believed in many Gods.

Significant People and Places

			
Sutton Hoo	Edith Pretty	Canterbury Cathedral	Lindisfarne Priory
The site of an Anglo-Saxon burial ground which was a major archaeological discovery in 1939.	Edith Pretty was the landowner who asked the archaeologist Basil Brown to investigate a burial mound on her land. They discovered Sutton Hoo and donated its treasures to the British Museum.	Augustine founded Canterbury Cathedral and became the first Archbishop of Canterbury. Canterbury Cathedral is one of the most important and famous Christian buildings in the world.	Lindisfarne Priory became a very influential place. Using the priory as a base, the monks from Lindisfarne were successfully able to promote the spread of Christianity across the North of England.





Subject: Maths

Topic: Place Value

We will begin this year by exploring place value. We will be spending time on numbers within 10,000 to ensure secure knowledge before moving on to 100,000 and one million.

Children will know how to:

- Order numbers up to 100,000
- Represent numbers up to 1,000,000
- Round numbers to the nearest 10, 100, 1000, 10,000, 100,000 and million
- Work with negative numbers
- Use roman numerals up to 1000

Key Vocabulary:

- Ones
- Tens
- Hundreds
- Thousands
- Ten thousand
- One hundred thousand
- One million
- Roman Numerals
- Place value
- Order
- Less than
- Greater than
- Rounded too

1 = I
 5 = V
 10 = X
 50 = L
 100 = C
 500 = D
 1,000 = M

T	O
LX	IV

64 written as Roman numerals is LXIV.

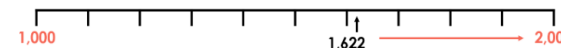
HTh	TTh	Th	H	T	O
9	5	3	7	3	6

953,736 > 952,827

HTh	TTh	Th	H	T	O
9	5	2	8	2	7

-14 -4 6 16 26

To help us with rounding to the nearest 1,000, we first need to find the multiples of a thousand a number lies between.





Unit Name Creation

Unit overview

This unit outlines some key beliefs about the creation of human beings and the creation of the world. It introduces the children to the story of creation as a way of explaining that God is creator, rather than a re-telling of the order of the created world. It will help teachers to reflect with the children on their God given talents and living their lives in response to the teaching of Christ

Bible References :

Genesis 1: 1-31 Genesis 2: 5-24 Psalm 103 (104) – Psalm in praise of God the Creator Mt. 5: 1-12 Lk. 6: 20-23 – The Beatitudes of Jesus

Key Vocabulary

Bible, Old Testament, Genesis, inspired, creation, image, likeness, canticle, Beatitude, talents, dignity

Learning Outcomes

To hear about and explore the bible.
To know that every human being is made in the image of God.

To understand the responsibility to use our talents.

I know the story of St. Francis of Assisi.

I can hear the words of the Canticale of Creation.

I can write a simple version of the Canticale.

To know the Beatitudes of Jesus.

I can understand that the Beatitudes provide a guide for living as a disciple of Christ.

To understand God's call to individuals and their different responses.

Windows of reflection (things to think about)

Children to find out the meaning of the word "inspired". Have they ever felt inspired to do something?

If human beings are made in the image and likeness of God, then what does this demand of us?

How have your talents developed since Reception?

Prayer tasks linked to unit and tasks to completed

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- Learn a sung version of the Canticale of Creation.
- Use some creation prayers as part of class prayer.
- Have a class liturgy to give thanks for the positive qualities found in each other and an opportunity to praise God the Creator.
- The Beatitudes of Jesus could be used to form an examination of conscience.

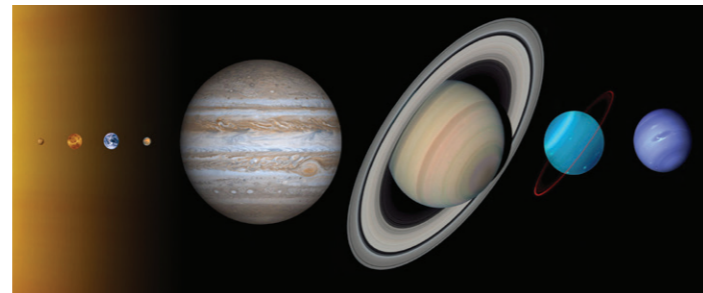


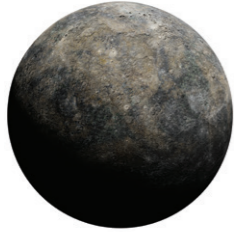



Glossary

1	atmosphere	the gases surrounding the Earth or another planet	11	orbit	to move around something repeatedly in a circular or almost circular motion
2	axis	the imaginary line about which a planet (or other body) rotates	12	planet	a body which orbits the Sun
3	equator	an imaginary line around the centre of the Earth	13	rotate	to spin in a circle motion around a fixed point
4	galaxy	a system of millions or billions of stars	14	season	a period of the year characterised by a particular climate or conditions
5	geocentric	the belief that the Earth is at the centre of the Solar System	15	Solar System	the collection of eight planets, their moons and everything which orbits the Sun
6	heliocentric	the belief that the Sun is at the centre of the Solar System	16	spherical	shaped like a sphere
7	hemisphere	half of a sphere — one half of the Earth	17	star	a burning ball of gas found in space
8	lunar	something which involves the Moon	18	Sun	the star at the centre of our Solar system
9	Milky Way	the galaxy we live in	19	time zone	a geographic region where the same standard time is used in all places
10	moon	a body which orbits a planet — a natural satellite	20	universe	all existing matter and space

What is the Solar System?

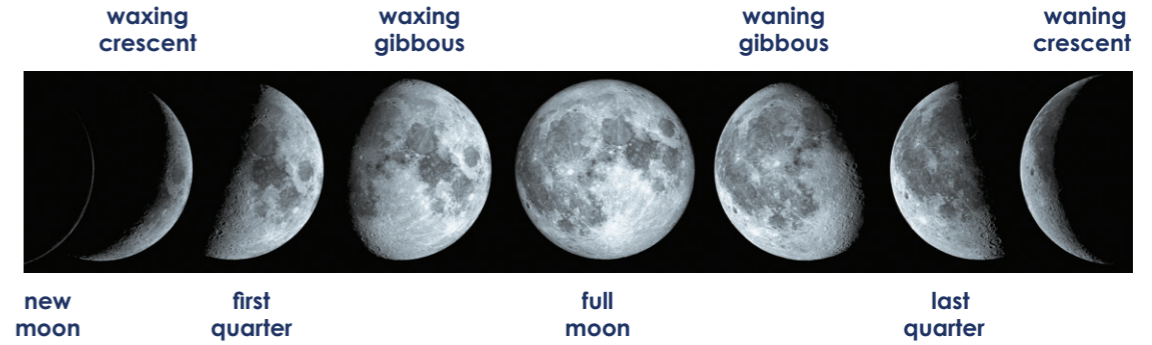
The Solar System is the Sun and the planets which orbit around the Sun. It also includes their moons, asteroids and anything else which orbits the Sun. The Solar System has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.



			
Mercury	Venus	Earth	Mars
Mercury is the smallest planet and the nearest planet to the Sun.	Venus is the second planet from the Sun and a similar size to Earth.	Earth is the planet we live on and it is the third planet from the Sun.	Mars is the fourth planet from the Sun. It is approximately half the size of Earth.

What are the phases of the Moon?

The Moon takes 28 days to orbit the Earth — a lunar month. As it does this, it looks as though it changes shape. However, it does not actually change. We call the different views of the Moon the 'phases of the Moon' and each phase has a name.



What is a moon?

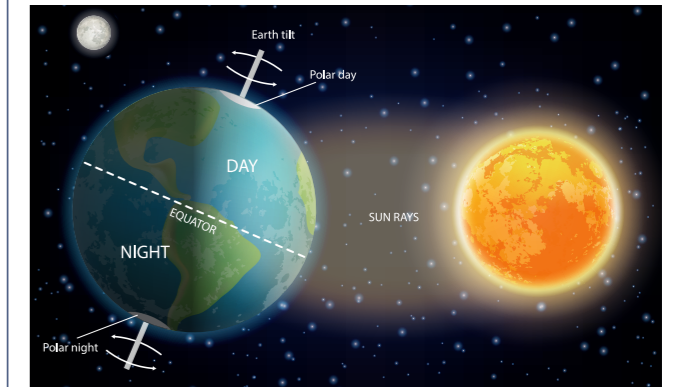
A moon is a body which orbits a planet. It is also known as a natural satellite. Some planets have multiple moons but Earth only has one. It is a rocky, dusty ball and we call it the Moon.


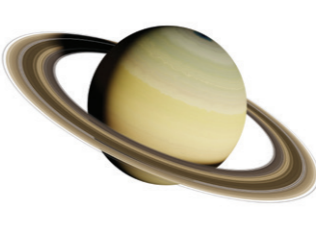
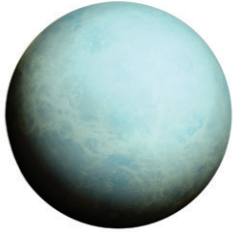



What do we know about the Earth and the Sun?

The Earth orbits the Sun and whilst it does this, it spins on an axis. The Earth takes 365 days to orbit the Sun and this is why one year is 365 days. The rotation of the Earth is why we have day and night. When part of the Earth is facing the Sun the places there will experience daytime. The places found on the side of the Earth not facing the Sun will experience night-time.

The tilt of the axis is the reason why we experience different seasons.



			
Jupiter	Saturn	Uranus	Neptune
Jupiter is the largest planet in the Solar System and the fifth planet from the Sun.	Saturn is the sixth planet from the Sun. It has rings and is the second largest planet.	Uranus is the third largest planet. It is the seventh planet from the Sun.	Neptune is the eighth planet and the furthest from the Sun. It is slightly smaller than Uranus.

Year 5 & 6 English Knowledge Organiser

Spelling

Root word	The word before prefixes and suffixes were added to change meaning e.g. happy/unhappiness.
Common Exception	A word which can't be phonetically decoded.
Homophone	Two different words that sound exactly the same when pronounced but have different spelling. E.g. here/hear
Synonym/antonym	Synonym – words meaning the same e.g. beautiful/pretty Antonym – words meaning the opposite e.g. awful/wonderful

Reading

Prediction	Saying what will happen next as a result of something.
Sequencing	Ordering events by how they appear in the text.
Decoding	Breaking a word down into different phonemes to help read it.
Retrieval	Finding information from a text.
Vocabulary	Understanding the meaning of words within texts.
Inference	Making assumptions about what is happening in a text from what you already know.
Summarising	Identifying the key moments in a text.
Author's Intent	How the writer's choices of language, layout and structure impact the reader
Compare/contrast	Making informed opinions about what is the same and different within and across texts

Grammar and Punctuation

Direct speech	Use of inverted commas to punctuate – used around the part being spoken e.g. The driver shouted, "Sit down!"
Reported speech	Summarising what has been said e.g. he said they'd already eaten when he arrived.
Clause	A group of words/part of a sentence, must contain a verb e.g. She answered the phone.
Embedded	A subordinate clause in the middle of a sentence, between two commas e.g. My bike, which is very old, is broken.
Subordinate clause	Typically introduced by a conjunction, that forms part of and is independent on a main clause. E.g. answered the phone when it rang.
Relative	Clauses that begin with a relative pronoun - who, which, where, when, whose, that
Parenthesis	Brackets, dashes or commas used to add extra information to a sentence
Semi-colon;	Used to mark the boundary between related clauses e.g. It's raining; I'm fed up.
Colon :	Used to mark the boundary between independent clauses e.g. I knew what I had to do: I ran Used to introduce a list e.g. I like many fruits: apples, bananas, grapes.
Hyphen -	Used to clarify meaning or avoid ambiguity
Ellipsis	Indicates an intended omission of a word, sentence or section of a text eg the door opened...

Suffix	Can be added to the end of verbs (e.g. helped, helper, helping) Can be added to the end of adjectives to form nouns (e.g. -ness, -er) Can be added to the end of nouns to form adjectives (e.g. -ful, -less – joyful)
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Writing key concepts																	
Ambiguity	Using the conjunctions for, and, nor, but, or, yet and so.																
Cohesion	Using the conjunctions if, since, as, when, although, while, after, before, until and because.																
Modal verbs/adverbs	Shows when or where something happened e.g. before, after, during, in, under etc.																
Formality	Links ideas within and across paragraphs. Can be adverbials of time (e.g. later, in the morning), place (e.g. nearby, in the park) and number (e.g. firstly)																
Subject/object	A word that takes place of a noun or a name e.g. it, he, she Possessive pronoun – words that demonstrate ownership e.g. his, her, their																
Active/Passive	Devices used such as conjunctions, prepositions, adverbials and pronouns so a text flows and reads well.																
Subjunctive	Presentation device to guide the reader in a non-fiction text.																
Determiner	Used before a noun, a modifying word to determine the noun described. E.g. an apple, this apple, her apple, some apples, three apples.																
Alliteration	Two or more words next to or close to each other in a sentence which start with the same sound or effect. e.g. six sizzling sausages																
Simile	Comparing one thing to another using like or as. E.g. As tall as a giraffe, it towered above the rooftops. His cheeks were red, like a ready to eat tomato.																
Metaphor	Comparing two things, saying one this is the for effect.																
Tense	Past tense Describes what is happening e.g. I play football, I am playing football Present tense Describes what did happen e.g. I played football, I was playing football Present perfect describes a past event which is still taking place. He has played for the team for four years.																
Figurative language	Devices used to engage your readers, giving your writing a more creative tone (simile, metaphor, alliteration) Personification – the effect of giving an inanimate object human characteristics eg the tree danced																
Tense	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Past</th> <th>Present</th> <th>Future</th> </tr> </thead> <tbody> <tr> <td>Simple past</td> <td>I played</td> <td>Present tense I play</td> <td>Simple future I will play</td> </tr> <tr> <td>Past progressive</td> <td>I was playing</td> <td>Present progressive I am playing</td> <td>Future progressive I will be playing</td> </tr> <tr> <td>Past Perfect</td> <td>I had played</td> <td>Present perfect I have played</td> <td>Future perfect I will have played</td> </tr> </tbody> </table>		Past	Present	Future	Simple past	I played	Present tense I play	Simple future I will play	Past progressive	I was playing	Present progressive I am playing	Future progressive I will be playing	Past Perfect	I had played	Present perfect I have played	Future perfect I will have played
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