

Computing Progression Map

“A computer is not a device anymore. It is an extension of your mind and your gateway to other people”

Mark Shuttleworth



Computing Curriculum Map



Algorithms



Debugging



Logical reasoning



Online safety



Use of technology



Using technology

Digital photography

Pictograms



Technology around us



Robot algorithms



Making music

Y2

Digital writing

Moving a robot

Technology around us



Programming animations



Grouping data



Digital painting




Y1

EYFS



Objective
To know what online safety means

Enquiry
How can we use the internet safely?



Substantive Knowledge (Content)

- What to say if you don't like something
- How the internet can be used
- How to communicate using the internet
- Why we should be nice using the internet
- How the internet can help us learn
- What rules we need to keep safe
- What personal information is

Prior Learning

EYFS
Children will have used or seen people use the internet on computers, phones, Smart TVs, etc. Some children will have heard of Wi-Fi or mobile data.

Future Learning

EYFS
Children will use their understanding of online safety when using online devices

Y1
Children will learn why having rules for using the internet is important

Y2
Children will be learning how to keep personal information private when using the internet

Skills	
Communicating	Talking with someone about something including things we like and don't like
Following rules	Listening to what can and can't be done
Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Concepts	
Online safety	Keeping ourselves and others safe when using the internet
Communication	Sharing meaning and information through words, images or actions
Consent	Permission or agreement
Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Cause and consequence	Things that happen can impact things that happen later on
Key vocabulary	
internet	Connecting millions of computers worldwide
online	Controlled by or connected to a computer
rules	How we should behave
safe	Protect you from harm
personal information	Information used to identify you. E.g. your name, age, school.
private information	Information that should not be shared e.g. passwords.
communicate	Share or exchange information

Assessment points


- **Communicate** what they like and don't like
- **Understand** what private means
- **Explain** how the internet can be used
- **Understand** why we should be nice to others
- **Identify** some rules for using the internet
- **Explain** what personal information is

EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in all other curriculum areas as children record their learning in order to reflect upon and evaluate it.


SEN/D minimum expectations
Children know what to do if they see something they don't like. With support, children can remember some of the rules for keeping safe online.

High prior attainment and extension opportunities
Children to navigate through a specific webpage to explore what they like and don't like.



Objective
To know where to go for help when using the internet

Enquiry
Why do we need rules for using the internet?



Substantive Knowledge (Content)

- What rules we need to keep safe online
- Who to speak to if we are worried about something
- How to flag anything upsetting
- How to behave online
- What a search engine is
- What is meant by private information

Prior Learning

EYFS
Children have learnt what to do if they don't like something and how to use the internet.

Future Learning

Y2
Children will be learning how to keep things safe online.

KS2
Children will be learning to use technology responsibly and understand that communication online may be seen by others.

Skills	
Communicating	Talking with someone about something including things we like and don't like
Identify	Finding something that is different to others
Following rules	Listening to what can and can't be done
Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Concepts	
Online safety	Keeping ourselves and others safe when using the internet
Communication	Sharing meaning and information through words, images or actions
Consent	Permission or agreement
Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Cause and consequence	Things that happen can impact things that happen later on
Key vocabulary	
zip, block, flag code	Rules on how to keep safe online
rules	How we should behave
internet	Connecting millions of computers worldwide
private information	Information that should not be shared e.g. passwords.
flag	Letting somebody know that you have found something that upsets you
search	Looking for something
protect	Keeping something safe
devices	Something made that can do a job
safe	Protect you from harm

Assessment points

- **Identify** some rules for keeping safe online
- **Understand** where to go for help if they are worried
- **Explain** what flagging is
- **Understand** what the zip, block, flag code is
- **Identify** good and bad online behaviours
- **Use** a search engine online
- **Explain** what is meant by private information

National Curriculum Coverage


- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Target Tracker statements

- Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies


SEN/D minimum expectations
Children to know who they can speak to if they are worried about something. With support, children can identify some of the rules we need for using the internet.

High prior attainment and extension opportunities
Children to think about, discuss and reason why some information is private and some is not.



Objective
To keep personal information private when using the internet

Enquiry
How can we keep things safe online?



Substantive Knowledge (Content)

- What online safety means
- Which things online are likely to be true or false
- How people may act online
- What the difference between personal and private information is
- How to keep information private
- How to protect a device

Prior Learning

EYFS
Children have learnt what to do if they don't like something and how to use the internet.

Y1
Children have learnt some rules for keeping safe online.

Future Learning

KS2
Children will be learning to use technology responsibly and understand that communication online may be seen by others.

Skills	
Communicating	Talking with someone about something including things we like and don't like
Following rules	Listening to what can and can't be done
Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Concepts	
Online safety	Keeping ourselves and others safe when using the internet
Communication	Sharing meaning and information through words, images or actions
Consent	Permission or agreement
Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Cause and consequence	Things that happen can impact things that happen later on
Key vocabulary	
cyber bullying	Using bullying behaviour online
password	A code that helps keep things protected
protect	Keeping something safe
internet	Connecting millions of computers worldwide
communicate	Share or exchange information
keywords	Words that are important
imaginary	Things that are not real
devices	Something made that can do a job
copyright	A law that gives the owner of something the right to decide what other people can do with it
fair use	Something that means it is ok for someone to use another person's idea or work

Assessment points

- **Explain** what online safety means
- **Identify** some types of private information
- **Explain** why some information is private
- **Understand** how to keep information private online
- **Understand** how people may act differently online
- **Recognise** that not everything online is true
- **Understand** what a password is used for

National Curriculum Coverage


- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Target Tracker statements

- Use technology safely and keep personal information private

SEN/D minimum expectations
Children to identify some types of information that are private. With support, children can explain how to keep information private.

High prior attainment and extension opportunities
Children to think about, discuss and reason why some people may act differently online.



Motcombe School
Flying high together

Objective

To use photography apps to support learning.

Enquiry

How can we make sure we remember how great this work is after we have tidied it away?



Substantive Knowledge (Content)

- We can record our learning using photography apps on the iPad.
- We need to ensure that the subject of our photo is in focus
- We can use photography to create art
- Different photography apps do different things
- We can use apps on the iPad to manipulate photos we have taken.
- We must always obtain consent before taking a photo of someone or their work

Prior Learning

EYFS

This is an ongoing unit across the year, so after their initial introduction to using an iPad to take photographs, the children will have had experience of using photography apps to record, support and extend their learning in a variety of contexts, according to their learning, interests and needs.

Future Learning

EYFS

Children will apply and develop their digital photography skills in different contexts throughout the year, according to their learning, interests and needs.

Y1

Children will continue to use ipads to record their learning in photographs.

Y2

Children will develop their digital photography skills in Y2 unit 2.

Skills

Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Creating media	design and development, respectful and responsible communication, presenting, creating content

Concepts

technology	Something that is designed to help with a task.
App (abb. Application)	Computer program designed for specific purposes
digital	Using or relating to digital signals or technology
focus	Clarity, not blurry
consent	Permission or agreement

Key vocabulary

tablet	Small, flat computer, controlled by touching the screen
iPad	Tablet brand name
camera	Device for taking photographs
photograph	Picture produced using a camera
record	To keep information for the future
app	Computer program designed for specific purposes
focus	Clarity, not blurry
consent	Permission or agreement
delete	To remove data, documents etc from a computer

Assessment points

- **Use** photography apps to record learning
- **Create** photos that are in focus
- **Use** photography apps to create art
- **Use** a range of photography apps for different effects
- **Create** art by manipulating photos we have taken
- **Understand** what is meant by consent and that it is essential

EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in all other curriculum areas as children record their learning in order to reflect upon and evaluate it.

SEN/D minimum expectations

With adult help

- **Use** photography apps to record learning
- **Use** photography apps to create art
- **Understand** what is meant by consent and that it is essential


High prior attainment and extension opportunities

Children to share their developing skills with others, supporting their friends to learn how to use apps that they are already confident with.



Objective
To use the internet to support our learning

Enquiry
What questions do you have about that? How could we find out the answers?



Substantive Knowledge (Content)

- We can use search engines on the internet to find information – answers to questions, images and videos that will help us with our learning.
- Google is a search engine
- We can type questions or key words into the search box to find information or images
- Some computers will allow us to use our voice to search instead of typing
- Some information we find will be more useful than others

Prior Learning

EYFS
This is an ongoing unit across the year, so after their initial introduction to using a search engine to find information, the children will have had experience of applying these skills throughout the year as they have new questions related to their learning and interests.

Future Learning

EYFS
Children will apply and develop their skills in finding information using a search engine in different contexts throughout the year, according to their learning and interests.

KS1
Children will continue to use search engines to find information in the context of their learning.

Skills

Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Using computing systems and networks	Using e.g. the internet
Using data and information	collecting, analysing, evaluating, presenting data and information

Concepts

technology	Something that is designed to help with a task.
internet	The large system of connected computers around the world that enables people to share information and communicate with one another

Key vocabulary

Question	A sentence or phrase used to find out information
computer	An electronic device for working with information
screen	The flat surface of the computer on which pictures and words are shown
Search engine	A computer program that finds information on the internet by looking for words that you have typed in
Search box	A space on a computer screen where you type a word or phrase relating to information you want to find
click	Push the yellow mouse button
cursor	An arrow on the computer screen to show where you are working.
mouse	Controls the cursor on the screen
keyboard	Input device with a set of keys which allow you to type letters and numbers.
type	To write using a computer keyboard
microphone	A piece of equipment that you speak into to record your voice
information	Facts about a situation, person, event etc
image	A picture

Assessment points

- Use search engines, primarily Google, to find information and images.
- Use a computer keyboard to type words / phrases into search engine
- Use microphone to dictate words / phrases into search engines
- Collect information
- Evaluate whether or not the information we have collected answers our question.
- Understand that some information we find might not be useful


EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in all other curriculum areas as children find information to enhance their learning and develop their interests.

SEN/D minimum expectations
With adult support

- Use search engines, primarily Google, to find information and images.
- Use a computer keyboard to type words / phrases into search engine
- Use microphone to dictate words / phrases into search engines
- Collect information

High prior attainment and extension opportunities
Children will use the computer independently to find information they need for their child-initiated projects and interests.



Objective

To use a range of apps to create art

Enquiry

What different tools and resources can people use to create works of art?



Substantive Knowledge (Content)

- We can use apps to create art.
- We can use apps to create art on a small scale (e.g. on an iPad) or a large scale (e.g. on an interactive whiteboard)
- Different apps offer different possibilities
- Different tools within apps produce different effects.

Prior Learning

EYFS

This is an ongoing unit across the year, so after their first experience, the children will have had experience of using a range of different apps and tools within apps to create art.

Future Learning

EYFS

Children will use a range of different apps and tools within apps to create art throughout the year.

Y1

Children will develop their skills in digital painting in Year 1 Unit 2.

Skills

Using hardware and software	Using technology, e.g. iPads and apps for a purpose
Creating media	design and development, respectful and responsible communication, presenting, creating content

Concepts

technology	Something that is designed to help with a task.
App (abb. Application)	Computer program designed for specific purposes
digital	Using or relating to digital signals or technology

Key vocabulary

tablet	Small, flat computer, controlled by touching the screen
iPad	Tablet brand name
App	Computer program designed for specific purposes
click	Push the yellow mouse button
cursor	An arrow on the computer screen to show where you are working.
mouse	Controls the cursor on the screen
tool	A feature of a program that helps you do particular things
drag	To move something on a computer screen
select	To choose something from a computer menu
undo	To go back a step and reverse an action
erase	To rub out a mistake

Assessment points

- Use tools in apps to create different effects
- Create art on a small scale using an iPad.
- Create art on a large scale using the interactive whiteboard.

EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in Expressive Arts and Design:
- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. *Creating with Materials ELG*
- Share their creations, explaining the processes they have used. *Creating with Materials ELG*

SEN/D minimum expectations

With adult support

- Use tools in apps to create different effects
- Create art on a small scale using an iPad.
- Create art on a large scale using the interactive whiteboard.

High prior attainment and extension opportunities

Remind children of apps we have used to create art for them to independently select and use an app for their own child-initiated art projects.



Objective

To use video apps to support learning.

Enquiry

How can we show this dance / helicopter story / PE skill to our grown-ups?



Substantive Knowledge (Content)

- We can film our play and learning using video apps on the iPad.
- We can use apps to combine videos and images and sound to create new videos
- We can upload videos e.g. onto Tapestry to store and share them and rewatch them.
- When videos have been uploaded we should delete them from the iPad so it does not get full up
- We can create time lapse videos to record changes that take place slowly over time (e.g. butterfly emerging from chrysalis)
- We can create slow motion videos
- We can speed up videos (e.g. to show a lengthy process more quickly)
- We must always obtain consent before taking a video of someone or their work

Prior Learning

EYFS

This is an ongoing unit across the year, so after their initial introduction to using an iPad to film videos, the children will have had experience of using video apps to record and extend their learning in a variety of contexts, according to their learning, interests and needs.

Future Learning

EYFS

Children will apply and develop their digital video skills in different contexts throughout the year, according to their learning, interests and needs.

Y1

Children will continue to use ipads to record their learning in videos.

Y2

Children will continue to use ipads to record their learning in videos. Children will develop their digital photography skills in Y2 unit 2.

Skills

Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Creating media	design and development, respectful and responsible communication, presenting, creating content

Concepts

technology	Something that is designed to help with a task.
App (abb. Application)	Computer program designed for specific purposes
digital	Using or relating to digital signals or technology
consent	Permission or agreement

Key vocabulary

tablet	Small, flat computer, controlled by touching the screen
iPad	Tablet brand name
App	Computer program designed for specific purposes
film	To record moving pictures with a camera / other technology
Video	A recording of moving pictures and sound
Record	To store moving pictures using electronic equipment so they can be seen later
Play	To cause a machine to produce a video
pause	To make a recording stop for a short time
edit	To make changes to a video, deciding what will be removed and what will be kept in
upload	To copy or move programs or information to a larger computer system or the Internet
delete	To remove data, documents etc from a computer
consent	Permission or agreement
Time lapse video	Video made from a sequence of frames at set intervals to record changes that take place slowly over time
Slow motion	Video playing at a slower speed than normal
Speed up	Video playing at a faster speed than normal

Assessment points

- **Use** video apps to film learning and play.
- **Create** new videos by combining videos and images and sound, using apps.
- **Use** Tapestry to upload and share videos
- **Create** time lapse videos
- **Create** slow motion videos
- **Create** sped-up videos
- **Understand** what is meant by consent and that it is essential

EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in all other curriculum areas as children film their learning and play in order to reflect upon and evaluate it.

SEN/D minimum expectations

With adult support

- **Use** video apps to film learning and play.
- **Create** time lapse videos
- **Create** slow motion videos
- **Create** sped-up videos
- **Understand** what is meant by consent and that it is essential


High prior attainment and extension opportunities

Children to share their developing skills with others, supporting their friends to learn how to use apps that they are already confident with. Children to be encouraged and facilitated to independently use video apps to film their child-initiated play and learning projects.



Objective
To explore the functions of a bee bot

Enquiry
I wonder how this works?



Substantive Knowledge (Content)

- The functions of the different buttons.
- The order in which to press the buttons in order for it to move.

Prior Learning

EYFS
Children have learnt positional language and applied it in their playing and learning.

Future Learning

Y1
Children will learn to program a sequence of moves for the bee bot in Year 1 Unit 3.

Y2
Children will create and debug programs for the bee bot in Year 2 Unit 3.

Skills

Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Programming	interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors

Concepts

technology	Something that is designed to help with a task.
logic	The process of working step-by-step to understand a problem and develop a solution
algorithm	A step by step procedure for solving a problem
program	A set of instructions for a computer to follow to perform a task

Key vocabulary

bee bot	A robot that looks like a bee
button	A small object that you press to operate a device or a machine
press	To push something firmly
directions	Which way you will go
instructions	A list of commands and directions on how to do something
forwards	Move in the direction you are facing
backwards	The opposite of forwards
left	On or towards the side of your body that is to the west when you are facing north
right	On or towards the side of your body that is to the east when you are facing north
turn	To change direction
clear	Delete any previous data

Assessment points

- Use bee bots in play
- Program a bee bot, using exploratory techniques to understand functions


EYFS Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enhance mathematical learning as they use technology to explore positional concepts and vocabulary.

SEN/D minimum expectations
With adult support

- Use bee bots in play
- Program a bee bot, using exploratory techniques to understand functions

High prior attainment and extension opportunities
Children will plan and program a sequence of moves to reach an identified destination.



Motcombe School
Flying high together

Objective
To use technology to support playing and learning

Enquiry
How do we watch films?



Substantive Knowledge (Content)

- We can play videos, music and games to support our playing and learning.
- We can use a range of technology, machines and apps (e.g. the smartboard, cd players, Spotify, ipads, computers) to support our playing and learning.

Prior Learning

EYFS
This is an ongoing unit across the year, so after their initial introduction to using these technologies, children will have many experiences of using them in different contexts and for different purposes to enhance their playing and learning.

Future Learning

EYFS
Children will use these technologies in different contexts throughout the year, according to their learning, interests and needs. Children will apply many of the same skills and vocabulary in Unit 2 as they use the internet to find answers to questions and in unit 4 as they record and play videos they have created themselves.

KS1
Children will continue to use these technologies for learning and for enjoyment.

Skills	
Using hardware and software	Using technology, e.g. ipads and apps for a purpose
Using computing systems and networks	Using e.g. the internet
Concepts	
technology	Something that is designed to help with a task.
App (abb. Application)	Computer program designed for specific purposes
Key vocabulary	
Video	A recording of moving pictures and sound
Music	A pattern of sounds made by instruments, singing or both, to give pleasure to listeners
Game	An entertaining activity
Play	To cause a machine to produce a video or piece of music / to take part in a game
Pause	To make a recording stop for a short time
Stop	To make a recording finish
Search engine	A computer program that finds information on the internet by looking for words that you have typed in
Search box	A space on a computer screen where you type a word or phrase relating to information you want to find
click	Push the yellow mouse button
cursor	An arrow on the computer screen to show where you are working.
drag	To move something on a computer screen
select	To choose something from a computer menu
screen	The flat surface of the computer on which pictures and words are shown
Full screen	Occupying all the available display surface of a screen

Assessment points


- Use the internet to play and watch videos to support our playing and learning
- Use the internet to play games to support our playing and learning
- Use the internet to play and listen to music to support our playing and learning
- Use machines to play and listen to music to support our playing and learning

National Curriculum Coverage

- Computing is not a discrete area in the EYFS but it underpins all other areas. This unit will enable learning in all other curriculum areas as children play videos, music and games to support their playing and learning.
- This unit will also specifically enhance learning in Expressive Arts and Design:
- Sing a range of well-known nursery rhymes and songs. *Being imaginative and Expressive ELG*
- Perform songs, rhymes... with others and – when appropriate – try to move in time with music. *Being imaginative and Expressive ELG*


SEN/D minimum expectations
With adult support
Children can use the internet to play and watch videos to support our playing and learning. With support, children can navigate through a webpage to that allows choice of activity.

Greater Depth
High prior attainment and extension opportunities
Use technologies independently to play videos, music and games to support their playing and learning.



Objective
To recognise common uses of technology at home and the school environment

Enquiry
How does technology make our life easier?



Substantive Knowledge (Content)

- What technology is
- What are the names of some types of technology
- How technology help us
- What are the main parts of a computer
- How to use some elements of a computer including a mouse and keyboard
- How we can keep safe when using technology (e-safety)
- What are some rules for using computers (being healthy)

Prior Learning

EYFS
Children have had access to various types of technology including ipads, beebots, interactive whiteboards and touch screen computers.

Future Learning

Y1
Children will use a range of technology for different purposes.

Y2
Children will develop their knowledge further and explore information technology in greater detail.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	Collecting, analysing, evaluating, presenting data and information
Creating media	Design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

Concepts

Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	Inputs and outputs, programming
Significance	Significant inventions, significant figures from the world of computing
Chronology	Changes in technology over time, inventions, future technology
Written and oral expression	Using Computing terminology

Key vocabulary

technology	Something that is designed to help with a task.
computer	An electronic device for working with information
keyboard	Input device with a set of keys which allow you to type letters and numbers.
mouse	Controls the cursor on the screen
click	Push the yellow mouse button
button	Something you press
capital letter	An upper-case letter used at the start of a sentence/ name or place.
cursor	An arrow on the computer screen to show where you are working.
double click	Push the yellow mouse button twice
full stop	At the end of a sentence
home	Where they live
school	Where we learn
screen	The part that you look at
shift key	The key you hold down to make a capital letter
space bar	To make a finger space between letters or words

Assessment points

- **Identify** some types of technology
- **Name** some types of technology in the classroom
- **Explain** how technology helps us
- **Categorise** types of technology
- **Identify** specific keys and buttons on a keyboard and mouse
- **Use** a keyboard and mouse as part of a computer system
- **Use** the keyboard to type their name and edit text
- **Creating** a line of text
- **Evaluating** the choices they have made
- **Identify** ways to keep safe and healthy when using technology

National Curriculum Coverage


- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully

Target Tracker statements

- Recognise common uses of information technology in the home and school environment
- Use technology purposefully to create digital content
- Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

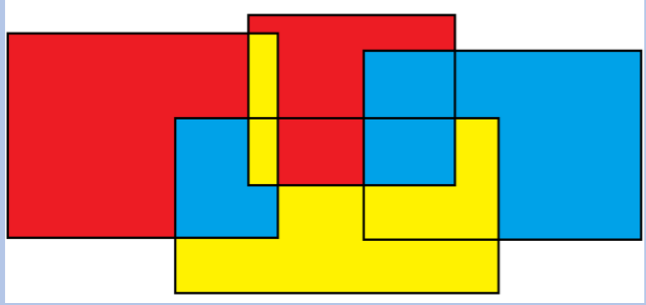
SEN/D minimum expectations
Children to recognise and name some types of technology. They can physically sort objects into two groups. With support (including a name card and phonics/ letter formation mat), they can use a keyboard to write their own name.

High prior attainment and extension opportunities
Children to think about, discuss and reason what is the best technology to use for specific tasks.



Objective
To create a picture using a computer

Enquiry
How can we paint using computers?



Substantive Knowledge (Content)

- What freehand tools do
- To use the shape and line tools
- To make careful choices when painting a digital picture
- To explain why I chose the tools I used
- To use a computer on my own to create a picture
- To compare painting on paper to painting a picture on the computer

Prior Learning

EYFS
Children have access to paint programs on the interactive whiteboard and in the computer suite. Children use the pen/ touch screen to create pictures and start to explore the tools available in the program.

Y1
Children have learnt that technology can help us in different ways.

Future Learning

Y1
Children will be learning about digital writing and how to present it in different ways.

Y2
Children will be editing digital images.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
Creating media	design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

Concepts

Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	Inputs and outputs, programming
Significance	Significant inventions, significant figures from the world of computing
Chronology	Changes in technology over time, inventions, future technology
Written and oral expression	Using Computing terminology

Key vocabulary

tool	Different
shape tools	Used to create different shapes
line tools	To make a straight line
fill	To fill in a shape with one solid colour
undo	To go back a step and reverse an action
brush size	To change the width (size) of the outlines
brush style	To add effect to your art work
erase	To rub out a mistake
paintbrush	To mark make on the screen

Assessment points

- **Use** the paint tools to create a picture in the style of Kandinsky/ Matisse
- **Explain** which tools I used and why they are helpful
- **Use** the shape and line tools to recreate the work of an artist
- **Use** the tools to change the shape, size and colour of the lines I draw
- **Categorise** pictures into computer art and paper art.
- **Evaluate** whether you prefer painting on the computer or using paper

National Curriculum Coverage


- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school

Target Tracker statements

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology in the home and school environment

SEN/D minimum expectations
Children will use the touch screen to select different tools to adapt and make their pictures more interesting. With support, children will create lines and shapes using the mouse.


High prior attainment and extension opportunities
Children will create their own art work using the skills they have learnt and experiment with other available tools on the program.



Motcombe School
Flying high together

Objective
To program a robot

Enquiry
How can we help the beebot get home safely?



Substantive Knowledge (Content)

- Explain what a given command will do (vocab)
- To act out a given word (e.g. Forwards)
- To combine forwards and backwards commands to make a sequence
- To combine four directional commands to make a sequence
- To plan simple sequence
- To find a solution to a problem

Prior Learning

EYFS
The children learn positional language and directions throughout the year and play games involving the language forwards, backwards, sideways, turn, right and left. The children have used beebots in a child-led environment and are able to explore the buttons and functions independently.

Y1
Children have learnt that computers follow instructions in order to work.

Future Learning

Y1
Children will begin to use computer programming for animation.

Y2
Children will explore beebots further in Year 2 and will create their own mat/ route for the beebot to explore.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
Creating media	design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

Concepts

Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	Inputs and outputs, programming
Significance	Significant inventions, significant figures from the world of computing
Chronology	Changes in technology over time, inventions, future technology
Written and oral expression	Using Computing terminology

Key vocabulary

program	Teach a computer how to do things
commands	Instructions to do something
instructions	A list of commands and directions on how to do something
directions	Which way you will go
beebot	A robot that looks like a bee
algorithm	A clear set of instructions to carry out a task
backwards	The opposite of forwards
clear	Delete any previous data
forwards	Move in the direction you are facing
go	a command
plan	An idea for doing something
route	The path it will take
turn	To change direction

Assessment points

- **Follow** an instruction and give directions
- **Compare** forwards and backwards movements
- **Experiment** with turn and move commands
- **Predict** the outcome of a sequence involving up to four commands
- **Explain** what my program should do
- **Debug** the program
- **Identify** several possible solutions

National Curriculum Coverage


- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs

Target Tracker statements

- Predict the behaviour of simple programs
- Understand what algorithms are and how they are implemented on digital devices

SEN/D minimum expectations
Children will be able to use forwards and backwards movements to program a robot. With support, children will program a robot to change direction (turn).

High prior attainment and extension opportunities
The children will explain why they chose a particular route (e.g. it was the shortest route) and can explain why a route was unsuccessful.



Objective

To label and group data according to their properties

Enquiry

How can a mouse help a lost cat?



Substantive Knowledge (Content)

- To label objects
- To identify objects that can be counted
- To describe objects in different ways (e.g. big, small, blue/not blue)
- To count objects with the same properties
- To compare groups of objects (more/ less)
- To answer questions about groups of objects (e.g. which group has fewer?)

Prior Learning

EYFS

Children regularly explore and sort physical objects into groups such as colour and size through the provision available. The enabling environment encourages children to do this and the children are expected to help tidy up resources which also involves grouping items and putting them away in the correct places (e.g. all the compare bears together).

Y1

Children have learnt that computers can be used to create and change things.

Future Learning

Y1

Children will be using logic and reasoning to answer problems involving programming.

Y2

Children will present data graphically in pictograms.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
Creating media	design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

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Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
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Key vocabulary

data set	Things that we have sort
property	The colour size or shape of something
object	An item that can be seen or touched
image	Picture of something
label	A name given to a person or thing
fewest/ least	Smallest group
group	Objects placed together with similar properties
most	Largest group
same	Equal to

Assessment points

- **Describe** objects using labels (e.g. rulers, rubbers)
- **Identify** a label for a group of objects (blue/ red)
- **Sort** objects into groups according to their properties (big/ small)
- **Describe** the properties of an object
- **Count** a group of objects
- **Group** objects in more than one way
- **Compare** groups of objects

National Curriculum Coverage

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Use technology safely and respectfully

Target Tracker statements

- Recognise common uses of information technology in the home and school environment

SEN/D minimum expectations

Children can physically sort objects according to colour and size. Children can use a computer to sort objects according to their colour and size. With support, children can identify how objects have been sorted. E.g. big and small, Blue and red.


High prior attainment and extension opportunities

Children can identify more than one way in which objects may have been sorted. E.g. these are all large but these shapes all have 3 sides. The children begin to reason whether or not another object could be places in the group.



Objective
To create a poster using a computer

Enquiry
How can you use keys help us to write?



Substantive Knowledge (Content)

- Use a computer to type text
- Add and remove text
- Change the text
- Make careful choices when changing text
- Explain why I used the tools I chose.
- Compare writing on a computer with writing on paper

Prior Learning

EYFS
Children in EYFS take part in lots of mark making and writing activities, both during child-initiated play and through teacher-led activities. The children use the Smart board to draw lines and letters and begin to explore a computer and its mark-making capabilities. Children begin to use a computer for typing by writing labels/ names on their pictures. Children have experience of typing as they use search engines to find information.

Y1
Children have used a computer to present digital images in different ways.

Future Learning

Y1
Children will use a keyboard to help create and edit commands.

Y2
Children will be learning how to edit things using a computer and understand that this can change the outcome of something.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
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Written and oral expression	Using Computing terminology

Key vocabulary

word processor	The program we use for typing
toolbar	Where you find all the tools (size, font, etc)
font	The style of the text
bold	Makes the letter stand out/ darker
underline	Puts a line under the word/ letter
backspace	To delete the last thing you typed
capital letter	Used at the start of a sentence, name or place.
cursor	An arrow on the computer screen to show where you are working.
italic	Changes the look of the font
keyboard	What we type on
keys	The buttons on a keyboard
letters	Individual buttons on the keyboard we use to type words
Microsoft Word	The word processor we will use
numbers	Found on a keyboard
space	To make a finger space in out typing
text	The letters you have typed and can see on the screen.
undo	Delete the last action/ go back a step

Assessment points

- **Recognise** the keys on a keyboard
- **Identify** and find keys on a keyboard
- **Use** letter, number and space keys
- **Use** the backspace to remove text
- **Use** the shift key to add a capital letter
- **Select** a word by double clicking
- **Select** the whole text by clicking and dragging
- **Change** the font
- **Explain** which tools I used to change the font.
- **Use** 'undo' to remove any changes.
- **Evaluate** my decisions
- **Explain** whether or not the changes improved my writing.

National Curriculum Coverage


- Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Target Tracker statements

- Recognise common uses of information technology in the home and school environment


SEN/D minimum expectations
Children will be given their name card to find each letter on the lower-case keyboard. With support, children will be able to write their name and change the appearance of their writing.

High prior attainment and extension opportunities
The children can use what they have learnt to add extra text to their poster and extend their writing to include more information and text.



Objective
To use a program to create an algorithm

Enquiry
What is a sprite?



Substantive Knowledge (Content)

- To choose a command for a given purpose
- To show that a series of commands can be joined together
- To identify the effect of changing a value
- To explain that each sprite has its own instructions
- To design the parts of a project
- To use my algorithm to create a program

Prior Learning

EYFS
Positional language in Maths and with beebots

Y1
Children have used Beebots (programming algorithms)

Future Learning

Y2
Children will be making music using a computer to create and change a soundtrack.

KS2
Children will design, write and debug programs that control or simulate virtual events.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
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Key vocabulary

programming	Input instructions
algorithm	A clear set of instructions to carry out a task
Scratch Jr	The program we are using
sprite	Character
instructions	Step by step commands
background	What you can see behind
Bee-bot	A programmable robot
command	An instruction
compare	Look at the similarities and differences
delete	Go back a step
predict	An educated guess
reset	Start again
value	number

Assessment points

- Choose** a command to move a sprite
- Select** and change the background
- Join** blocks together and run the program
- Identify** blocks with numbers and change the values
- Decide** how the sprite will move and select appropriate commands
- Edit** characters (sprites) into the program
- Test** and evaluate the program you have created.

National Curriculum Coverage


- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Target Tracker statements

- Predict the behaviour of simple programs
- Understand what algorithms are and how they are implemented on digital devices

SEN/D minimum expectations
Position cards to support children to plan their movements.
Children will be able to independently move a sprite across the screen

High prior attainment and extension opportunities
Children can select their own backgrounds and select an appropriate character to create their own pathways across the screen. Children can evaluate and adapt their commands and explain the reasoning for these changes.



Objective

To Understand the importance of Information technology

Enquiry

How do computers and information technology help us with our food shopping?



Substantive Knowledge (Content)

- Recognise the features of information technology
- Identify technology in the home
- Identify information technology beyond school
- To explain how information technology benefits us
- To show how to use information technology safely
- Recognise choices are made when using information technology

Prior Learning

EYFS

Children have had access to various types of technology including iPads, beebots, interactive whiteboards and touch screen computers.

Y1

Computer systems & networks: technology around us
This unit builds on the learners' understanding of using technology safely and responsibly.

Future Learning

Y2

Children will be using different technologies to create, edit and present digital content.

KS2

Children will understand that computer networks enable the sharing of data and information.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
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Key vocabulary

technology	Anything that helps us
computer	A machine that helps us with processes
barcode	Shown on packaging and can be read by a scanner
scanner	A device used to read barcodes
scan	Sends data to a computer
Information technology	A computer or something that works with a computer

Assessment points

- **Identify** examples of computers and information technology
- **describe** some uses of information technology
- **Explain the purpose of Information technology in the home**
- **Compare** types of information technology
- **Explain** how information technology can help people
- **Discuss** the uses of information technology
- **Demonstrate** how information technology helps us to complete various tasks.
- **Recognise** how to use information technology responsibly
- **Identify** the rules/ guidelines to use information technology safely
- **Explain** how information technology is used in different environments and settings (e.g. In school, at the shops, in the home).

National Curriculum Coverage

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully

Target Tracker statements

- Recognise common uses of information technology beyond school
- Use technology safely and keep personal information private

SEN/D minimum expectations

Children can physically sort objects that are information technology and those that are not (Take a photo). Identify they types of info technology that they use and how they help them.


High prior attainment and extension opportunities

Children can explain the used of information technology in a certain environment and think about how this helps people with everyday tasks e.g. in a school/supermarket/church, etc.



Objective
To capture and edit photos using a digital device

Enquiry
Can we believe everything we see?



Substantive Knowledge (Content)

- Know that devices can be used to take photographs
- use an iPad to take a photo
- what makes a good photo
- how a photo can be improved
- change an image
- recognise images can be changed

Prior Learning

EYFS
The children have used the iPads to take photos of their learning. They have also explored the use of iPads to make iMovies (supported) and used the cameras to take pictures of their play. They have used the iPads to take photos to create artworks.

Y1
The children have used the iPads to take photos of their learning.

Y2
Children have been looking at different technologies and how some are better suited for a purpose than others.

Future Learning

Y2
Children will be creating and presenting digital content for an audience when making music.

KS2
Children will use technology purposefully to create digital content comparing the benefits of different programs.

Skills	
Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
Creating media	design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

Concepts	
Responsibility	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying
Similarity and difference	Making comparisons, finding patterns, noting differences and drawing conclusions
Cause and consequence	Inputs and outputs, programming
Significance	Significant inventions, significant figures from the world of computing
Chronology	Changes in technology over time, inventions, future technology
Written and oral expression	Using Computing terminology

Key vocabulary	
device	iPad, phone/ camera
camera	An object that can take photos
capture	Take the picture
editing	Making changes to the photo
filter	Changes the photo before it's taken
background	What is behind?
digital	Electrical/ information technology
field of view	What you can see
flash	The internal light on the device used to lighten the photo
focal point	What is the main part of the picture?
horizontal	Long ways (link to the horizon)
image	Picture
landscape	Longways
lighting	The brightness
photograph	A still image taken on a device
portrait	Tall
vertical	Upright / tall

Assessment points

- Use an iPad to take a photograph
- **Experiment** taking both landscape and portrait photos
- **Explain** when we would take a portrait in landscape/ portrait
- **Explain** the process of taking a good photo
- **Identify** what is wrong with a photo
- **Describe** how photos can be improved/ retake it
- **Recognise** that images can be changed
- Use different tools to achieve a desired effect
- **Experiment** with different light sources
- **Apply** photography skills to capture a photo
- **Explain** my choices
- **Recognise** which images have been changed
- **Classify** images into real images and those that have been changed/edited.

National Curriculum Coverage


- Use technology purposefully to create, organise, store, manipulate, and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Target Tracker statements

- Recognise common uses of information technology beyond school
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Use technology purposefully to create digital content comparing the benefits of different programs

SEN/D minimum expectations
Children will be able to take a photo using an iPad in both portrait and landscape. With support, children will edit the colour of a photo and will be able to identify which photos are real and which photos have been changed.

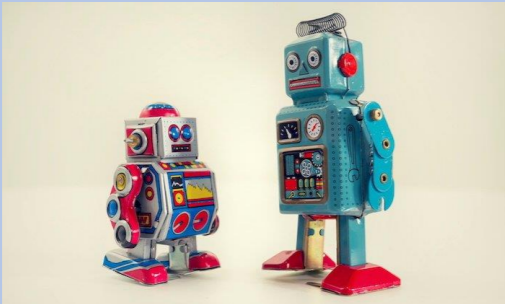
High prior attainment and extension opportunities
The children will be able to take some photos independently using the skills they have learnt. They will be able to select the appropriate format and will use and explore the editing tools to improve their photo. Children will explain what they could do to improve their photo.



Motcombe School
Flying high together

Objective
To create and debug a program

Enquiry
How do robots know what to do?



Substantive Knowledge (Content)

- Describe a series of instructions as a sequence
- Know the order of instructions is important
- Predict the outcome of a program
- Create a mat and program for the beebot
- Design an algorithm
- Create and debug a program

Prior Learning

EYFS
Children have explored the functions of a bee bot in their play.

Y1
Children learnt how to program a beebot to move forwards and backwards. They learnt to turn a beebot and created algorithms to get a beebot from a-b. The children began to explore debugging.

Y2
Children have followed steps to create or change something.

Future Learning

Y2
Children will be creating and editing music using a computer.

KS2
Children will use logical reasoning to detect and correct errors in algorithms and programs.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
Using data and information	collecting, analysing, evaluating, presenting data and information
Creating media	design and development, communicating and collaborating online, evaluating online content, respectful and responsible communication, presenting, creating content

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Written and oral expression	Using Computing terminology

Key vocabulary

program	Input the instructions
algorithm	A clear set of instructions to carry out a task
order	First, next, then
sequence	The order
debugging	Correct any errors
clear	Reset/ delete
command	Instruction
instructions	Step by step commands
prediction	What you think will happen
route	The way it will travel

Assessment points

- Follow** instructions given by someone else
- Give** clear instructions
- Explore** changing the order of instructions and explain the differences
- Predict** the outcome of a sequence
- Compare** my prediction to the program outcome
- Identify** different routes the beebot can take
- Explain** what the algorithm should achieve

National Curriculum Coverage


- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs

Target Tracker statements

- Use logical reasoning to predict the behaviour of simple programs
- Create simple programs
- Create and debug simple programs
- Debug simple programs by using logical reasoning to predict the actions instructed by the code
- Understand that programs execute by following precise and unambiguous instructions

SEN/D minimum expectations
Children will be able to program the bee-bot to move forwards and backwards and to change direction. Children will be provided with arrow cards to help them plan their ideas and debug their program.

High prior attainment and extension opportunities
Children will create their own maze for the bee-bots and plan a route independently to get them from one side to another. The children will then evaluate and de-bug the program.



Motcombe School
Flying high together

Objective

To create a pictogram using a computer and to interpret the information.

Enquiry

How can we use fruit to share information?



Substantive Knowledge (Content)

- How to compare and count objects using tally charts
- How to enter data
- How to create pictograms
- What attributes are
- How to create a pictogram
- How to present information using a computer

Prior Learning

EYFS

The children have had experience making tally charts and creating simple pictograms during their maths sessions and adult led activities.

Y1

Children have created tally's and have begun to present information in block graphs/ pictograms (Supported).

Y2

Children have learnt that computers need to follow instructions in order for them to work correctly.

Future Learning

Y2

Children will be creating and presenting digital content for an audience.

KS2

Children, with support, will select and use a variety of software to accomplish goals.

Skills

Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
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Key vocabulary

pictogram	A way of presenting information
data	Number
chart	The way you present the information
attribute	Similar property
total	The entire amount
compare	Look at all the information
count	Find the total
least	Fewest
less than	Lesser amount
more than	Greater amount
most	Biggest amount
object	The item you are counting etc
organise	Sort information
tally	How many of each object

Assessment points

- **Record** data in a tally chart
- **Compare** totals in a tally
- **Enter** data onto a computer
- **Present** the information using a computer
- **Use** pictograms to answer simple questions about objects
- **Create** a pictogram using a tally and explain the findings
- **Identify** a common attribute (property) to create a tally
- **Compare** data using language more than/ less than/ most/ least
- **Explain** why information should not be shared (e-safety)

National Curriculum Coverage

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Target Tracker statements

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

SEN/D minimum expectations

With support, the children will enter given data onto a computer and will interpret the data using the language more than/ less than/ most and least.


High prior attainment and extension opportunities

Children will collect their own data and can explore the different ways to present their information using block graphs and answer questions related to their findings. The children can further explore the program and see how information can be presented in different ways, (pie chart, line graph etc)



Objective
To create music for purpose using a computer

Enquiry
Can a computer play the drums?



Substantive Knowledge (Content)

- How music makes us feel
- How to Identify patterns in music
- How music can be used in different ways
- How a series of notes can make music
- How to create music for purpose
- How to review and refine our computer work

Prior Learning

EYFS
Exploring the sounds that musical instruments make. Experiment with rhythm and beat.

Y1
Music sessions exploring rhythm and beat/ changing sounds. Exploring the sounds that different instruments make. Syllable, musical patterns, etc.

Y2
Children have used programming skills using algorithms with robots.

Future Learning

KS2
Children, with support, will select and use a variety of software to accomplish goals.

Skills	
Using computing systems and networks	Systems, networks and how they are used, the internet, hardware and software
Programming	Interpreting, creating and evaluating algorithms, programming to accomplish specific goals, detecting and correcting errors
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Key vocabulary	
music	Sounds of instrument- a series of notes to create music
instrument	Makes musical sounds
pattern	Repetition
edit	Change
rhythm	Repeated pattern of music
note	A single musical tone
pitch	High or low
pulse	Short burst of sound
tempo	Speed music is played

Assessment points

- **Describe** how music makes us feel
- **Identify** patterns in music
- **Discuss** your ideas about what the music may be about.
- **Play** an instrument following a rhythm pattern
- **Experiment** with sound using a computer
- **Use** a computer to create a musical pattern
- **Create** music for purpose
- **Review** and refine our computer work

National Curriculum Coverage

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school

Target Tracker statements

- Recognise common uses of information technology beyond school
- Understand that programs execute by following precise and unambiguous instructions

SEN/D minimum expectations
Children will be able to explain how different pieces of music make them feel (e.g. happy/ sad/ angry). With support, children will explore the music app and create a musical pattern using a computer.

High prior attainment and extension opportunities
Children will explore the other features of the program and create their own musical pattern explaining what they like about their (or their friends) music and why they chose particular instruments/rhythms

