Computing - EYFS Content Breadth and Progression

Our Computing curriculum is taught within EYFS topics, as part of the daily continuous provision and during adult enhanced activities.

Three and Four Year Olds

Personal, Social and Emotional Development

- Increasingly follow rules, understanding why they are important.

Physical Development

- Match their developing physical skills to tasks and activities in the setting.

Understanding the World

- Explore how things work.

Reception

Personal, Social and Emotional Development

- Show resilience and perseverance in the face of a challenge.

Physical Development

- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Know and talk about the different factors that support their overall health and wellbeing:
  -sensible amounts of 'screen time'.

Early Learning Goal

Managing Self

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Explain the reasons for rules, know right from wrong and try to behave accordingly.

Creating with Materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Mouse
Swipe
IPad
Click
Technology
Keyboard
Internet
Computer
Select
Search
Close
Image

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Computing – Year 1 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 1 computing curriculum are highlighted below.

To Code

- Program in a variety of languages, to achieve a set goal.
  - *To create an algorithm to move a digital device around a map.*
  - *To make an object move a specified number of steps and turn*
  - *Give commands to an object one at a time to control direction and movement, including straight, forwards, backwards, turn;* ***Currently used, but not limited to: Lightbot, Beebot, Bluebot, Beebot APP, Barefoot unplugged resources.***

- Use logical reasoning to identify bugs in an algorithm and debug (solve) them.
  - *Predict what will happen in a given simple algorithm.*
  - *Spot simple errors in code and describe what the error is.*
  - *To begin to develop simple pre-reading debugging strategies, E.g. Physically walking through or tracing steps of code for a Beebot.*

To Communicate

- Develop understanding and skills within Microsoft Office programs i.e. importing images.
- To present information in a variety of ways i.e. filming videos, creating cards, e-books or stop-go animations.
  - ***Currently used, but not limited to: WORD, Excel, iMovie, digital cameras, microscopes, microphones, 2Simple Toolkit.***

To Connect

- To understand Online Safety and the associated risks i.e. Cyberbullying and the age rules of sites.
- To understand what to do when faced by something that makes them feel uncomfortable or unsafe.
- To begin to question the reliability of information on the internet.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Program
Sequence
Testing
Debugging
Videos
Sounds
Paint
Image Bank
Online
Safe
Private Information
Rules
Trusted Adult

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Computing – Year 2 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 2 computing curriculum are highlighted below.

To Collect

- To use Data-loggers, Databases and Excel to record information.
  - *Currently used, but not limited to: Data Loggers, easi-scopes, 2Simple Toolkit (graphs).*

To Code

- Program in a variety of languages, to achieve a set goal.
  - *Making an object move a specified number of steps and turn, change appearance or speak (verbally or through speech bubbles). controlling when drawings appear.*
  - *Create user inputs to control events (E.g. waiting for a click from a user).*
  - *Creating single events and loops to repeat events.*
  - *Creating conditions for actions by waiting for a user input (such as users responding to questions like: What is your name?*
    - ***Currently used, but not limited to: Scratch, Junior Scratch, Lightbot, Lego WEDO, Barefoot unplugged resources.***

- Use logical reasoning to identify bugs in an algorithm and debug (solve) them.
  - *Predict what will happen in a given simple algorithm.*
  - *Spot simple errors in code and describe what the error is.*
  - *To begin to develop simple pre-reading debugging strategies, E.g. Physically walking through or tracing steps of code for a Beebot.*

To Communicate

- Develop understanding and skills within Microsoft Office programs i.e. importing images.
- To present information in a variety of ways i.e. filming videos, creating cards, e-books or stop-go animations.
  - ***Currently used, but not limited to: WORD, Excel, ZU3D Animation software, Photostory 3, digital cameras, microscopes, microphones, 2Simple Toolkit.***

To Connect

- To understand Online Safety and the associated risks i.e. Cyberbullying and the age rules of sites.
- To understand what to do when faced by something that makes them feel uncomfortable or unsafe.
- To question the reliability of information on the internet.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Algorithm
Output
Input
Animation
Settings
Template
Undo
Software
Appropriate/ Inappropriate Sites
Cyber Bullying
Digital Footprint
Data Loggers
Data Collecting

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Computing – Year 3 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 3 computing curriculum are highlighted below.

To Collect

- To use Data-loggers, Databases and Excel to collect and analyse data.
  - ***Currently used, but not limited to: Data Loggers, 2Simple Toolkit (graphs), introduction to Excel.***

To Code

- Program in a variety of languages, to achieve a set goal.
  - *Controlling the movement of an object using specified screen co-ordinates.*
  - *Setting the appearance of objects and changing them in sequences.*
  - *Creating or editing sound and controlling when they are heard.*
  - *Creating and editing drawings.*
  - *Creating single events and loops to repeat events.*
  - *Create conditions for actions by sensing proximity or by waiting for user input.*
    - ***Currently used, but not limited to: Scratch, PowerPoint.***

- To be able to use logical reasoning to explain how some simple algorithms/programs work and to detect and correct errors in them.
  - *To be able to make accurate predictions about the outcome of a program they have written or seen.*
  - *Compare their code with that of their neighbour or teacher to spot errors/omissions.*
  - *To develop strategies for reading code on the screen and looking for differences/patterns.*
  - *To share and explain ideas with others.*
  - *Make simple changes to code and re-run it to ensure it works as required.*

To Communicate

- To be proficient in the use of Microsoft office programs to represent information collected.
- Using some of the advanced features of applications and devices, be able to present information in a variety of ways, E.g. Website, Stop-Go animation, video or images.
  - ***Currently used, but not limited to: Scratch (animations), Word, Excel, PowerPoint, ZU3D, Gmail, digital cameras, microscopes, microphones.***

To Connect

- To have an awareness of Online Safety and the associated risks i.e. Cyberbullying.
- To understand what to do when faced by something that makes you feel uncomfortable or unsafe.
- To question the reliability of information and know what is meant by Copyright.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Events
Loops
Computational thinking
Logical sequence
File
Save
Trusted adult
Personal Information
Secure passwords
PEGI Ratings
Spreadsheet
Row
Column
Cell

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Computing – Year 4 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 4 computing curriculum are highlighted below.

To Code

- Program in a variety of languages, to achieve a set goal.
  - *Controlling the movement of an object using specified screen co-ordinates.*
  - *Setting the appearance of objects and changing them in sequences.*
  - *Creating or editing sound and controlling when they are heard.*
  - *Creating and editing drawings.*
  - *Creating single events and loops to repeat events.*
  - *Create conditions for actions by sensing proximity or by waiting for user input.*
  - *Use variables to store a value.*
  - *Use reporter operations to perform calculations. (+-*/).*
    - ***Currently used, but not limited to: Kodu, Thimble, Lightbot.***

- To be able to use logical reasoning to explain how some simple algorithms/programs work and to detect and correct errors in them.
  - *To be able to make accurate predictions about the outcome of a program they have written or seen.*
  - *Compare their code with that of their neighbour or teacher to spot errors/omissions.*
  - *To develop strategies for reading code on the screen and looking for differences/patterns.*
  - *To share and explain ideas with others.*
  - *Make simple changes to code and re-run it to ensure it works as required.*

To Communicate

- To know that emails can be used to send and receive information.
- To be able to send and open emails as well as attach and download files within them.
- To be proficient in the use of Microsoft office programs to represent information collected.
- Using some of the advanced features of applications and devices, be able to present information in a variety of ways, E.g. Website, Stop-Go animation, video or images.
  - ***Currently used, but not limited to: Scratch (animations), Word, Excel, PowerPoint, ZU3D, Digital cameras, microscopes, microphones.***

To Connect

- To have an awareness of Online Safety and the associated risks i.e. Cyberbullying.
- To understand what to do when faced by something that makes you feel uncomfortable or unsafe.
- To question the reliability of information and know what is meant by Copyright.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Variables
Conditionals
Decompose
Shortcuts
Bold
Italic
HTML
Tags
Alignment
Hyperlink
Attachment
Reliable
Private
Public
Copyright

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Computing – Year 5 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 5 computing curriculum are highlighted below.

To Code

- To program in a variety of languages, to achieve a set goal. (including controlling or simulating physical systems).
  - *Controlling the movement of an object using the IF condition*
  - *Change the position and visibility of objects*
  - *Uploading, creating and editing sounds and controlling when they are heard*
  - *Creating and editing drawings*
  - *Creating broadcasting events*
  - *Creating single events and loops to repeat events*
  - *Using If, Then, Else conditions to control events or objects*
  - *use a range of sensing tools, such as proximity, user inputs, loudness and mouse position) to control events.*
  - *Use variables/ sets of variables to store values.*
  - *Use Boolean operators to perform calculations. (,>=< and or etc)*
  - *Use reporter operations to perform calculations. (+-*/)*
    - ***Currently used, but not limited to: Crumblebot (scratch), Scratch, Logo, HTML, Sonic Pi,***

- To be able to use logical reasoning to explain how some complex algorithms/programs work and to detect and correct errors in them.
  - *To use code reading strategies to step through complex code that includes loops, selection and variables.*
  - *To confidently ask and answer questions about code produced.*
  - *To break up longer sequences of code and run parts of it separately to try and find out where the error is. (In the case of multi-threaded programming such as multiple Scratch blocks, run each block separately to try and isolate the bug.)*
  - *To explore 'what if' questions to existing code.*

To Communicate

- To work both independently and collaboratively with others to create and present high quality communications.
- To confidently choose the most suitable applications and devises and navigate around a variety of these with ease; using many of the advanced features in order to create high quality communications.
  - ***Currently used, but not limited to: Microsoft Office, Email, Google sites, blogs, videos and images.***

To Connect

- To collaborate respectfully and purposefully with others online on sites approved and moderated by teachers.
- Know the risks of communicating online and demonstrate knowledge of how to minimise risk and report problems.
- Understand the impact of making comments online and demonstrate responsibility and sensitivity.
- Understand that it is illegal to download copyright material, including music, games or films without written permission from the copyright owner.
- To understand how simple networks work and how information is passed.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Variables
Decompose
Sensors
Control
Decision
Collaborate
Dimension
Production
Phishing
Spam
Privacy
Virus
Digital content
Downloadable

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Computing – Year 6 Content Breadth and Progression

The key indicators and vocabulary concepts of our year 1 computing curriculum are highlighted below.

To Code

- To program in a variety of languages, to achieve a set goal. (including controlling or simulating physical systems).
  - *Controlling the movement of an object using the IF condition*
  - *Change the position and visibility of objects*
  - *Uploading, creating and editing sounds and controlling when they are heard*
  - *Creating single events and loops to repeat events*
  - *use a range of sensing tools, such as proximity, user inputs, loudness and mouse position) to control events.*
  - *Use variables/ sets of variables to store values.*
  - *Use Boolean operators to perform calculations. (,>=< and or etc)*
  - *Use reporter operations to perform calculations. (+-*/)*
    - ***Currently used, but not limited to: Python, HTML, SNAP, COSPACE.***

- To be able to use logical reasoning to explain how some complex algorithms/programs work and to detect and correct errors in them.
  - *To use code reading strategies to step through complex code that includes loops, selection and variables.*
  - *To confidently ask and answer questions about code produced.*
  - *To break up longer sequences of code and run parts of it separately to try and find out where the error is. (In the case of multi-threaded programming such as multiple Scratch blocks, run each block separately to try and isolate the bug.)*
  - *To explore 'what if' questions to existing code.*

To Collect

- To use Databases and Excel to collect, manipulate and analyse data.
  - *To Select appropriate applications to create, manipulate, analyse and present data in an effective and professional manner.*

To Communicate

- To work both independently and collaboratively with others to create and present high quality communications.
- To confidently choose the most suitable applications and devises and navigate around a variety of these with ease; using many of the advanced features in order to create high quality communications.
  - ***Currently used, but not limited to: Chromebook collaborative working, ZU3D animations.***

To Connect

- To collaborate respectfully and purposefully with others online on sites approved and moderated by teachers.
- Know the risks of communicating online and demonstrate knowledge of how to minimise risk and report problems.
- Understand the impact of making comments online and demonstrate responsibility and sensitivity.
- Understand that it is illegal to download copyright material, including music, games or films without written permission from the copyright owner.
- To understand how simple networks work and how information is passed.

Vocabulary Concepts

Key concepts the children will learn during the year include:

Parallelism
Script
Waveform
Post-production
Modifications
Fraud/fraudulent
Anonymous
Social media
Policy
Informed choices
Interpret
Analyse
Interrogate
Ascending
Descending

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