AJS Computing Curriculum Learning Journeys

Whole School

Ashley Junior School

Intent

At Ashley Junior School, we aim to provide our children with opportunities to engage in computing in fun and engaging ways. The children will learn how computer-based technologies keep the world connected, enable us to collect and store information, communicate with each other alongside learning to code and debug simple programs. Our curriculum aims to provide children with the chance to think critically and creatively using Information and Communication Technologies (ICT) by developing computational thinking through engagement with various applications (apps) and devices.

We recognise that we are living in an age where technology is constantly evolving and we endeavour to provide the children in our school with the knowledge and skills they will require to adapt to these changes as they move forward in their education. As such, we regularly review and update our curriculum, especially the e-safety provision.

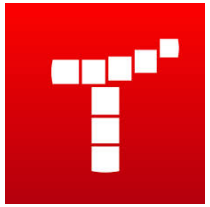
By the end of their time at Ashley Junior School, every child will have had the opportunity to experience ICT in a range of contexts to help develop their learning and help improve digital citizenship.

Implementation

Computing is taught weekly as part of our PPA provision by staff with specialist knowledge in that area.

Through a range of carefully selected and appropriate apps, which have been carefully researched by those staff who teach computing, children learn to code, debug, animate and control movement to complete simple algorithms, solve problems and create short videos.

The apps and devices we use as part of our computing provision are shown below:

							
BeeBot	Box Island	Lightbot	Kodable	Scratch Jr	Tynker	We Do 2 Lego Education	iMotion / iMovie

Implementation

Computing is taught in a series of units based around the apps already discussed with year-on-year progression building on the skills already learned during the children’s previous experience on the apps. Each unit has a clearly defined learning journey which is set out later in this document.

Shown below is the yearly overview of the apps and/or devices used in computing.

Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3 will use Box island	Year 3 will use Lightbot	Year 3 will use Scratch.	Year 3 will use Kodable.	Years 3 will engage with search technology and information collating programs. (Google)	Years 3 iMotion and iMovie

Implementation

Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4 will recap Box island and Lightbot.	Years 4 will use Scratch.	Years 4 will engage with search technology and information collating programs. (Google)	Years 4 iMotion and iMovie	Years 4 Lego Education	

Implementation

Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5 will use Scratch.	Year 5 will use Tynker.	Year 5 will use Lego Education		Year 5 will engage with search technology and information collating programs. (Google)	Year 5 iMotion and iMovie

Implementation

Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6 will use Lego Education		Year 6 will use Scratch.	Year 6 will use Tynker.	Year 6 will engage with search technology and information collating programs. (Google)	Year 6 iMotion and iMovie

Implementation

The progression in computing at Ashley Junior School is laid out in the table of milestones below.

Milestone One (End of Year Four)	Milestone Two (End of Year Six)
I can specify conditions to trigger events. I can use on-screen co-ordinates to control movement. I can change the appearance of objects and make sequences of changes. I can create and edit sounds. I can use If, Then commands to control events or objects. I can make devices respond how I want them to. I can use and control variables using a range of functions. I can use reporter operators to perform calculations. I can communicate ideas using apps and devices.	I can set events to control other events by ‘broadcasting’ information. I can create accurate movement by specifying measurements / amounts. I can move objects between layers on the screen (send to back etc.) I can upload sounds from a file and edit them. I can use a range of sensing tools to make devices respond how I want them to (e.g proximity and user input). I can use lists to create a set of variables and then control them. I can use Boolean operators to define conditions. I can choose appropriate apps to communicate information.

Implementation

Progression in computing continued.

Milestone One (End of Year Four)	Milestone Two (End of Year Six)
I can make a database using appropriate software. I can contribute to blogs safely. I can give examples of risks posed by online communications. I understand the term copyright. I understand hurtful comments made online are the same as bullying. I understand how search engines work. I can decide whether a website is reliable or useful. I can design and debug programs to achieve goals and solve problems.	I can select appropriate software to present data in different ways. I can collaborate online with others safely. I can demonstrate knowledge of how to minimise risk online. I can recognise examples of illegal downloading and how they are against copyright laws. I understand the impact of online comments and behave responsibly online. I can interpret some online symbols to infer the reliability, usefulness and security of the information displayed. I can design and debug more complex programs to achieve goals and solve problems.

Implementation

Computing Provision in Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Box Island: There are are two primary sets defined on the app. To complete the lower one.	**Lightbot** Will learn basic procedures.	**Scratch Jr.** The basics of the program will be covered as an introduction.	**Kodable.** The basics of the program will be covered as an introduction.	**Google** Using increasingly complex features of the Google-based programs: Slides the children will present information they have found using search engines. They will also learn to communicate via email and Google Classroom.	**iMotion** Use stop-motion animation to create and tell a story.
Year 3 will cover internet and computer safety throughout the school year					

Implementation

Computing Provision in Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Box Island: There are are two primary sets defined on the app. To complete the higher one. **Lightbot** Will use this as a quick recap.	**Scratch Jr.** Will be expected to explore the more complex codes in the program.	**Google** Using increasingly complex features of the Google-based programs: Sheets the children will present information they have found using search engines. They will also learn to communicate via email and Google Classroom.	**iMotion** Use stop-motion animation to create and tell a story adding a soundtrack.	**We Do 2 Lego Education** The children will work through the 'Getting Started' models. Complete Open project 14. Cleaning the oceans or Guided Project 8. Sort to recycle. (Links to Year 4 PHSE 'How do our choices affect the environment?')	
Year 4 will cover internet and computer safety throughout the school year					

Implementation

Computing Provision in Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Scratch Jr. Will be expected to explore the more complex codes in the program.	**Tynker.** The basics of the program will be covered as an introduction. The pupils will cover lessons in the scheme programming 100 (a beginner course)..	**We Do 2 Lego Education** Working from the model library section. Complete Open project 12. Space Exploration or Guided Project 17. Moon Base. (Links to Year 5 Science Earth and Space)		**Google** Using increasingly complex features of the Google-based programs: Slides the children will present information they have found using search engines. They will also learn to communicate via email and Google Classroom.	**iMovie** Use stop-motion animation to create and tell a story with a soundtrack. Year 6: use stop-motion animation to create and tell a story with a soundtrack adding different overlays.
Year 5 will cover internet and computer safety throughout the school year					

Implementation

Computing Provision in Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
We Do 2 Lego Education Having gained lots of experience with the model library, they should be using the program library. This gives the programming scenario and the children must create the model to achieve this. Complete Open project 11. Extreme Habitats or Guided Project 19. Send Messages. (Links to Year 6 Science 'Evolution')		**Scratch Jr.** Will be expected to explore the more complex codes in the program.	**Tynker.** Wiill be expected to explore the more complex codes in the program. The pupils will cover lessons in the scheme programming 102 (an intermediate course).	**Google** Using increasingly complex features of the Google-based programs: Sheets the children will present information they have found using search engines. They will also learn to communicate via email and Google Classroom.	**iMovie** Use stop-motion animation to create and tell a story with a soundtrack adding different overlays.
Year 6 will cover internet and computer safety throughout the school year					

Impact

Our children enjoy and value Computing and know why they are doing things, not just how. Children will understand and appreciate the value of Computing in the context of their personal wellbeing and the technological, creative and cultural industries and their many career opportunities.

Progress in Computing is demonstrated through regularly reviewing and scrutinising children’s work, in accordance with our Computing assessment policy to ensure that progression of skills is taking place. Namely through:

- Looking at pupils’ work, especially over time as they gain skills and knowledge
- Observing how they perform in lessons
- Talking to them about what they know.

The Computing curriculum will contribute to children’s personal development in creativity, independence, judgement and self-reflection. This would be seen in them being able to talk confidently about their work, and sharing their work with others.

Progress will be shown through outcomes and through the important record of the process leading to them.

Key Vocabulary

Coding: using a computer language to tell the computer what to do.

Sequencing: commands that get put one after the other.

Procedures: blocks of code for taking advantage of re-usable patterns.

Loops: blocks of code that is used for patterns that repeat.

Bug: An error or mistake in your code.

Debugging: The process of finding and correcting a mistake in your code.

Algorithm: is a procedure or formula for solving a problem.

Program: is an algorithm that has been coded into something that can be run by a machine.

Conditionals: 'if' statements.

Box Island and Lightbox

WALT: design sequences of steps to achieve goals and solve problems

WALT: specify conditions to trigger events using procedures and loops

WALT: specify conditions to trigger events using procedures

WALT: specify conditions to trigger events

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the acronym SMART and through a range of scenario-based discussions.

Key Vocabulary

Co-ordinates: locates a specific point on a grid or screen.

Appearance: the way that someone or something looks

Sequence: the order in which steps or event happen.

Commands: is a instruction to a computer program to perform a specific task.

Scratch

WALT: use If, Then commands to control events or objects

WALT: create and edit sounds

WALT: make sequence of changes

WALT: change the appearance of objects

WALT: use on-screen co-ordinates to control movement

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the acronym SMART and through a range of scenario-based discussions.

Key Vocabulary

Search engines: software program that helps people find the information they are looking for online using keywords or phrases.

Reliable: able to be trusted

Useful: able to be used for a practical purpose.

Communicate: share or exchange information, news, or ideas.

Copyright: protects your work and stops others from using it without your permission.

Blogs: a discussion or informational website published on the World Wide Web.

Contribute to blog: Write something you find interesting or think the community would enjoy.

Google (Year 3)

WALT: contribute to blogs safely

WALT: understand the term copyright

WALT: communicate ideas and information using Google Slides

WALT: decide whether a website is reliable or useful

WALT: understand how search engines work

E-Safety Provision

How to download safely.
Contributing to blogs safely.
Give examples of risks posed by online communications.

Key Vocabulary

Search engines: software program that helps people find the information they are looking for online using keywords or phrases.

Reliable: able to be trusted

Useful: able to be used for a practical purpose.

Communicate: share or exchange information, news, or ideas.

Copyright: protects your work and stops others from using it without your permission.

Blogs: a discussion or informational website published on the World Wide Web.

Contribute to blog: Write something you find interesting or think the community would enjoy.

Google (Year 4)

WALT: contribute to blogs safely

WALT: understand the term copyright

WALT: make a database using Google Sheets

WALT: decide whether a website is reliable or useful

WALT: understand how search engines work

E-Safety Provision

How to download safely.
Contributing to blogs safely.
Give examples of risks posed by online communications.

Key Vocabulary

Search engines: software program that helps people find the information they are looking for online using keywords or phrases.

Reliability: the quality of being trustworthy.

Usefulness: the quality or fact of being useful.

Security: protection from potential harm caused by others,

Communicate: share or exchange information, news, or ideas.

Software: instructions that tell a computer what to do.

Illegal downloading: is a process of getting data (like documents, images, videos, audio, etc.) that you are not allowed to use on the internet.

Copyright: protects your work and stops others from using it without your permission.

Blogs: a discussion or informational website published on the World Wide Web.

Google (Year 5)

WALT: collaborate online with others safely

WALT: recognise examples of illegal downloading that are against copyright laws

WALT: choose appropriate software to communicate information

WALT: interpret some online symbols to infer the reliability, usefulness or security of the information displayed

WALT: use search terms more effectively to limit information

E-Safety Provision

Collaborate with others online safely.
Demonstrate knowledge of how to minimise risk online.
How to download safely and effectively.
Understanding the copyright law.

Key Vocabulary

Search engines: software program that helps people find the information they are looking for online using keywords or phrases.

Reliability: the quality of being trustworthy.

Usefulness: the quality or fact of being useful.

Security: protection from potential harm caused by others,

Communicate: share or exchange information, news, or ideas.

Software: instructions that tell a computer what to do.

Illegal downloading: is a process of getting data (like documents, images, videos, audio, etc.) that you are not allowed to use on the internet.

Copyright: protects your work and stops others from using it without your permission.

Blogs: a discussion or informational website published on the World Wide Web.

Google (Year 6)

WALT: collaborate online with others safely

WALT: recognise examples of illegal downloading that are against copyright laws

WALT: choose appropriate software to present data in different formats

WALT: interpret some online symbols to infer the reliability, usefulness or security of the information displayed

WALT: use search terms more effectively to limit information

E-Safety Provision

Collaborate with others online safely.
Demonstrate knowledge of how to minimise risk online.
How to download safely and effectively.
Understanding the copyright law.

Key Vocabulary

Code: the language that tells the computer what to do.

Sequence: the order in which steps or event happen.

Actors: Tynker characters and objects that can talk and interact with each other.

Command: a specific action or instruction that tells the computer to do something.

Loop: an action that repeats one or more commands over and over..

Counting loops: a loop that repeats one or more commands a set number of times.

Infinite loop: a loop that repeats forever and does not end until the program stops.

Patterns: Something that repeats.

Condition: a statement that is either true or false.

Tynker (Year 5)

WALT: use loops to create solutions that require less coding

WALT: use code blocks to create a digital comic

WALT: apply our knowledge of sequencing to solve puzzles

WALT: use code blocks to program an animated greeting card

WALT: use and repeat sequences to help us solve problems

WALT: identify and order steps to solve puzzles

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the acronym SMART and through a range of scenario-based discussions.

Key Vocabulary

Coding: using a computer language to tell the computer what to do.

Sequence: the order in which steps or event happen.

Actors: Tynker characters and objects that can talk and interact with each other.

Command: a specific action or instruction that tells the computer to do something.

Loop: an action that repeats one or more commands multiple times.

Counting loops: a loop that repeats one or more commands a set number of times.

Infinite loop: a loop that repeats forever and does not end until the program stops.

Stage: the background of the project where the Actors are placed.

Animation: changing costumes of an Actor many times to give the illusion of movement.

Tynker (Year 6)

WALT: use nested and conditional loops to create a 2-player game

WALT: program actors to follow touch sensor location

WALT: use code blocks to layer actors

WALT: make actors appear and disappear using code blocks

WALT: use code blocks to make actors detect colour and touch

WALT: review loops and code blocks to make a coin-collecting game

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the acronym SMART and through a range of scenario-based discussions.

Key Vocabulary

Programmer: A person that writes the code (language) that tells the computer what to do.

Code: The language that we use to create and tell computers what to do.

Sequence: commands that get put one after the other.

Bug: An error or mistake in your code.

Debugging: The process of finding and correcting a mistake in your code.

Kodable

WALT: change JavaScript properties to customize a fuzz character

WALT: create functions to make movement

WALT: apply integer values to our use of loops

WALT: Identify where code repeats and loop our programs

WALT: create conditional statements

WALT: move a “robot” using basic programming language

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the ‘Didi Duck eSafety from Childnet and through a range of scenario-based discussions.

Key Vocabulary

Blocks: These blocks are symbols which are used instead of text-based code.

Program string: is a sequence of programming blocks. The last block of the program string marks the end of the program.

Output: is something that is controlled by the program we are writing. Examples of outputs are sounds, lights, display, and turning motors on and off.

Input: is information that a computer receives. It can be entered through the use of sensors in the form of a numeric or text value.

Events (wait for): tells the program to wait for something to happen before continuing the sequence of actions. Programs can wait for a specific amount of time, or wait for something to be detected by a sensor.

Loop: we can program actions to be repeated either forever, or for a specific length of time.

We Do 2 Lego (Year 4)

WALT: present the results of our programming project

WALT: create and program a system around of set of given criteria

WALT: program a system to achieve different aims and document our findings

WALT: program a system to detect motion

WALT: program systems to turn motors in different ways

WALT: program a system to give off light

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the ‘Game On’ eSafety and through range of scenario-based discussions.

Key Vocabulary

Output: is something that is controlled by the program we are writing. Examples of outputs are sounds, lights, display, and turning motors on and off.

Input: is information that a computer receives. It can be entered through the use of sensors in the form of a numeric or text value.

Events (wait for): tells the program to wait for something to happen before continuing the sequence of actions. Programs can wait for a specific amount of time, or wait for something to be detected by a sensor.

Loop: we can program actions to be repeated either forever, or for a specific length of time.

Functions: are a group of actions that are to be used together in set situations.

Conditions: are used in order to program actions that are to be executed only under certain circumstances. Creating conditions within a program means that some part of the program will never be executed if the condition is never met.

We Do 2 Lego (Year 5)

WALT: present the results of our programming project

WALT: create and program a system around of set of given criteria

WALT: program a system to sweep

WALT: program a system to grab objects

WALT: program a system to lift objects

WALT: program a system to drive

WALT: program a system to wobble and pull

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the ‘Game On’ eSafety and through range of scenario-based discussions.

Key Vocabulary

Output: is something that is controlled by the program we are writing. Examples of outputs are sounds, lights, display, and turning motors on and off.

Input: is information that a computer receives. It can be entered through the use of sensors in the form of a numeric or text value.

Events (wait for): tells the program to wait for something to happen before continuing the sequence of actions. Programs can wait for a specific amount of time, or wait for something to be detected by a sensor.

Loop: we can program actions to be repeated either forever, or for a specific length of time.

Functions: are a group of actions that are to be used together in set situations.

Conditions: are used in order to program actions that are to be executed only under certain circumstances. Creating conditions within a program means that some part of the program will never be executed if the condition is never met.

We Do 2 Lego (Year 6)

WALT: present the results of our programming project

WALT: create and program a system around of set of given criteria

WALT: create a device that is programmed to respond to sound

WALT: create a device that is programmed to respond to movement

WALT: create a device that is programmed to start on command

WALT: create a device that is programmed to make sound

WALT: create a device that is programmed to give light

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the ‘Game On’ eSafety and through range of scenario-based discussions.

Key Vocabulary

Time-lapse: is a cinematography technique which makes movement.

Stop motion: is an animation technique which makes a object look like it's moving on its own.

Transitions: The blending of frames between two clips to create a visually appealing way to view your video.

Backdrop: A background you position behind your character so you don't see the room or other people.

Frame: Each individual photo in an animation.

FPS: The number of "Frames Per Second". Lower FPS means the film goes slower.

IMotion (Year 3)

WALT: create a short movie

WALT: add backdrops

WALT: add transitions

WALT: add sound effects

WALT: take photos to creative a movie

WALT: order photos to create a movie

WALT: explore the features of iMotion

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the Think 'U' Know Band Runner and through a range of scenario-based discussions.

Key Vocabulary
Clip: Media file that contains audio, video, and/or a still image.
Frames: A single image in a movie clip. Movies are made up of a series of frames.
Tracks: The spaces where you can add video and audio clips in a movies timeline.
Storyboarding: in video making a series of cartoon-like panels drawn to describe a movie, shot by shot
Transitions: The blending of frames between two clips to create a visually appealing way to view your video.
Video effects: Change the way the clip looks Colors, B&W, fog, fairy dust, etc.

IMovie (Year 4)

WALT: add sound effects and background music to our movie

WALT: add visual effects to our iMovie

WALT: combine photographs into a movie sequence

WALT: explore the features of iMovie using a pre-prepared template

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the Think 'U' Know Band Runner and through a range of scenario-based discussions.
How to download safely and effectively.
Understand the copyright law.

Key Vocabulary

Clip: Media file that contains audio, video, and/or a still image.

Frames: A single image in a movie clip. Movies are made up of a series of frames.

Tracks: The spaces where you can add video and audio clips in a movies timeline.

Storyboarding: in video making a series of cartoon-like panels drawn to describe a movie, shot by shot

Transitions: The blending of frames between two clips to create a visually appealing way to view your video.

Video effects: Change the way the clip looks Colors, B&W, fog, fairy dust, etc.

IMovie (Year 5)

WALT: use transitions in our iMovie project

WALT: add sound effects and background music to our movie

WALT: add visual effects to our iMovie

WALT: combine photographs into a movie sequence

WALT: explore the features of iMovie using a pre-prepared template

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the Think 'U' Know Band Runner and through a range of scenario-based discussions.

How to download safely and effectively.

Understand the copyright law.

Key Vocabulary

Clip: Media file that contains audio, video, and/or a still image.

Frames: A single image in a movie clip. Movies are made up of a series of frames.

Tracks: The spaces where you can add video and audio clips in a movies timeline.

Storyboarding: in video making a series of cartoon-like panels drawn to describe a movie, shot by shot

Transitions: The blending of frames between two clips to create a visually appealing way to view your video.

Video effects: Change the way the clip looks Colors, B&W, fog, fairy dust, etc.

IMovie (Year 6)

WALT: solve a series of editing challenges

WALT: use transitions in our iMovie project

WALT: add sound effects and background music to our movie

WALT: add visual effects to our iMovie

WALT: combine photographs into a movie sequence

WALT: explore the features of iMovie using a pre-prepared template

E-Safety Provision

Children will be taught discrete e-safety during these sessions, using the Think 'U' Know Band Runner and through a range of scenario-based discussions.

How to download safely and effectively.

Understand the copyright law.