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| EYFS - Computing/Technology | |
| Communication and Language and PSED underpins the EY curriculum and supports the foundations of all other subjects.  Introducing new vocabulary and providing opportunities to apply it is threaded through the entire curriculum and allows the children to build up the language needed to listen, understand and explain their ideas in all subject areas.   Personal, Social and Emotional Development supports the skills necessary to collaborate, negotiate and work effectively with others as well as develop their confidence to try out new activities and persevere with tasks.  The focus in our EY curriculum is to use technology to create rather than consume.  Skills which relate and lead to computational thinking are developed across our curriculum. | |
| Skills to develop computational thinking: | What this looks like in EY |
| Begin to develop **logical reasoning** skills through   * Opportunities for tinkering * Building up experiences of cause and effect * Sequencing - stories, events, putting on clothes * Sorting by size, colour, number, shape * Opportunities to explain thoughts and verbalise   Begin to develop understanding of **pattern** through   * Comparing what is the same and what is different * Spotting patterns in the environment, making our own patterns, repeating a pattern   Begin to develop **algorithmic thinking** skills through   * Sequencing - stories, events, putting on clothes * Opportunities to instruct others * Following recipes, writing recipes   Begin to develop **decomposition** skills through   * Reviewing tasks, working out what steps have been taken * Planning tasks, working out the steps required and order they need to done * Solving everyday problems   Begin to develop **abstraction** skills   * Selecting the appropriate resources for a task | Enabling environment   * Loose parts * Open ended resources * Problems to solve * Set up to allow independence   Skilled adults   * Quality interactions * Scaffolded problem solving * Skilled questioning * Value and encourage perseverance, resilience, collaboration and independent thinking   Specific use of technology/programmable toys   * Opportunities to incorporate digital technology within play eg using the ipad to take photos or videos * Using the internet as a resource to find out information * Opportunities to use programmable toys - beebot and spherobots   On-line safety     * JS to check out Evolve materials |

See EYFS Computing LTP for links to Early Learning Goals

Class 2 Computing LTP –Cycle A

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Kitchens through time / Materials | A2 – Where we live / WS (seasons) | Sp1 – Africa / Living things and habitats | Sp2 – Titanic / living things and habitats | Su1 – Spreading the word (Caxon Bell) / Plants | Su2 – Maps and Atlases / Living things and habitats (weather) |
| Teach Computing | **Computer Systems and Networks – Technology Around Us (Y1)** | **Programming A** – Robot Algorithms (**Y2**) | **Creating Media** – Digital Writing (**Y1**) | **Creating Media** – Digital Photography (**Y2**) | **Programming B** – Programing Animation (**Y1**) | **Data and Information** – Pictograms (**Y2**) |
| Project Evolve | Online Reputation (**Y1**)  Online Relationships (**Y2**) |  | Copyright and Ownership (**Y1**)  Health, Well-being and Lifestyle (**Y2**) | Managing Online Info (**Y2**)  Self-Image and Identity (**Y1**) |  | Privacy and Security (**Y2**)  Online Bullying (**Y1)** |
| Sphero Bolt |  | Draw 3 –properties of shape  <https://edu.sphero.com/cwists/preview/6920x> |  |  | Beginning Block 1 – Movement  <https://edu.sphero.com/cwists/preview/1671x>  Blocks – colour changing maze  <https://edu.sphero.com/cwists/preview/44700x>  (steps 1-3, steps 4-6 as a challenge) |  |
| Curriculum Links / Notes |  | -link both units to shape in maths | -link to narrative / character description sentences from class read e.g. Lost and Found | -link to science (photos of living things / habitats) | Programming B – Programing Animation (Y1) | -link to maths statistics unit  -link to geog, maps and atlases |

Class 2 Computing LTP - Cycle B

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Castles, Materials | A2 – London / WS | Sp1 – Mary Seacole / Human basic needs | Sp2 – Antarctica / Animals inc. humans (baby animals) | Su1 – Grace Darling / Plants (food) | Su2 – Seasides / Living things and habitats (microhabitats) |
| Teach Computing | **Programming A** – Moving a Robot (**Y1**) | **Creating Media** – Digital Painting (**Y1**) | **Computer Systems and Networks –** IT all around us **(Y2)** | **Creating Media** – Digital Music (**Y2**) | **Data and Information** – Grouping (**Y1**) | **Programming B** – Programming Quizzes (**Y2**) |
| Project Evolve | Online Relationships (**Y1**)  Health, Well-Being and Lifestyle (**Y1**) |  | Privacy and Security (**Y1**)  Online Reputation (**Y2**) | Copyright and Ownership (**Y2**)  Self-Image and Identity (**Y2**) | Online Bullying (**Y2**)  Managing Online Info (**Y1**) |  |
| Sphero Bolt |  | Intro (Recap)  <https://edu.sphero.com/cwists/preview/52597x>  Draw block 1 (steps 1-2 are recap, steps 3 and 4 are new learning)  <https://edu.sphero.com/cwists/preview/6872x> |  |  |  | Draw 2 – debugging (steps 4 and 5 only)  <https://edu.sphero.com/cwists/preview/6875x> |
| Curriculum Links / Notes |  | -use digital art to create their interpretation of character from class text (lesson 5) e.g. fairy tales  -link to world art, comparison of digital vs. painting (lesson 6) |  | -link to music unit focusing on notation | -link to science >grouping animals | -link to computing hero, Ada Lovelace\*  >discuss social injustice of Ada not receiving credit for inventions when alive, only her husband did  >videos that may help:  <https://www.youtube.com/watch?v=2vg-0mlSnSE>  <https://www.youtube.com/watch?v=S_sETOU46J4>  -ch can create computer quiz questions about her |

Class 3 Computing LTP –Cycle A

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| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Vikings / WS | A2 – Types of Settlement and Land Use / Electricity | Spr1 – Ancient Greece / Classification | Spr2 – Rainforests / Plants | Su1 – Mines, Minerals and Miners / Light | Su2 – Local Geog / Animals inc. humans (nutrition) |
| Teach Computing | **Creating Media** – Stop Frame Animation (**Y3**) | **Programming B** – Events and Actions in Programming (**Y3**) | **Data and Information** – Branching Databases (**Y3**) | **Computing Systems and Networks –** The Internet **(Y4)** | **Creating Media** – Photo Editing (**Y4**) | **Programming A** – repetition in shapes (**Y4**) |
| Project Evolve | Self-Image and Identity (**Y3**)  Online Bullying (**Y3**) |  | Copyright and Ownership (**Y3**)  Privacy and Security (**Y4)** | Online Reputation (**Y3**)  Managing Online Information (**Y4**) |  | Health, Wellbeing, Lifestyle (**Y4**)  Online Relationships (**Y4**) |
| Sphero Bolt |  | Beginning block 1 (recap)  <https://edu.sphero.com/cwists/preview/1671x>  Intermediate block 4 (collision events)  <https://edu.sphero.com/cwists/preview/6933x>  Maze Mayhem  <https://edu.sphero.com/cwists/preview/177x> |  |  | Long Exposure <https://edu.sphero.com/cwists/preview/78x> |  |
| Notes | Stop-frame, Viking raid on Lindisfarne |  | Link data and info to classification |  |  | Health and wellbeing link to sci |

Class 3 Computing LTP - Cycle B

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Stone Age to Iron Age / WS | A2 – Extreme Earth / Rocks | Spr1 – Romans / Sound | Spr2 – Pennines vs. Apennines / digestion | Su1 – Ancient Egypt / Forces and Magnets | Su2 – Rivers / States of Matter |
| Teach  Computing | **Data and Information** - Data Logging (Y4) | **Programming A** – Sequencing Sounds (**Y3**) | **Creating Media** – Audio Production (**Y4**) | **Computer Systems** – Connecting Computers (**Y3**) | **Creating Media** – Desktop Publishing (**Y3**) | **Programming B** – Repetition in Games (**Y4**) |
| Project Evolve | Self-Image and Identity (**Y4**)  Online Relationships (**Y3**) |  | Online Bullying (**Y4**)  Health, Wellbeing, Lifestyle (**Y3**) | Managing Online Info (**Y3**)  Copyright and Ownership (**Y4**) | Online Reputation (**Y4**)  Privacy and Security (**Y3**) |  |
| Sphero Bolt |  | Beginning block 1 (recap)  Beginning block 2 (light and sound, running blocks asynchronously and synchronously)  <https://edu.sphero.com/cwists/preview/1671x>  <https://edu.sphero.com/cwists/preview/2143x> |  |  |  | Block 3 – beginning (matrix emotions, loops)  <https://edu.sphero.com/cwists/preview/2152x> |
| Notes | Data logging links WS |  | For podcast, interview character from class text | Link belief / opinion (managing online info) to history | Desktop publishing link to Katherine Johson, African-American female  >social injustice in male dominated career  >compare to careers in computing in Northumberland today  Could read as class read: The Extraordinary Life of Katherine Johnson, Devika Jina |  |

Class 4 Computing LTP - Cycle A

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Energy and Engineers/ WS | A2 – Our Interconnected World / Electricity | Sp1 – Cuthbert, Aidan and Bede / Forces | Sp2 – National Parks / Properties of Materials | Su1 – Benin / Living Things | Su2 – Refugees across the Year / Animal inc. humans |
| Teach Computing | **Data and Information** – Flat-file Database (**Y5**) | **Computers and Networks** – Communication and Collaboration (**Y6**) | **Programming B** –Selection in Quizzes (**Y5**) | **Creating Media** – Vector Graphics (**Y5**) | **Programming B** – Sensing Movement (Y6) | **Creating Media** – Website Creation (**Y6**) |
| Project Evolve | Online Bulling (**Y5**)  Online Relationships (Y6) | Manging Online Information (**Y5**)  Privacy and Security (**Y6**) |  | Self-Image and Identity (**Y6**)  Health, Well-being and Lifestyle (**Y5**) |  | Online Reputation (**Y5**)  Copyright and Ownership (**Y6**) |
| Sphero Bolt |  |  | May need to recap Beginning Block 3 (looping)  <https://edu.sphero.com/cwists/preview/2152x>  Intermediate – Blocks 5 (if/ then conditions)  <https://edu.sphero.com/cwists/preview/67347x> |  | Intermediate Blocks 6 (sensing movement)  <https://edu.sphero.com/cwists/preview/67297x> |  |
|  | Link to WS – research methods |  |  | Link to art, as a comparison – positives and negatives of vector drawing and drawing by hand? |  | When looking at examples of websites, look at  <https://girlswhocode.com/>  >discuss features of website e.g. buttons, but also why this particular website is needed (not many girls used to have opportunities in computing)  Focus on Alan Turing (key figure who developed the basis of the first computer, cracked the enigma code but faced discrimination as a gay man in the early 1900s)  >create webpage focusing on Alan Turing  <https://www.youtube.com/watch?v=8nq7lWeRFD4> |

Class 4 Computing LTP - Cycle B

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A1 – Beyond Face Value (propaganda) WS | A2 – Influence of Geog on Conflicts / Light | Sp1 – Border Reivers / Animals inc. Humans | Sp2 – Geog Skills / Evolution | Su1 – Romans and Greeks and Legacy of Empire / Classification | Su2 – Climate Change / Earth in Space |
| Teach Computing | **Creating Media** – 3D modelling (**Y6**) | **Programming A** – Selection in Physical Computing (**Y5**) | **Data and Information** – Introduction to Spreadsheets (Y6) | **Computers and Networks** – Systems and Searching (**Y5**) | **Creating Media –** Video Production **(Y5)** | **Programming B** – Variables in Games (**Y6**) |
| Project Evolve | Online Relationships (**Y5**)  Online Bullying (**Y6**) |  | Privacy and Security (**Y5**)  Online Reputation (**Y6)** | Copyright and Ownership (**Y5**)  Managing Online Information (**Y6**) |  | Health, Wellbeing and Lifestyle (**Y6**)  Self-Image and Identity(**Y6**) |
| Sphero Bolt |  | Jungle Blocks (if / then conditions, sensors)  <https://edu.sphero.com/cwists/preview/15206x> |  |  | Advanced Unit (What a Character)  <https://edu.sphero.com/cwists/preview/15592x> |  |
| Notes | Link with propaganda unit (TC lesson 3)?  Link to art, landmarks, unit (TC lesson 6) |  |  |  | Link TC and Sphero unit (character design) to creating A Midsummer Night’s Dream scene |  |