

**Y1-6 Progression in Computing**

**2019-2020**

**Computing National Curriculum:**

**Key stage 1**

Pupils should be taught to:

* 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
* 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.

**Key stage 2**

Pupils should be taught to:

* Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
* Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
* Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
* Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
* Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
* Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
* Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

**Start of Year Housekeeping:**

* Logging onto computers/devices
* Refresh LGfL username and password (USO) in school and at home. lus subscription services such as Purple Mash, Google Classroom
* **Unit 1 Online Safety SoW – Start of Year Rules for classroom, AUP (detailed at end of Doc)**
* Choose Barefoot lessons for your year group. Ideas are given below, but you might change these to suit class topics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **COMPUTER SCIENCE** | **Programming**   * *Bee-bots,* * *LGfL,* * *Scratch,* * *PurpleMash: 2Code,* * *Code.org* * *Kodu* | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)    Islington Unit 1  (Bee-Bots)  Islington Unit 2 (onscreen turtles using resources on LGfL) Busythings, JIT, | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)  Islington Unit 1  (Pro-bots)  Islington Unit 2  Onscreen turtles using LGFL resources, including iBoard, JIT, Busythings | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)  Scratch  Islington Y3 Unit 1  Pro-bot Unit (Islington) | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)  Scratch  Islington Y4 Unit 1 | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)  Scratch  Islington Y5 Unit 1 (Quiz)  SOCIT Kodu free Unit | Purple Mash 2Code  [Code.org](file:///E:\Writing%20August%202017\code.org)  Introduction to HTML  Y6/7 Transition unit linking to blog (Islington ) |
| **Barefoot Computing**  **List of possible lessons to choose from and implement.** | . Bee-Bot Tinkering  Bee-Bots 123 | Bee Bots Goes Wild  World Map Logic Scratch Jr Tinker  Scratch Jr Knock Knock Joke  Pizza Pickle | Fossil Formation Animation  Bug in the Water Cycle (Scratch) | Animated Poem (Scratch)  Maths Quiz – Selection (Scratch)  Pizza Party | Viking Raid Animation (Scratch)  Maths Quiz – Variables (Scratch)  Shapes and Crystal Flowers (Scratch  Solar System Simulation (Scratch)  Classroom Sound  Monitor | Intro to HTML  Make a Game Project  Investigating Inputs  Investigating outputs  Kodu Tinker  Use selection (Kodu) |
| **Barefoot**  **Continued**  **SEND (Barefoot)**  Any of these unplugged activities can be adapted for any Early Years or KS1/ LKS2  **Digital Literacy (Barefoot)** | **Unplugged:**  Patterns Unplugged – Elephants, Cats and Cars  Bee-Bot Basics  Creating Patterns  Sorting Objects  Getting ready for school  Head Shoulders Knees  and Toes | **Unplugged:**  Spelling Rules  Sharing Sweets  Crazy Characters  Bee-Bot Route  River Crossing  Lego Building Activity  Shopping list  Story Sequencing  Scratch Tinkering  Musical Sequences  Dance Move algorithms  Safety snakes | **Unplugged:**  Patterns Unplugged – Reusing recipes  Crazy Characters revisit  Decomposition unplugged KS2  Safety snakes | **Unplugged:**  Abstraction  2D Shape Drawing  Modelling the Internet  Selecting Search  Stop think do I consent | **Unplugged** Introduction to Code Cracking  Variables  Logical Reasoning  LogicalNumbers /sequences  Network Hunt  Ranking Search  Stop think do I consent | **Unplugged:**  Recap on Abstraction,  Decomposition and Variables  Understanding Computer Networks |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **INFORMATION TECHNOLOGY** | **Multimedia & Word processing**   * *See Islington Booklets*   Examples:  Word  Publisher  Google Docs  PowerPoint  MS Sway  Google Sheets  Prezi | Word Processing: creating simple text documents using the keyboard:  locating letters,  locating keys: space bar, shift to enter capital letters, backspace to delete, locating full stops  2Publish Extra,  Purple Mash,  LGfL JIT , Busy Things)  Using the keyboard (BBC dance mat,  Typing Club,  Brown Bear Typing) | Word Processing, creating story boards, comics, etc. (2Simple,Purplemash 2Publish Extra, LGfL Jit, LGfL Busy Things)  using a developing range of text tools:  Changing font size, type colour.  Create a simple multimedia book.  Inserting images and audio. Purple Mash 2Create a Story  Using the keyboard (BBC dance mat,  Typing Club,  Brown Bear Typing) | Word Processing:  Word, Google docs & Publisher (using formatting tools, e.g. text boxes, WordArt, bullet points, spellchecker, right click menu to copy, paste, insert, etc.)  Using the keyboard (BBC dance mat,  Typing Club,  Brown Bear Typing)  Using different templates, e.g. newspaper (2Publish, Publisher) | Word Processing: Word, Google docs & Publisher (using a wide range of tools and integrating other online resources: hyper linking to appropriate websites, embedding content, acknowledging sources.  Using the keyboard (BBC dance mat,  Typing Club,  Brown Bear Typing)  Using different templates for different genres, e.g. newspaper  ( LGfL J2e5, Publisher) | Choose from a range of to create presentations.  Organise, refine and present information for a specific audience. (LGfL J2E, Publisher, PowerPoint, Word, Google docs, Scratch 2Create)  Evaluate their own and each other’s work through peer assessment (Publish and add comments on blog)  Develop confidence using both hands when typing | Create collaborative documents, (Wiki) to organize, present and publish information for different purposes to a range of audiences. (J2E on LGFL, Publisher, PowerPoint, Word)  Present and evaluate my own and each other’s work through peer assessment (Publish and add comments on blog)  Consolidate keyboard techniques and touch typing skills |
| **Digital Media**  (graphics, video, music, sound)  (See Islington Booklets) | Graphics:  Create artwork (Purplemash,2Paint, 2Paint a picture , 2Publish, 2Publish Extra, 2 Create a story, LGfL j2e Jit, LGfL Busy Things)  Digital images/  Video: take digital photographs  Audio  Music/Sound: Create/explore music (Purple Mash 2Explore, 2Beat, LGfL Magic School, Busy Things, Audio network, JIT sound Recorder) | Graphics: Create artwork (2Paint a Picture, LGfL Busy Things)  Animation: create simple animation in Purple Mash  2Animate, J IT (LGfL)  Video: take digital photographs, edit using simple photo editing tool, (Paint, 2Paint a picture,)  Create and edit a simple video using digital cameras/ iPads  Photostory/Movie Maker app/Green Screen  Music/Sound:  Add voice, and sound effects to digital book, Purple Mash 2Create a story.  Create/explore music and sound. Use microphones (Purple Mash 2Sequence, JIT sound Recorder) | Graphics: Creating digital artwork and interactive webpages for blog (J2E on LGfL)  Animation: create complex animation Purple Mash 2Animate,  JIT (LGfL)  Edit images using crop, resize, recolour Microsoft Photo editor  Create a video presentation using digital photographs  Movie Maker/ iMovie app/ Green Screen  Music/Sound: Create voice over and add backing track to video presentation.  LGfL Audio Network microphones | Graphics: Creating digital artwork portfolio and interactive webpages for blog (J2e5 on LGfL)  Video: Using stock video re-edit footage to create own presentation, insert captured footage. Espresso, Movie Maker  Music/Sound: Radio Programme project (listen, evaluate, plan and write a script. Rehearse and record voice.  Create and add backing track and sound effects.)  Audacity, Audio Network | Graphics: Creating digital artwork and interactive webpages for blog (J2E on LGfL)  Video & Sound: Film project in groups (plan a video, use different filming techniques and sound effects, present and evaluate work to audience) , Movie Maker, Audio Network  Music/Sound: Radio Program project (listen, evaluate, plan and write a script. Rehearse and record voice.  Create and add backing track and sound effects.)  Audacity, Audio Network. Refine output before publishing. | Graphics: Creating digital artwork and interactive webpages for blog (J2E on LGfL)  Video/Animation & Sound: plan a storyboard, create an animation for a purpose. Film, edit and refine. Re-edit, create sound effects and backing track. Publish and present to an audience  Movie Maker, Audio Network, Audacity. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Communication & Collaboration**  (online publishing, blogs, internet research)  (See Islington Booklets) | Create and share story in pairs (2Publish), Use microphones to retell story.  Online research for topic using child-friendly search engines. | Create and share story/work/project (2Publish or Word), Use microphones to record information.  Use J2e5 to blog work.  Online research for topic using child-friendly search engines. | Online publishing: creating and commenting on each other’s blogs/work (See planning)  Online research: use search technologies effectively including search tools, e.g. searching maps/images  Complete an online quiz or survey, e.g. LGFL e-safety survey  Make a quiz in Kahoot | Online publishing: creating and commenting on each other’s blogs/work. (See ‘Blogging Unit’ planning)  Visit a variety of school blogs, discuss & compare  Online research: use search technologies effectively including search tools, e.g. searching maps/images  Complete an online quiz or survey, e.g. LGFL e-safety survey  Make a quiz in Kahoot | Online publishing: creating and commenting on each other’s blogs/work (See ‘blogging Unit’ planning).  Visit a variety of school blogs, discuss & compare  Online research: use search technologies effectively including copyright  Complete an online quiz or survey, e.g. LGFL e-safety survey | Online publishing: creating and commenting on each other’s blogs/work. Visit a variety of school blogs & compare. Regularly update a blog during a term. Add photos and links to related sites or other blogs to make it personal.  Online research: use search technologies effectively including copyright  Complete an online quiz or survey, e.g. LGFL e-safety survey |
| **Data**  (graphs, databases, data loggers)  (See Islington Booklets) | Collect information to answer a question about the class.  Create pictogram, simple graph using LGfL Jit, Purple Mash 2Count, 2Graph (2Simple Video Toolkit)  Talk about data and begin to compare data. | Design and collect information for a simple questionnaire  Create simple graph using JIT (LGfL), Purplemash,2Count, 2Graph (2Simple Video Toolkit)  Branching database (iBoard LGfL, Mini-beasts database LGfL)  Discuss data and begin to compare information. | Design and collect information for a simple questionnaire  Collect data and present in a variety of formats, e.g. Purple Mash 2Caluculate. 2graph.  Use a simple existing database to carry out a simple search to answer a series of questions. Purple Mash 2Investigate | Design and collect information for a simple questionnaire  Collect data and present in a variety of formats, e.g. 2Purplemash Calculate 2graph, Excel.  Design and create a database. Use database to carryout complex searches to answer questions  (Purple Mash 2Simple – 2Investigate) | Spreadsheet modelling  Create a budget for a school tuck shop/ planning class party  Change the data and formulae in a spreadsheet to answer 'what if ...?' questions and check predictions | Spreadsheet  Use a spreadsheet to solve problems.  <http://www.realworldmath.org/measurement-lessons.html>  Spreadsheet modelling.  Create a budget to accompany a produce.  Research the cost of materials, labour, packaging, transport etc.  Present to audience in ‘Dragon Den’ style. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **DIGITAL LITERACY - Continuous throughout school day and reminder home use** | **Online Safety:**  **Switched On Online Safety**  **Scheme** | **1.1 Developing online safety guidelines**  Creating rules that help us stay safe online  **1.2 Social and Emotional Wellbeing and developing resilience**  Understanding the impact of our behaviour on others  **1.3 Responsible internet use**  Remembering to take time out from technology  **1.4 Keeping information safe**  Understanding what is meant by personal information  **1.5 Digital Citizenship**  Finding out what it means to be a good digital citizen  **1.6 Playing games and having fun**  Learning how to stay safe when playing online games | **2.1 Developing online safety guidelines**  Reviewing and editing our online safety guidelines  **2.2 Social and Emotional Wellbeing and developing resilience**  Creating a strong message against online bullying  **2.3 Responsible internet use**  Learning how to use search engines safely **2.4 Keeping information safe**  Generating strong passwords and keeping them safe  **2.5 Digital Citizenship**  Solving online safety problems  **2.6 Playing games and having fun**  Understanding and applying the PEGI rating system for games | **Unit 3.1 – We are Year 3 rule writers**  Reviewing and editing our online safety rules  **Unit 3.2 – We are digital friends**  Developing an awareness of online bullying  **Unit 3.3 – We are internet detectives**  Assessing the trustworthiness of websites  **Unit 3.4 – We are aware of our digital footprint**  Understanding the digital trails we leave behind  **Unit 3.5 – We are netiquette experts**  Practising good netiquette  **Unit 3.6 – We are avatar creators**  Who do we really know online? | **Unit 4.1 – We are Year 4 rule writers**  Reviewing and editing our online safety rules.  **Unit 4.2 - We are standing up to peer pressure**  Dealing positively with peer pressure  **Unit 4.3 - We are aware that our online content lasts forever**  Getting the message: pre- and post-internet  **Unit 4.4 - We are online risk managers**  Understanding risk and prevention of information loss  **Unit 4.5 - We are respectful of digital rights and responsibilities**  Understanding and respecting digital rights and responsibilities  **Unit 4.6 - We are careful when talking to virtual friends**  Virtual friendship vs real friendship; who we can trust | **Unit 5.1 - We are Year 5 rule writers**  Reviewing and editing our online safety rules  **Unit 5.2 - We are responsible for our online actions**  Understanding the impact of online behaviour  **Unit 5.3 - We are content evaluators**  Understanding advertising and endorsements online  **Unit 5.4 - We are protecting our online reputation**  Developing strategies to protect our future selves  **Unit 5.5 - We are respectful of copyright**  Understanding and applying copyright laws  **Unit 5.6 - We are game changers**  Understanding how games developers make money | **Unit 6.1 - We are online safety ambassadors**  Reviewing and editing our online safety rules  **Unit 6.2 - We will not share inappropriate images**  Inappropriate use of technology and the internet – nude selfies  **Unit 6.3 - We are safe social networkers**  Understanding that internet safety skills must always be switched on  **Unit 6.4 - We are respectful of others**  Respecting the personal information and privacy of others  **Unit 6.5 - We are online safety problem solvers**  Using our skills to resolve unfamiliar situations  **Unit 6.6 - We are safe gaming experts**  Creating and delivering advice on safe online gaming |