

Green Pathway

Computing is described in three strands in the **National Curriculum Programme of Study**:

Computer Science	Digital Literacy	Information Technology
Computational thinking, solving problems, sequences and writing programs	Online safety, online communication and collaboration, solving problems by using technology	Understanding how information is used and shaped

The Computer Science Strand is about using computational thinking to solve problems and make things for a purpose. It generally, but not always, involves writing programs. The programming language used will be appropriate for its domain, for example programming for a website will involve HTML. You can also use computational thinking to solve many worthwhile problems by creating a sequence of instructions for the context of the problem, which are not programming instructions. For example, a branching story in episodes can be thought of in this way, where one episode is a single instance in a sequence of episodes, and providing a choice of routes allows a user to make a selection.

The Digital Literacy Strand is in two parts. One of these is about the safe and responsible use of technology. The other is about solving problems and making useful things by the use of digital tools, such as spreadsheets, video editing applications and so on. Computational thinking is essential to working in this strand as well as in the Computer Science strand, because it is a powerful problem solving process.

The Information Technology Strand is in two parts. One of these is that students should know how it all works; how information of all kinds becomes accessible to and manipulable by technology. The core idea is that of digitisation and its consequences. This is about creating a deep understanding of information. Students of computing need to understand how texts, sounds and images become accessible to technology so that they can be shaped.

<https://www.naace.co.uk/curriculum/>

Early Years Foundation Stage (EYFS) Curriculum

Most students working in the Green Pathway Curriculum will not yet be working at National Curriculum Year 1 Expectations and will be focusing on Early Learning Goals within a multi-sensory, communication and interaction enriched Early Years Curriculum. Technology is one of the Early Learning Goals in the key area of Understanding the World. Students will be working towards achieving the developmental learning skills within this and other key areas of learning. This Computing Curriculum Overview has therefore been structured within the National Curriculum Programme of Study Strands but with targets taken from the EYFS Learning Pathway small step foundation skills.

Green Pathway

	Computing Programme of Study	All students will...	Most students will...	Some students will...
Computer Science	<p>0-20 Mths: The beginnings of understanding technology lie in babies exploring and making sense of objects and how they behave.</p> <p>See Characteristics of Effective Learning - Playing and Exploring and Creating and Thinking Critically</p> <p>16-26 Mths: Anticipates repeated sounds, sights and actions, e.g. when an adult demonstrates an action toy several times. Shows interest in toys with buttons, flaps and simple mechanisms and beginning to learn to operate them.</p> <p>22-36 Mths: Seeks to acquire basic skills in turning on and operating some ICT equipment. Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.</p> <p>30-50 Mths: Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Shows an interest in technological toys with knobs or pulleys.</p> <p>40-60 Mths: Completes a simple program on a computer.</p> <hr/> <p>KS1 Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</p> <p>Create and debug simple programs</p> <p>Use logical reasoning to predict the behaviour of simple programs</p>	<ul style="list-style-type: none"> • Attend with eye gaze to moving mobile • Attend fleetingly to toys that emit lights or sounds • Notice movement in sensory tubes and shaker tubes • Reach out towards toys and objects that move • Attend to moving toys or mobiles for more sustained period • Repeat an action that causes a desired effect • Activate simple cause and effect toys • Recognise patterns 	<ul style="list-style-type: none"> • Understand the relationship of cause and effect. To anticipate and think about what might happen as a result of an action when choosing a song, completing a game on the iPad/ IWB. • Switch a light on and off held by an adult • Press switches in a sensory room • Interact purposefully with cause and effect actions on toy or screen • Interact purposefully with technology in their environment (light switches, microwave, fan, TV, DVD player, etc.) • Swipe left, right, up and down on a tablet screen to navigate • Switch TV, iPad or other toy or device on and off • Look for on/off buttons on toys • Wait to manipulate computer or tablet controls when progress bar or hour glass is signalling that computer or tablet is completing a task • Follow a Visual Sequence 	<ul style="list-style-type: none"> • Explore a friction car and understand that you have to pull it back to move it forward • Activate mechanical toys using switches, buttons, knobs and keys • Use more than one switch simultaneously and alternately • Wind up a 'wind up' toy • Interact purposefully with cause and effect actions of toys • Associate clicking an IWB pen or mouse with cause and effect • Independently instruct a programmable toy • Begin to understand direct and remote cause and effect by: <ul style="list-style-type: none"> • operating a remote control • using a mouse or an interactive whiteboard pen to click, drag, drop, write and draw • Following a track with a mouse • Using fingers to pinch to reduce size and spread fingers to enlarge objects on a tablet • Begin to construct a simple series of instructions with support and know how to activate the sequence using a start button. • Following verbal instructions to operate computer • Following computer instructions with support

Resources

Schemes of Work (accessed via <https://www.risingstars-uk.com/login> or via T:\AAA School Documents\PLANNING\SPECIALIST SUBJECT PLANNING\COMPUTING\Computing SCHEMES OF WORK)

Switched on Computing (Programming and Computational Thinking Focus)

EYFS Activity 5 We can Drive (Investigating Everyday Technologies)

EYFS Activity 10 We Can Understand Instructions (Controlling (Kitchen) Equipment)

EYFS Activity 16 We Can Count (Programming a Programmable Toy)

EYFS Activity 17 We are Designers (Controlling a Remote Controlled Toy)

EYFS Activity 18 We Are Shape Makers (Using Light Projectors, Switching on Technology)

1.1 We are Treasure Hunters

1.2 We are TV Chefs

Greenwich

Year 1f Understanding Instructions and making things happen

Newham

Year 1 Giving Instructions

Equals

2.2a Learning to control things

2.2b Creating scenes

3.2a Controlling devices

3.2b Designing and exploring environments

(S) 2a Noticing things happen

(S) 2b Beginning to make things happen with switches

(S) 2c Beginning to make things happen with the computer

Barefoot Computing <https://www.barefootcomputing.org/primary-computing-resources>

- Dance Move Algorithms (Algorithms)
- Head, Shoulders, Knees and Toes (Algorithms)
- Lego Building Algorithm (Algorithms)
- Musical Sequences (Algorithms)
- BeeBot Basics (Algorithms)
- Sharing Sweets (Algorithms)
- Getting Ready for School (Decomposition)
- Creating Patterns (Patterns)
- House Patterns (Patterns)
- Patterns Unplugged (Patterns)

Simulation Apps

- Airport HD Lite (simulation game),
- My PlayHome /School/Shop (simulation and interaction with real life environments)

Clicker

(writing a sequence of actions/instructions to solve a real life problem (making a smoothie, sandwich, crossing the road, constructing a model, etc)

- Connect
- Sentences
- Books

Physical Resources

- BeeBots/BlueBots (with or without BlueBot App)
- Cosmo
- Mobile Floor Projector
- Remote Control Cars, Resources
- Switch Enabled Toys
- Code-a-Pillar
- Sound Beam
- Sensory Rooms (NET Infinity Tunnel)
- iSandBOX

Online Resources

• **Education City** Computing KS1

www.educationcity.com

- KS1 Crane Game Predict Simple Algorithms
- KS1 Everyday Algorithms Unplugged
- KS1 Sea Drive Identifying Correct Programs
- KS1 Sea Drive Executing Programs
- KS1 Sea Drive Extending Identifying Correct Programs

• **LGFL**

- **Busy Things** <https://www.busythings.co.uk/lgfl-login/>
 - Tutorial 1&2 Coding The Basics
 - Loops
 - Loopy
 - Dancing 1&2
 - Conditionals
 - Puddles
 - Events
 - Collect Stars 1, 2 & 3
 - Variables
 - Challenge Dance Steps 1&2
 - Project Call and Response
 - Path Peril

• **JIT5 J2E Infant Tool Suite (Animation)**

iPad Apps

- | | |
|---|---|
| <ul style="list-style-type: none"> • Hopscotch (early coding) • Daisy the Dinosaur (early coding) • Blue Bot and Bee Bot (early coding) • Blox 3D Junior • Dexteria (fine motor skills) • Slide & Spin (fine motor skills) • Sound Box (cause & effect) • Toonia Jelly (cause & effect) • Chooselt Maker • Fluidity (cause & effect) • Atomic Toy (cause & effect) | <ul style="list-style-type: none"> • Sand Garden (cause & effect) • Fun Bubbles (cause & effect) • Balloon Popper • Fireworks (cause & effect) • Tocca Cars (driving, directions) • Bus Driver (driving, directions) • Traffic Lights (instructions, if... then) • Busy Things – Busy Bundle and Cat & Dog Stories) • iSequences • Making Sequences |
|---|---|

Green Pathway

	Computing Programme of Study Focus	All students will...	Most students will...	Some students will...
Digital Literacy	<p>30-50 Mths: Shows and interest in real objects such as cameras or mobile phones.</p> <p>ELG: Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p> <hr/> <p>KS1: recognise common uses of information technology beyond school</p> <p>▮ 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.</p>	<ul style="list-style-type: none"> • Become aware of themselves, others and objects in their surroundings • Recognise and label themselves and have awareness of own name • Interact with, share and take turns with others using appropriate behaviours • Express likes, dislikes, preferences and communicative intent • Show an interest in desired digital devices (TV, iPad, CD player) • Show an interest in the interactive whiteboard • Show interest in a laptop or iPad screen • Show an interest in electronic items such as cameras or mobile phones 	<ul style="list-style-type: none"> • Know that a TV, Computer and Monitor or other powered/electronic devices need to be switched on • Know that CD or DVD needs to be inserted • Know how to operate a growing range of technology equipment in their environment for a particular purpose (light switches, microwave, fan, TV, DVD player, etc.) • Begin to understand the purpose of individual electronic items their environment • Complete a simple program activity on the computer • Select a favourite You Tube video • Operate a DVD player to go forward, back or repeat a section • Know that equipment needs power source or batteries • Be aware of peers and recognition of self • Understand families and groups to which they belong • Understand acceptable behaviour, i.e. be polite, common courtesy and basic manners in daily class interaction, no bad or abusive language or other inappropriate behaviour 	<ul style="list-style-type: none"> • Begin to select and use different types of technology for a particular purpose <ul style="list-style-type: none"> • Operating a camera, mobile phone, etc. • Operating a remote control • Operate a computer mouse • Operating and Interacting with IWB • Opening and operating applications using an electronic tablet • Be able to participate in an online video call, meeting or lesson • Use a mobile phone for video/audio calling • Be aware that others may have different basic needs and different viewpoints and opinions • Understand that people may behave in certain ways for different reasons; • Keep personal information private • Begin to understand the differences between real life and on screen items, people, etc. • Understand how photographs can be manipulated and how people can pretend to be someone/something else • Understand how to sort and categorise and how this helps to find things through questioning or searching (<i>to understand how search engines work</i>) • Know who they can tell if they are worried or upset. • Be able to input usernames and passwords and/or passcodes to login to devices or computers

Resources

Schemes of Work (accessed via <https://www.risingstars-uk.com/login> or via T:\AAA School Documents\PLANNING\SPECIALIST SUBJECT PLANNING\COMPUTING\Computing SCHEMES OF WORK)

Switched on Computing (Computer Networks and Communication and Collaboration Focus)

EYFS Activity 1 – We Have Confidence (Recording and Playing Back Sounds)

EYFS Activity 2 We Can Take Turns (Manipulating Objects on Screen)

EYFS Activity 4 We have Feelings (Taking and Displaying Digital Photographs)

EYFS Activity 7 We Can Exercise (Using Digital Timers and Thermometers)

EYFS Activity 8 We Are Healthy (Internet Research, Opening Applications)

EYFS Activity 9 We Can Listen (Using Technology to Communicate Verbally)

EYFS Activity 14 We Can Email (Using Email to Communicate)

EYFS Activity 15 We Can Blog (Communicating with Digital Text)

EYFS Activity 19 We Are Community Members (Taking and Displaying Digital Photographs, Recording Sound)

EYFS Activity 21 We Are Games Players (Opening and Closing Files)

1.4 We are Collectors

1.5 We are Storytellers

Switched On Computing Online Safety

Key Stage 1

1.1 We are Rule Writers

1.2 1.2 We are Kind and Thoughtful

1.3 We are Responsible Internet and Device Users

1.4 We are Information Protectors

1.5 We are Good Digital Citizens

1.6 We are Responsible Gamers

Greenwich

1a Modelling (difference between on screen and real life)

Newham

Y1 Modelling

Equals

2.3e Different ways to communicate

3.1a Information: In the community

3.1b Introducing the Internet

3.1c Data: Questions and answers

LGFL SEND Safe

<https://www.lgfl.net/online-safety/resource-centre?s=35>

Resources

- LGFL Inclusion (SEND) <https://www.lgfl.net/inclusion/>
- LGFL Online Safety Resources <https://www.lgfl.net/online-safety/resource-centre>
- Know It All for SEND <http://www.childnet.com/resources/know-it-all-for-teachers-sen/bsl-smart-rules>

Videos

- Child Focus eSafety Cartoon – message to tell an adult if you see something that concerns you on the Internet/Computer https://www.youtube.com/watch?v=d5kW4pl_VQw
- 'I saw your Willy' dangers of sexting for young children <https://www.youtube.com/watch?v=z1n9Jly3CQ8>
- 'Lucy and the Boy' dangers of making friends with internet 'friends' <https://www.youtube.com/watch?v=kwL-VP3FYc>
- Dongle Stay Safe - <https://www.youtube.com/watch?v=VcM7sV9ZrGM>
- 'Lee & Kim Adventure Animal Magic' - Cartoon Suitable KS1 – risks of online games <https://www.youtube.com/watch?v=-nMUbHuffO8>
- Wild About Safety with Timon and Pumbaa: Safety Smart® Online <https://www.youtube.com/watch?v=M-njh8mFvVk>
- Digiduck Engaging online safety stories for young children aged 3-7 <https://www.childnet.com/resources/digiduck-stories>
- Jessie and Friends Episode 1 https://www.youtube.com/watch?v=Yt0us2O3_Jk

Online Resources

- **Busy Things** <https://www.busythings.co.uk/lgfl-login/>
- Internet Safety Resource Pack
- **Education City** Computing KS1 www.educationcity.com
- KS1 Technology Outside School
- KS1 Staying Safe Online

Barefoot Computing

<https://www.barefootcomputing.org/primary-computing-resources>

- Safety Snakes

Childnet Star SEN Toolkit

<https://www.childnet.com/resources/star-sen-toolkit>

- **Childnet teaching resources** <https://www.childnet.com/resources>

Clicker 7 (on IWB or PC)

(matching sets – student photo to name, identifying groups, etc)

See Kim Day for examples

iPad Apps

- Animal Face (disguising appearances)
- Scene and Heard (add hot spots to photo scene to play audio and video)
- Chooselt Maker (identifying equipment for a purpose)
- **G Suite for Education (eg: Google Meet)**
- **SMART** Notebook and Learning Suite (Quizzes, Games, Activities)

Green Pathway

	Computing Programme of Study Focus	All students will...	Most students will...	Some students will...
Information Technology	<p>22-36 Mths: Seeks to acquire basic skills in turning on and operating some ICT equipment.</p> <p>30-50 Mths: Knows how to operate simple equipment, e.g. turns on CD player and uses remote control.</p> <p>Knows that information can be retrieved from computers</p> <p>40-60 Mths: Uses ICT hardware to interact with age-appropriate computer software</p> <hr/> <p>KS1: use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>	<ul style="list-style-type: none"> • Show awareness of music being present • Move eyes to a light source when turned on • Attend to light effect toys for more sustained period • Show an interest in the interactive screens/projected images 	<ul style="list-style-type: none"> • Attend to music and movement toys for a more sustained period • Select a favourite music track, start and stop music • Select favourite Apps on an iPad • Take photos using iPad • Take photos with a camera • Insert a DVD into a computer and play DVDs 	<ul style="list-style-type: none"> • Begin to develop keyboard skills using letters and begin to create sentences with assistive writing tools (Clicker Gridsets, word predictor, audio support, etc) • Use numbers on keyboard • Log onto and off computers • Identify which program is needed for specific task • Print a document, online content and picture • Insert a blank CD disc or memory stick into a computer and copy documents • Search for topics using a search engine • Start and save a new document

Resources

Schemes of Work (accessed via <https://www.risingstars-uk.com/login> or via T:\AAA School Documents\PLANNING\SPECIALIST SUBJECT PLANNING\COMPUTING\Computing SCHEMES OF WORK)

Switched on Computing (Productivity and Creativity Focus)
 EYFS Activity 3 We are Successful (Taking Digital Photographs and Combining Them With Text and Sounds)
 EYFS Activity 6 We are DJs (Controlling Digital Sound Files and Videos)
 EYFS Activity 11 We Can Understand Messages (Controlling and Using Sound)
 EYFS Activity 12 We are Talkers (Using Video Cameras to Record Video Clips)
 EYFS Activity 13 We Are Digital Readers (Choosing and Opening Applications and Engaging with Digital Text)
 EYFS Activity 20 We Can Observe (Taking Photographs Using a Digital Microscope)
 EYFS Activity 22 We Are Creative (Choosing and Using Tools in an Art Application)
 EYFS Activity 23 We Can Record Sound Tracks (Recording a Sound Track)
 EYFS Activity We are Film Producers (Recording Video Clips for a Short Film)
 Year 1.3 We are Painters
 Year 1.6 We are Celebrating

Greenwich
 1b Using a Word Processor
 1c The Information Around Us
 1d Labelling and Classifying
 1e Representing Data Graphically
Newham
 Y1 Creating Pictures
 Y1 Handling Data
 Y1 Word Processing
Equals
 2.1a Information: In the school
 2.1b Beginning to find information
 2.1c Data: Labelling and classifying
 2.1d Data: Introducing pictograms
 2.2c Making and recording sounds
 2.3a Making pictures
 2.3b Beginning to write
 2.3c Text and pictures
 2.3d Making talking books
 2.3f Taking and printing photographs
 (S) 1a Information: About me

Explore, use and manipulate text, sounds, images:

- Sound Beam (Explore and manipulate)
- Mobile Floor Projector (use and interact with sound and images to set up games)
- Toc and Roll iPad App (manipulate sounds)
- Cosmo
- SMART Notebook Activities

iPad Apps:

- Thumb Jam (create music)
- Toc and Roll iPad App (manipulate music sounds)
- Incredibox
- My Storybook Maker (create own book with images, sounds, text, etc.)
- Sock Puppets (create puppet show)
- Do Ink (Green Screen app)
- Sound Touch (play animal sounds)
- Finger Paint (creative cause & effect)
- Bubl Draw (creative cause & effect)
- Jelly Music (musical cause & effect)
- Looper (recording own sounds)
- Keezy (recording own sounds)
- Soudala Play (recording own sounds)
- TapThePic (linking images and recording sounds)
- Air Vox (iPad sound beam)
- Little Fox (making music)
- Soundrop
- Fingertip Maestro
- Musical Hands
- Music4Kids (make own song)
- Fingertip Vocals
- Drummer
- Paint Studio (animation)
- MusicalMe HD (early music creation)
- Incredibox (music creation)
- **Clicker Apps (iPads or Chromebooks) or Clicker 7 (PCs)**
 - Connect
 - Sentences
 - Docs
 - Books

LGFL Online Learning Resources

- BBC Sound Effects
<https://www.lgfl.net/learning-resources/summary-page/bbc-sound-effects>
- Audio Networks
<https://www.lgfl.net/learning-resources/summary-page/audio-network>

Online Resources

- **Education City** Computing KS1
www.educationcity.com
 KS1 Read All About It - Creating Content
 KS1 Read All About It - Making Changes
- **LGFL**
 - **Busy Things**
<https://www.busythings.co.uk/lgfl-login/>
 - Busy Paint and Publisher
 - Busy Graph Maker
 - Monster Grid
 - **JIT (Infant Toolkit)**
 - Write
 - Paint
 - Chart
 - Pictogram
 - Branch (selection criteria)