Skills Progression Framework: Computing

Knowledge & Skills Progression Grid

Skills Progression Framework: Purple Mash Computing

Knowledge and Skills Progression Grid

Year Group	Computing systems and networks	Programming	Creating media	Data and information	Online safety and digital literacy
EYFS / Reception (Age 4-5)	- Use simple digital devices with adult support - Recognise that technology is used in school and at home - Begin to understand that instructions make devices work - Explore simple cause and effect through digital play	- Follow a sequence of spoken or visual instructions - Create and test simple routes or actions in unplugged contexts - Use language such as start, next and finish - Explore patterns and repetition through play	- Use drawing, painting, sound and photo tools with support - Select from simple options to create a digital outcome - Talk about what they have made - Explore making and changing digital content	- Sort and match objects by simple characteristics - Use everyday language to describe similarities and differences - Explore data through pictures, counting and grouping - Begin to represent information in simple ways	- Recognise that some devices and online spaces are used for learning and play - Understand that adults help keep them safe when using technology - Begin to identify trusted adults to ask for help - Learn that personal information should be kept private
Year 1 (Age 5-6)	- Identify technology and explain its purpose in school and at home - Use devices with increasing independence - Understand that algorithms are instructions	- Create and debug simple programs - Use clear instructions to move a character or object - Predict the outcome of a sequence of commands	- Create simple digital images, sounds or text - Use tools to change colour, size and shape - Save and retrieve work with support - Explain what they	- Represent information in pictograms or simple charts - Sort objects or data by one criterion - Answer simple questions from a set of data	- Recognise rules for safe and sensible technology use - Understand that not all information online is true - Know who to tell if something online feels

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	- Recognise simple inputs and outputs	- Begin to use repetition in a controlled way	have created using simple vocabulary	- Use digital tools to organise and show information	wrong - Develop simple habits for respectful use of digital devices
Year 2 (Age 6-7)	- Understand that devices can be connected to form a network - Use technology to communicate and retrieve information - Recognise that digital content is stored and can be shared - Begin to identify different types of technology and their uses	- Write and test programs with sequences and simple loops - Use logical reasoning to predict and explain behaviour - Debug programs when instructions do not work as intended - Create programs that achieve a clear purpose	- Use digital tools to create and edit text, images, sound and video - Combine more than one media type in a simple outcome - Select tools appropriate for the task - Explain choices made during creation	- Use branching diagrams, pictograms and tables - Enter and organise data in digital formats - Ask and answer questions about data sets - Spot patterns and draw simple conclusions	- Use simple passwords and understand that some information is private - Recognise appropriate and inappropriate online behaviour - Know how to report concerns to a trusted adult - Understand the importance of kind and respectful communication
Year 3 (Age 7-8)	- Describe how digital devices connect and share information - Understand that networks support communication and access to resources - Begin to use search tools safely and effectively	- Design, write and debug programs for a specific purpose - Use sequence, selection and repetition in programs - Identify and correct errors systematically	- Create purposeful digital content for a clear audience - Edit and improve work using a range of tools - Combine text, images, sound and animation where	- Collect, organise and present data using digital tools - Use charts and graphs to interpret information - Compare and discuss different ways of presenting data - Ask and answer	- Understand the importance of secure logins and personal information - Recognise that online behaviour can affect others - Begin to evaluate online content for

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	- Recognise that information can be found, stored and used digitally	- Use inputs and outputs to control events	appropriate - Evaluate the effectiveness of their digital media	questions that require data analysis	reliability - Learn strategies for reporting and managing concerns safely
Year 4	- Explain how information travels across networks - Understand the internet as a network of networks - Use search tools with increasing discrimination - Recognise the difference between the internet and the web	- Use repetition and selection to make programs more efficient - Develop programs that respond to inputs and conditions - Test, modify and improve programs independently - Use logical reasoning to explain how code works	- Produce digital content suitable for different audiences and purposes - Combine media to communicate ideas clearly - Use editing tools to refine and improve a product - Reflect on how digital choices affect meaning and quality	- Use spreadsheets or databases to store and interrogate data - Choose appropriate representations for different data types - Identify trends and make comparisons from digital data - Use data to answer questions and support conclusions	- Understand privacy, passwords and safe sharing in more detail - Recognise misleading, unreliable or biased online content - Develop respectful communication in collaborative digital spaces - Know how to respond to discomfort or unsafe situations online
Year 5	- Explain how search engines and networks support communication - Understand how data is transmitted and stored digitally - Use digital systems efficiently and with growing independence - Recognise how	- Write programs using sequence, selection, repetition and variables where appropriate - Decompose larger problems into manageable parts - Test, debug and refine programs systematically - Use logical reasoning to	- Plan, create and evaluate digital media for a purpose - Use a wider range of tools and techniques to refine work - Combine layers, effects or media types appropriately - Make deliberate	- Create and interpret more complex data representations - Use digital tools to collect, sort, analyse and compare data - Spot patterns, anomalies and relationships in data sets	- Understand online reputation and the impact of digital footprints - Manage privacy settings and personal information more securely - Recognise persuasive content and commercial

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	technology supports collaboration and problem-solving	predict outcomes and improve code	choices to suit audience and task	- Explain conclusions with evidence from data	influence online - Demonstrate considerate and responsible online communication
Year 6	- Explain in greater detail how networks, search engines and communication systems work - Use digital systems confidently and independently - Evaluate the effectiveness of technology for different tasks - Understand how information can be stored, shared and accessed responsibly	- Design, write and debug programs that solve more complex problems - Use selection, repetition and variables with accuracy - Apply logical reasoning to test and refine code - Explain and improve algorithms for efficiency and purpose	- Plan, create and edit digital products for specific audiences - Select and use tools with increasing sophistication - Combine media to communicate clearly and creatively - Evaluate work against success criteria and improve independently	- Use digital data handling to investigate questions and present findings - Select appropriate charts, spreadsheets or databases for a task - Analyse trends, patterns and exceptions with confidence - Use evidence from data to support decisions and explanations	- Demonstrate secure, respectful and responsible online behaviour - Understand risks relating to privacy, content, contact and conduct - Evaluate information critically and recognise misinformation - Know how to seek help and support others in online situations

Purple Mash Computing Alignment and Curriculum Focus

- **Computing systems and networks**: Understanding how digital devices, networks and the internet support communication, collaboration and access to information.

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- **Programming**: Developing algorithms, debugging, sequencing, selection, repetition and variables through progressive coding experiences.
- **Creating media**: Producing, editing and refining digital content using images, sound, text, video and animation for different audiences and purposes.
- **Data and information**: Collecting, organising, presenting and interpreting data using digital tools such as charts, tables, spreadsheets and databases.
- **Online safety and digital literacy**: Building secure, respectful and critical online behaviours, including privacy, reliability of content and digital citizenship.

Purple Mash Big Ideas and Curriculum Alignment

- **The 10 Big Ideas**
  - **Humankind**: Computing helps pupils understand the role of technology in everyday life, communication and society.
  - **Processes**: Pupils learn through creating, testing, debugging, refining and evaluating digital solutions.
  - **Creativity**: Digital media and programming encourage original thought, design and expression.
  - **Investigation**: Children explore how algorithms, systems and data behave in different contexts.
  - **Materials**: Devices, software and digital tools shape the way tasks are completed and outcomes are produced.
  - **Nature**: Technology can be used to observe, record and interpret information about the world.
  - **Place and Space**: Pupils understand how networks, systems and online environments operate across different spaces.
  - **Comparison**: Children compare algorithms, media products, data sets and digital solutions.
  - **Significance**: Computing is important for learning, work, communication and future participation in society.
  - **Change**: Pupils recognise how their skills, understanding and independence develop over time.
- **Purple Mash computing curriculum links**
  - Units should provide clear progression in technical knowledge, coding, digital creativity and digital safety.
  - Children should revisit key concepts in different contexts to deepen understanding and application.
  - Teaching should combine modelling, guided practice, independent exploration and purposeful creation.
  - Lessons should promote computational thinking, curiosity, persistence and reflective learning.

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- **Threshold concepts**
  - Understand how digital systems work and how information is processed and shared.
  - Design, write and debug algorithms to solve problems.
  - Create and refine digital media for specific audiences and purposes.
  - Collect, present and interpret data using appropriate digital tools.
  - Use technology safely, respectfully and responsibly.
- **Substantive knowledge progression**
  - Children move from recognising technology to explaining systems, networks and digital communication.
  - Programming knowledge develops from simple instructions to algorithmic thinking with variables and logical reasoning.
  - Media creation becomes more purposeful, sophisticated and audience-aware.
  - Data handling grows from simple sorting and pictograms to structured analysis and evidence-based conclusions.
- **Disciplinary knowledge progression**
  - Computational thinking develops from trial and error to systematic decomposition, abstraction and debugging.
  - Pupils increasingly test, evaluate and improve digital work independently.
  - Decision-making becomes more precise as children select appropriate tools, methods and representations.
  - Evaluation and reflection become more purposeful, using criteria and evidence.

Assessment Focus

- **EYFS and Key Stage 1**
  - Can the pupil use digital devices safely with support?
  - Can the pupil follow simple instructions and create a basic digital outcome?
  - Can the pupil recognise that technology can be used for different purposes?
- **Lower Key Stage 2**
  - Can the pupil write, test and debug simple programs?
  - Can the pupil use digital tools to create, organise and present information?
  - Can the pupil explain safe and responsible online behaviour?
- **Upper Key Stage 2**

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- Can the pupil design and refine solutions independently using appropriate digital tools?
- Can the pupil apply programming, data handling and media skills purposefully?
- Can the pupil evaluate digital work critically and demonstrate secure online conduct?