

Medium Term Planning – Sequence of Learning For Computing- Organising data Linked Text-History and communications.

Subject(s) / Area(s) of Learning- Computing	Class 2	Year groups(s) 1/2	Term Summer 2020
<p style="text-align: center;">Purpose of Subject / Area of Learning</p> <p><i>A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.</i></p>	<p style="text-align: center;">Aims of Subject / Area of Learning</p> <ul style="list-style-type: none"> ▪ The children can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation ▪ The children can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems ▪ The children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems ▪ The children are responsible, competent, confident and creative users of information and communication technology. 		
<p>National Curriculum Goals (Pupils Should be taught....)</p> <ul style="list-style-type: none"> • 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 	<p>Additional Curricular Goal(s) Literacy, mathematical, personal and Social, British Values - <i>These are examples of some typical areas not a list to complete</i></p> <ul style="list-style-type: none"> • Understand how the work of William Caxton and Sir Tim Berners-Lee has impacted on their lives. 		

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Vocabulary words and meanings (sequence specific see notes)	Knowledge & Skills sequences Factual, Conceptual, Procedural	Stem Sentences + Key Questions
<p>Data- facts, figures, or other pieces of information that can be used.</p> <p>Digital- storing, using, or sending information electronically in the form of numbers.</p> <p>File- a holder for keeping papers or other objects safe and in order</p> <p>Grab handles- the part of an image made to be held in order to move the image.</p> <p>Layout- Where something is placed on a page.</p> <p>Save- To have kept a copy of something.</p> <p>Locate- To be able to find something.</p> <p>Retrieve- To be able to collect something.</p>	<p>What can they recall / explain / do?</p> <p>The children can take a digital picture either by taking a photograph or using one from the internet.</p> <p>The children can input the photo or picture into a word document.</p> <p>They can change the size of the photo/picture using the grab handles. They understand that the corner ones will keep its proportions correct.</p> <p>The children can then change where the picture is on the page using layout in word.</p> <p>The children can create a file with a suitable name and save the document in it.</p> <p>Finally, the children can locate this file and open it to retrieve the picture.</p>	<p>How can you manipulate this data?</p> <p>What do you think you can call this file?</p> <p>Where did you save your data?</p> <p>How do you retrieve your data?</p> <p>What would a day without the internet be like?</p> <p>We can be safe on the internet by...</p>

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Information to Support - Medium Term Planning

Knowledge

Factual & Conceptual Knowledge constitute knowledge of what.

Factual knowledge

Factual knowledge consists of the basic elements children must know to be acquainted with a subject / topic or solve a problem or think critically about a subject or topic. It includes knowledge of vocabulary / terminology and specific facts. For example, $5 \times 5 = 25$, China is in Asia, heart rate increases with exercise, solids change to liquid when heated this change is called melting, common nouns are objects.

Conceptual knowledge

Conceptual knowledge consists of the relationship between and among the basic elements within a larger body of knowledge or area of learning. It includes knowledge of categories, principles, and models. For example, children may learn principles or rules such as add s to make a noun plural from a word game.

Procedural & Metacognitive Knowledge constitute knowledge of how to.

Procedural knowledge

Procedural knowledge consists of knowing how to do something, methods of inquiry, and criteria for using skills, techniques, and methods. It includes knowing procedures, techniques, and methods as well as the criteria for using them. For example, children may learn how to add numbers within a maths game, or may learn the steps to programme a 'Beebot' around a course.

Metacognitive knowledge

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Metacognitive knowledge consists of knowledge of cognition (thinking) in general as well as awareness and knowledge of their own thinking. It includes knowing strategies for how to accomplish tasks, knowing about the demands of various tasks, and knowing one's capabilities for accomplishing various tasks. For example, children learn to ascertain the difficulty of learning a brand new skill, or children learn how instructions can be used and interpreted to assist completing of a new / unknown task.

Skills

Skills can be considered as the capacity to perform using what is known (knowledge). This can be either cognitively (analyse, evaluate, compare) or physically (grip a pencil, balance on a beam).

Skills are often the expertise needed in order to complete a task. There are many different skills that can help children thrive whether it is school, work, sport or hobby. Skills make children confident and independent in life. It will often take determination and practice, but most skills can be learned or improved.

A non-exhaustive list of examples of skills

Organisational Skills

Categorizing data, Coordinating ,Meeting deadlines, Multi-tasking, Time management, Team Building Skills, Communication, Listening, Observation, Respect, Sharing

Analytical Skills

Critical thinking, Reporting, Research

Life Skills Examples

Cleaning/Tidying, First Aid, Washing, Dressing, Crossing the road, Making a bed, Managing a budget, Setting and clearing the table, Studying/revising

Personal Life Skills Examples

Adaptability, Caring, Cooperation, Curiosity, Effort, Flexibility, Friendship, Initiative, Integrity, Organization, Patience, Perseverance, Problem solving, Responsibility, Sense of humour, Verbal and nonverbal communication

Study/Learning Skill Examples

Communication, Critical thinking, Digital literacy, Follow directions & instructions, Imagination, Initiative, Organisation. Problem solving, Questioning, Reading, Time management, Writing

Sports Skills Examples

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Concentration, Coordination, Dealing with pressure, Flexibility, Footwork, Performing repetitive drills, Power, Precision, Tactics, Teamwork

Vocabulary

Vocabulary is a key component to comprehension. Sequence specific vocabulary should be identified to ensure it is specifically taught and learnt. Sequence specific vocabulary refers to words or phrases children would be unlikely to encounter if not studying that specific sequence and or words that have different meanings in different sequence contexts. For example the word 'scale' would be commonly used in mathematics, music and could also appear in a narrative context to describe animal skin. It is important that the often-subtle differences in meaning relating to context are taught and learnt.

Information to Support - Short Term Planning

Stem Sentences

Stem sentences simple way to teach important knowledge to children so they can remember it. Simple sentence structure where they can 'plug in' important information use independently.

Simple structure for organising knowledge understand concepts using vocab they understand. Frame work to organise, help create more space in working memory organising their thinking. Repeated use helps to embed key conceptual knowledge.

This technique gives children the opportunity to respond in the form of a complete sentence to effectively communicate. Sentence stems provide scaffolding to help children get started in speaking or writing without the added pressure of thinking about how to correctly formulate a response. It support freeing working memory to focus on the subject or area specific learning and helps focus planning on what it is children need to be able know and recall.

This technique enables the teacher to provide a sentence stem for children to communicate their ideas with precision and clarity. These sentence structures often express key conceptual ideas or generalities and provide a framework to embed conceptual knowledge and build understanding. Having modelled the sentence, the teacher can ask individual children to repeat it, before asking the whole class to repeat. This provides children with a valuable sentence for talking about the content. Repeated use helps to embed key conceptual knowledge.

Some examples -

- The number..... can be rounded to..... because it is closer to than.....

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- If the whole is divided into.....equal parts then one part is one.....of the whole.
- The result of applying heat to ais that it causes the.....to
- By using.....to describe.....the reader feels.....
- The Nile provided the Ancient Egyptians with.....
- The river Nile was an important part of the geography of Ancient Egypt because.....
- The Anglo Saxons often settled close to.....because.....

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British Values

Democracy, Rule of Law, Mutual Respect, Individual liberty, Respect of different beliefs and faiths.