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| Intent | Computing at Talavera will equip children to develop their computational thinking and creativity to understand and influence the world around them. Computer science forms a key part of the computing curriculum and allows children to develop their resilience, curiosity and problem solving skills through the use of programming and reading code. We aim for them to become critical thinkers who are able to evaluate the reliability of a range of online platforms. In addition to this, children will improve their digital literacy skills to be able to use, express themselves and develop ideas through information and communication technology at a level suitable for them to be active participants in an ever changing digital world. Finally children will explore what makes a good digital citizen in order for them to act in a safe and responsible way whilst online enabling them to reflect upon the digital footprint they have begun to create.  *Throughout both the academic year and across the different year groups, children will cover but also repeat key skills. Repetition of skills will allow for children to be introduced to them within the first units before developing their confidence and independence of the skills when repeated. Children in Years 3 – 5 will repeat the skills further by apply them to different formats, programs and physical outputs to ensure the skills are further explored, consolidated and embedded enabling them to leave Talavera with appropriate skills to use in the forever growing and changing digital world. In addition to this, throughout the online safety modules, children will experience more challenging and age-related issues the further they go through the school.* | | | | | | |
| Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 | Additional units/ sessions |
| Year 3 | * Write programs that accomplish specific goals   Begin to examine a program and answer questions about its steps, parts and purpose.  Begin to convert an algorithm into a program that accomplishes a specific goal.   * Use sequence in programs and various forms of input and output   Begin to create a code sequence for a given purpose.  Begin to explain what is happening in a code sequence they have created.  Begin to identify inputs that might be used in a programming context.  Begin to output programming using more than one input and output.   * Begin to use logical reasoning to explain how some simple algorithms work and to detect errors in algorithms and programs   Begin to identify that some algorithms and programs don’t work because they don’t follow logical rules expressed in steps.  Develops their ability to look for how their algorithm or code is different from a good example and use this to begin to correct errors.  Scratch tinkering/ insect game | * 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.   Begins to explore basic network functions, shared security, work collaboration, communication, storage, printing services etc.  Begins to explore some of the main services, such as the World wide web, which uses the Internet transport network  Computing networks | * 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, presenting information   Develops their ability to use key features of the program.  Is able to use program specific features to present data in an efficient way.  Beginning to understand how their choice of keywords can affect their internet search.  Powerpoint | * Write programs that accomplish specific goals   Begin to examine a program and answer questions about its steps, parts and purpose.  Begin to convert an algorithm into a program that accomplishes a specific goal.   * Use sequence in programs and various forms of input and output   Begin to create a code sequence for a given purpose.  Begin to explain what is happening in a code sequence they have created.  Begin to identify inputs that might be used in a programming context.   * Begin to use logical reasoning to explain how some simple algorithms work and to detect errors in algorithms and programs   Begin to develop and adjust codes based on a given problem and requirement.  Begin to identify that some algorithms and programs don’t work because they don’t follow logical rules expressed in steps.  Develops their ability to look for how their algorithm or code is different from a good example and use this to begin to correct errors.  Probots | * Write programs that accomplish specific goals   Begin to examine a program and answer questions about its steps, parts and purpose.  Begin to convert an algorithm into a program that accomplishes a specific goal.   * Use sequence in programs and various forms of input and output   Begin to create a code sequence for a given purpose.  Begin to explain what is happening in a code sequence they have created.  Begin to identify inputs that might be used in a programming context.   * Begin to use logical reasoning to explain how some simple algorithms work and to detect errors in algorithms and programs   Begin to identify that some algorithms and programs don’t work because they don’t follow logical rules expressed in steps.  Develops their ability to look for how their algorithm or code is different from a good example and use this to begin to correct errors.  Stop frame | * .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   Branch database | Online safety lessons:  **1 lesson per half term**  Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact  Begin to discuss and identify examples of safe and unsafe technology.  Begin to discuss and identify examples of respectful or disrespectful technology use.  Develop an understanding that they are responsible for my use of technology at all times.  Begin to discuss and recognise acceptable and unacceptable behaviours.  Begin to discuss ways that concerns over content or contact can be reported and who are safe adults to talk to when concerned.  Online Safety |
| Year 4 | * Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems   Develop ability to use a flowchart or plain English to design an algorithm for a specific goal.  Develop ability to examine an algorithm and answer questions about its steps, parts and purpose.  Develop their confidence and independence to explain what is happening in their own code sequence  Identify some different ways programs can be planned as algorithms e.g. Flowcharts, Normal language and Pseudo codes  Develop their ability to write a program by converting algorithms into code.   * Use sequence and repetition in programs; work with various forms of input and output   Develop their confidence and independence to create a code sequence for a purpose.  Begin to convert repetition in an algorithm and create code that uses repetition for a real purpose  Develop ability to input and output programming in multiple ways.   * Use logical reasoning to explain how some simple algorithms work and begin to detect and correct errors in algorithms and programs   Find a bug (error) after receiving a hint from my teacher or a peer.  Recall common bug types mentioned by a teacher or peers and identify where they might occur in their own code.  Scratch Maze | Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact  Can develop simple safety rules that will keep themselves and others safe.  Further discuss and develop understanding of respectful technology etiquette that will improve their use of technology.  Develop ability to recognise behaviour that is acceptable or unacceptable when using technology including reflecting upon their own behaviour and how it affects others.  Develop their understanding and confidence in how to report concerns over content and contact including the different ways and adults it can be reported to.  Online Safety | * Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems   Develop ability to examine an algorithm and answer questions about its steps, parts and purpose.  Develop their ability to write a program by converting algorithms into code   * Use sequence and repetition in programs; work with various forms of input and output.   Develop their confidence and independence to create a code sequence for a purpose.  Develop their confidence and independence to explain what is happening in my code sequence.  Begin to convert repetition in an algorithm and create code that uses repetition for a real purpose  Develop ability to input and output programming in multiple ways.   * Use logical reasoning to explain how some simple algorithms work and begin to detect and correct errors in algorithms and programs   Find a bug (error) after receiving a hint from my teacher or a peer.  Recall common bug types mentioned by a teacher or peers and identify where they might occur in their own code  Powerpoint – Adventure Quests | * 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.   Begins to explore basic network functions, shared security, work collaboration, communication, storage, printing services etc.  Begins to explore some of the main services, such as the World wide web, which uses the Internet transport network.   * Use search technologies effectively, begin to appreciate how results are selected and ranked, and begin to be discerning in evaluating digital content   Begin to explore changing the order of search keywords and noting the differences in the results returned.  Develop ability to use a range of symbols and keywords to adapt internet searches and make them more effective.  Begins to identify that the top results in a returned search doesn’t mean it is the most truthful.  With adult support, begins to discuss the reliability of searches returned.  Computer networking (Year 2022/2023)/ Internet | Photo editing | * 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   Develops their ability to use key features of the program.  Can identify that some tasks will require more than one digital tool, service or device.  Can identify that data can be evaluated to determine how useful it is.  Can present data that has been analysed and evaluated in a form appropriate for my audience.  Develops ability to use simple formula to develop accuracy and efficiency  Excel | Online safety class assembly  (1 per term)  Safer Internet day  *Continuation of objectives from Autumn 2*  Online Safety  Legoland trip – coding physical devices  *Continuation of objectives from Autumn 1*  *Programming - Lego* |
| Year 5 | * Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts   Working with a partner, can write a program by converting algorithms into code.  Use my knowledge of the rules that govern algorithms and programs to predict how they might operate, explain how they work and correct simple errors.  Independently explains what is happening in their own code sequence  Identify different ways programs can be planned as algorithms e.g. Flowcharts, Normal language and Pseudo codes.  Can identify and explore possible program enhancements.   * Use sequence, selection and repetition in programs; work with variables and various forms of input and output   Can create code that uses conditional selection for a real purpose.  With a partner, creates a code sequence for a purpose.  Develops ability to convert repetition in an algorithm and create code that uses repetition for a real purpose  Further develops ability to input and output programming in multiple ways (using different outputs to those explored in lower school).   * Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs   Can use a checklist of common errors and fixes.  Develops ability to use their knowledge of algorithmic processes and rules to detect and correct errors in algorithms or programs.  Scratch - microbits | * 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 - partially   Develop ability to select the right digital tool that matches the purpose and intended outcome.  Can design digital systems to collect data.  Begin to identify that data can be evaluated to determine how useful it is.  Can explain why they chose to present data in a chosen way.  Can explain why they have chosen to use a tool that might not be digital.  Microsoft publisher | * Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact   Know how to report my concerns over content and contact including the different ways and adults it can be reported to.  Can explain why they should report concerns over content and contact.  Can explain why their behaviour is acceptable or unacceptable when using technology including the effect it could have on others.  Can identify that some people act differently online and may consider that they are not responsible for their actions when using online technology.  Have a secure understanding of respectful technology etiquette that will improve their use of technology.  Online Safety | * Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts   Working with a partner, can write a program by converting algorithms into code.  Use my knowledge of the rules that govern algorithms and programs to predict how they might operate, explain how they work and correct simple errors.  Independently explains what is happening in their own code sequence  Identify different ways programs can be planned as algorithms e.g. Flowcharts, Normal language and Pseudo codes.  Can identify and explore possible program enhancements.   * Use sequence, selection and repetition in programs; work with variables and various forms of input and output   Can create code that uses conditional selection for a real purpose.  With a partner, creates a code sequence for a purpose.  Develops ability to convert repetition in an algorithm and create code that uses repetition for a real purpose  Further develops ability to input and output programming in multiple ways (using different outputs to those explored in lower school).   * Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs   Can use a checklist of common errors and fixes.  Develops ability to use their knowledge of algorithmic processes and rules to detect and correct errors in algorithms or programs.  Scratch - quiz | * 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   Can explore some of the main services, such as the World wide web, which use the Internet transport network.  Can explain in non-technical language how the internet connects computers around the world.  Can explain how a network or internet communication and collaboration service could be used for benefit or for harm.  Can identify that the Internet is a network or networks that many home and school devices are connected to.  Can explore basic network functions, shared security, work collaboration, communication, storage, printing services etc   * Use search technologies effectively and appreciate how results are ranked.   Can change the order of search keywords and note the differences in the results returned  Can use a range of symbols and keywords to adapt their search and make it more effective (speech marks, subtract symbol, asterisk, tilde, AND/OR)  Can identify that the top results in a returned search doesn’t mean it is the most truthful or reliable.  Develops understanding that they are searching a database of websites not the actual website  when using a search engine.  Internet (Year 2022/2023)/ Networks and systems | * 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   Develop ability to select the right digital tool that matches the purpose and intended outcome.  Can design digital systems to collect data.  Begin to identify that data can be evaluated to determine how useful it is.  Can explain why they chose to present data in a chosen way.  Can explain why they have chosen to use a tool that might not be digital.  Green screens and other Microsoft based programs | Online safety class assembly  (1 per term)  Safer Internet day  *Continuation of objectives from Spring 1*  Online Safety |
| Year 6 | Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact  Know how to and can advise other on how to report my concerns over content and contact including the different ways and adults it can be reported to.  Can confidently explain why they should report concerns over content and contact.  Can confidently explain why both their own and others behaviour is acceptable or unacceptable when using technology including the effect it could have on others.  Can confidently identify that some people act differently online and may consider that they are not responsible for their actions when using online technology.  Have a secure understanding of respectful technology etiquette that will improve their use of technology.  Can explain how a specific tool, service, device or interaction can be used or conducted respectfully, safely or unsafely.  Online Safety | * Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts   Can confidently write a program by converting algorithms into code.  Can complete an unfinished program.  Can find alternative solutions and explain why the final was chosen.  Can explain how decomposition helps them tackle complex problems by breaking up the task into manageable chunks.   * Use sequence, selection, and repetition in programs   Can create code that uses conditional selection for a real purpose.  Can explain what purpose my repetition code fulfils in my program.  Can explain why I chose to use a specific input or output.   * Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs   Can debug their own code independently.  Can confidently use my knowledge of algorithmic processes and rules to detect and correct errors in algorithms or programs.  Scratch – variables in games | Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content  Can explain how search results are selected and ranked.  Can identify which websites they feel are trustworthy and reliable and explain why.  Can identify clues which suggest an untrustworthy sources or pop up including scam emails.  Further develop ability to change the order of search keywords and note the differences in the results returned  Further develop ability to use a range of symbols and keywords to adapt their search and make it more effective (speech marks, subtract symbol, asterisk, tilde, AND/OR)  Embedded in foundation subjects | | 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  ***Part year group***  Can explain why the digital tool they have chosen is right for their project and intended outcome  Can explain how and why they have collected a specific type of data.  Can explain why data is, or isn’t useful for a specific purpose.  Can explain their choice of layout and presentation including how it is suited to their target audience.  Websites | Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact  Know how to and can advise other on how to report my concerns over content and contact including the different ways and adults it can be reported to.  Can confidently explain why they should report concerns over content and contact.  Can confidently explain why both their own and others behaviour is acceptable or unacceptable when using technology including the effect it could have on others.  Can confidently identify that some people act differently online and may consider that they are not responsible for their actions when using online technology.  Have a secure understanding of respectful technology etiquette that will improve their use of technology.  Can explain how a specific tool, service, device or interaction can be used or conducted respectfully, safely or unsafely.  Online Safety | Online safety class assembly  (1 per term)  Safer Internet day  *Continuation of objectives from Autumn 1*  Online Safety |