Heptonstall School – Computing Progression (Taken from Purple Mash Computing Scheme)

	Computer science	Information technology	Digital literacy	On-line safety
EYFS	Development Matters: **C&L:** • Understand how to listen carefully and why listening is important. • Learn new vocabulary. • Use new vocabulary through the day. • Ask questions to find out more and to check they understand what has been said to them. Small steps: Give commands/instructions e.g. forward, backwards, go, stop, when using simple software/hardware Make choices about the buttons/icons to press, touch or click on when using simple software/hardware.	Development Matters: **PD:** • Develop their small motor skills so that they can use a range of tools competently, safely and confidently (mouse) • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. Small steps: Manage a device by correctly closing websites or apps and safely turning on and off. Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) Experience simple apps and software and use these to present ideas	Development Matters: **C&L:** • Understand how to listen carefully and why listening is important. • Learn new vocabulary. • Use new vocabulary through the day. • Ask questions to find out more and to check they understand what has been said to them. Small steps: Recognise technology that is used at home and in school. Understand what a computer is and the different uses of computers i.e. learning, communicating, finding information, playing games etc.	Development Matters: **PS&E:** • See themselves as a valuable individual. • Build constructive and respectful relationships. • Show resilience and perseverance in the face of challenge. • Think about the perspectives of others. • Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time' Small steps: Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you Play appropriate games on the Internet Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private
	Early Learning Goals Personal, Social and Emotional Development: Managing Self •Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. •Explain the reasons for rules, know right from wrong and try to behave accordingly. Expressive Arts and Design: Creating with Materials •Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.			
	Computer science	**Information technology**	**Digital literacy**	**On-line safety**
KS1	• Children understand that analgorithm is a set of instructions used to solve a problem or achieve an objective. They know that analgorithm written for a computer is called a program. • Children can work out whatis wrong with a simple algorithm when the steps are out of order, e.g. The	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simpleinstructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code	• Children understand what is meant by technology andcan identify a variety of examples both in and out ofschool. They can make a distinction between objectsthat use modern	• To log in safely. • To start to understandthe idea of 'ownership'of their creative work. • To learn how to find saved work in the Online Work area and find teacher comments.

	Wrong Sandwich in PurpleMash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in2Code. • When looking at a program, children can read code one line at a time and make goodattempts to envision the bigger picture of the overall effect of the program. • Children can, for example, interpret where the turtle in2Go challenges will end up at the end of the program. • Children can explain that analgorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that theycan be successfully converted into code. • Children can create a simpleprogram that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. • Children's program designs display a growing awarenessof the need for logical, programmable steps. • Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can writea cause and effect sentence of what will happen in a program.	design mode(manipulating backgrounds) or using pictogram software such as 2Count. • Children demonstrate an ability to organise data using,for example, a database suchas 2Investigate and can retrieve specific data for conducting simple searches. • Children are able to edit morecomplex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrievingcontent. Children use a rangeof media in their digital content including photos, text and sound.	technology and those that do not e.g. a microwave vs.a chair. • Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. • Children take ownership oftheir work and save this intheir own private space such as their My Work folder on Purple Mash. • Children can effectively retrieve relevant, purposefuldigital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. • 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. • Children know the implications of inappropriate online searches. Children begin tounderstand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities onPurple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	• To learn how to searchPurple Mash to find resources. • To become familiar withthe types of resources available in the Topics section. • To become more familiarwith the icons used in the resources in the Topics section. • To start to add picturesand text to work. • To explore the Tools section of Purple Mashand to learn about the • common icons used in Purple Mash for Save,Print, Open, New. • To explore the Games section on Purple Mash. • To understand the importance of loggingout when they have finished. • To know how to refinesearches using the Search tool. • To know how to sharework electronically using the display boards. • To use digital technology to share work on Purple Mashto communicate and connect with others locally. • To have some knowledge and understanding about sharing more globallyon the Internet. • To introduce Email as acommunication tool using 2Respond simulations. • To understand how wetalk to others when they are not there in front of us. • To open and send simple online communications in theform of email. • To understand that information put online leaves a digital footprint or trail. • To begin to think critically about the information they leaveonline. • To identify the steps that can be taken to keep personal data andhardware secure. • To gain a better understanding of searching the Internet.
LKS2	• Children can turn a simple real-life situationinto an algorithm for a program by deconstructing it into manageable parts. Their design shows thatthey are thinking of the desired task and how this translates into code.Children can identify an error within their program	• Children can carry outsimple searches to retrieve digital content. They understand that to dothis, they are connecting to the internet and using a search engine such asPurple Mash search orinternet-wide search engines.	• Children demonstrate the importance of havinga secure password and not sharing this with anyone else. Furthermore, children can explain the negativeimplications of failure	• To know what makes asafe password, how to keep passwords safe and the consequences of giving your passwords away. • To understand how the Internet can be used to help us to communicateeffectively.

	that prevents it following the desired algorithm and then fix it • Children demonstrate the ability to design andcode a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understandthe difference in the effect of using a timer command rather than a repeat command when creating repetition effects. • Children's designs for their programs show that they are thinking ofthe structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example,repetition and use of timers. They make goodattempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo,they can 'read' programs with several steps and predict the outcome accurately. • Children can list a rangeof ways that the Internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions whencommunicating in this way. • When turning a real-lifesituation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug theirown programs. • Children's use of timers toachieve repetition effects are becoming more logicaland are integrated into their program designs. • They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design intheir programs. As well asunderstanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'printto screen'. e.g. 2Code • Children's designs for their programs show that they are thinking ofthe structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example,'IF' statements, repetition and variables. • They can trace code anduse step-through methods to identify errors in code and makelogical attempts to correct this. In programssuch as Logo, they can 'read' programs with several steps and predict the outcome accurately. • Children recognise the main component parts of hardware which allow computers to joinand form a	• Children can collect, analyse, evaluate and present data andinformation using a selection of software, e.g. using a branching database (2Question), using software such as2Graph. Children can consider what software is most appropriate for a given task. Theycan create purposeful content to attach to emails, e.g. 2Respond. • Children understand the function, features and layout of a searchengine. They can appraise selected webpages for credibility and information at a basic level. • Children are able to make improvements todigital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual DisplayBoards.	to keep passwords safe and secure. • They understand the importance of staying safe and the importanceof their conduct when using familiar communication tools such as 2Email in PurpleMash. They know more than one way to report unacceptable content and contact. • Children can explorekey concepts relatingto online safety usingconcept mapping such as 2Connect. • They can help others to understand the importance of online safety. Children knowa range of ways of reporting inappropriate contentand contact.	• To understand how a blog can be used to helpus communicate with a wider audience. • For pupils to consider ifwhat they read on websites is true? • To look at a 'spoof' website. • To create a 'spoof' webpage. • To think about why these sites might existand how to check thatthe information is accurate. • To learn about the meaning of age restrictions symbols ondigital media and devices. • To discuss why PEGIrestrictions exist. • To know where to turn for help if they see inappropriate content orhave inappropriate contact from others. • To learn how to useemail safely. • To understand how pupils can protect themselves from onlineidentity theft. • Understand that information put onlineleaves a digital footprint or trail and that this can aid identity theft. • To Identify the risksand benefits of installing softwareincluding apps. • To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • To identify appropriatebehaviour when participating or contributing to collaborative online projects for learning. • To identify the positiveand negative • influences of technology on healthand the environment. • To understand the importance of balancing game and screen time with otherparts of their lives. • To assess whether aninformation source is true and reliable.

	network. Their ability to understand the onlinesafety implications associated with the ways the internet canbe used to provide different methods of communication is improving.			
UKS2	• Children may attempt toturn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. • Children are able to testand debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. • Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs showthat they are thinking of how to accomplish the set task in code utilisingsuch structures. They are combining sequence,selection and repetition with other coding structures to achieve their algorithm design. • When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the codelater, e.g. the use of tabs to organise code and the naming of variables • Children understand thevalue of computer networks but are also aware of the main dangers. They recognisewhat personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, DisplayBoards. • Children are able to turna more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. • Children test and debug their program as they goand use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particularline of code causing a problem. • Children translate algorithms that include sequence, selection andrepetition into code and their own designs showthat they are thinking ofhow to accomplish the set task in code utilisingsuch structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as buttonclicks and the value of functions. • Children are able to interpret a program in parts and can make logical attempts to putthe separate parts of a	• Children search with greater complexity fordigital content when using a search engine. • They are able to explain in some detail how credible a webpage is and the information it contains. • Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the successof the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such ascollaborative mode • They are able to use several ways of sharingdigital content, i.e. 2Blog, Display Boards and 2Email. • Children readily apply filters when searching for digital content. Theyare able to explain in detail how credible a webpage is and the information it contains. • They compare a range of digital content sources and are able torate them in terms of content quality and accuracy. Children use critical thinking skills ineveryday use of online communication. • Children make clear connections to the audience when designing and creatingdigital content. The children design and create their own blogs to become a content creator on the Internet, e.g. 2Blog. They are able to use criteria to evaluate the quality ofdigital solutions and are able to identify improvements, makingsome refinements.	• Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and onlineservices. Children implicitly relate appropriate online behaviour to their right to personal privacy andmental wellbeing of themselves and others. • Children demonstrate the safe and respectfuluse of a range of different technologies and online services. • They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacywhen online for their own and other people'ssafety.	• To gain a greater understanding of theimpact that sharing digital content can have. • To review sources ofsupport when using technology. • To review pupils' responsibility to one another in their onlinebehaviour. • To know how to maintain securepasswords. • To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and thereasons for this. • To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. • To learn about how toreference sources in their work • To search the Internet with a consideration for the reliability of theresults of sources to check validity and understand the impactof incorrect information. • Ensuring reliability through using different methods of communication • Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location. • Identify secure sites bylooking for privacy seals of approval, e.g. https, padlock icon. • Identify the benefitsand risks of giving personal informationand device access todifferent software. • To review the meaningof a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. • To have a clear idea ofappropriate online behaviour and how this can protect themselves and othersfrom possible online dangers, bullying and inappropriate behaviour. • To begin to understandhow information online can persist and give away details of those who share or modify it. • To understand the importance of balancing game and screen time with otherparts of their lives, e.g. explore the reasons why they may be tempted to spend moretime playing games or find it difficult to stop playing and the effect this has on their health.

	complex algorithm together to explain the program as a whole. • Children understand and can explain in some depth the difference between theinternet and the World Wide Web. Children know what a WAN andLAN are and can describe how they access the Internet in school.			• To identify the positiveand negative influences of technology on health and the environment. • To understand how to contribute to an existing blog. • To understand how and why blog posts are approved by the teacher. • To understand the importance of commenting on blogs. • To peer-assess blogsagainst the agreed success criteria.