

**Athersley South Primary School**

**Progression Ladder for Computing**

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| **Computing Progression** | **Algorithms** | **Programming and Development** | **Data and Data Representation** | **Hardware and Processing** | **Communication and Networks** | **Information Technology** |
| **Foundation Stage** | Can understand and follow instructions and begin to write own algorithms. | Completes a simple program on a computer or device.  Begins to write own program/sequences. | Uses data to answer questions e.g. favourite colour of class.  Uses computers to make a table or list of data.  Begins to collect data on a data logging device.  Begin to recognise that digital content can be in many forms. | Uses ICT hardware to interact with age appropriate computer software.  Start to recognise that computers need programs to function. | Uses digital devices and computers to communicate e.g. webcams.  Accesses and saves information on a class network folder.  Begins to obtain content from the world wide web using a web browser. | Use computer devices and software to create, research and store data.  Uses drawing software to design a poster for a purpose.  Knows some common uses of information technology beyond the classroom. |
|  | [Computing systems and networks – Technology around us](https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us) | [Creating media – Digital painting](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting) | [Programming A – Moving a robot](https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot) | [Data and information – Grouping data](https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data) | [Creating media – Digital writing](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing) | [Programming A – Robot algorithms](https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms)  (from Y2) |
| **KS1**  **Cycle 1**  **2021-2022** | - I can explain how technology helps us  - I can explain technology as something that helps us  - I can locate examples of technology in the classroom  - I can name the main parts of a computer  - I can switch on and log into a computer  - I can use a mouse to click and drag  - I can click and drag to make objects on a screen  - I can use a mouse to create a picture  - I can use a mouse to open a program  - I can save my work to a file  - I can tell you that writing on a computer is called typing  - I can type my name on a computer  - I can delete letters  - I can open my work from a file  - I can use the arrow keys to move the cursor  - I can discuss how we benefit from rules  - I can give examples of some rules  - I can identify rules to keep us safe and healthy when we are using technology in and beyond the home | - I can draw lines on a screen and explain which tools I used  - I can make marks on a screen and explain which tools I used  - I can use the paint tools to draw a picture  - I can make marks with the square and line tools  - I can use the shape and line tools effectively  - I can use the shape and line tools to recreate the work of an artist  - I can choose appropriate shapes  - I can create a picture in the style of an artist  - I can make appropriate colour choices  - I can choose appropriate paint tools and colours to recreate the work of an artist  - I can say which tools were helpful and why  - I know that different paint tools do different jobs  - I can change the colour and brush sizes  - I can make dots of colour on the page  - I can use dots of colour to create a picture in the style of an artist on my own  - I can explain that pictures can be made in lots of different ways  - I can say whether I prefer painting using a computer or using paper  - I can spot the differences between painting on a computer and on paper | - I can match a command to an outcome  - I can predict the outcome of a command on a device  - I can run a command on a device  - I can follow an instruction  - I can give directions  - I can recall words that can be acted out  - I can compare forwards and backwards movements  - I can predict the outcome of a sequence involving forwards and backwards commands  - I can start a sequence from the same place  - I can compare left and right turns  - I can experiment with turn and move commands to move a robot  - I can predict the outcome of a sequence involving up to four commands  - I can choose the order of commands in a sequence  - I can debug my program  - I can explain what my program should do  - I can identify several possible solutions  - I can plan two programs  - I can use two different programs to get to the same place | - I can describe objects using labels  - I can identify the label for a group of objects  - I can match objects to groups  - I can count a group of objects  - I can count objects  - I can group objects  - I can describe a property of an object  - I can describe an object  - I can find objects with similar properties  - I can count how many objects share a property  - I can group objects in more than one way  - I can group similar objects  - I can choose how to group objects  - I can describe groups of objects  - I can record how many objects are in a group  - I can compare groups of objects  - I can decide how to group objects to answer a question  - I can record and share what I have found | - I can identify and find keys on a keyboard  - I can open a word processor  - I can recognise keys on a keyboard  - I can enter text into a computer  - I can use backspace to remove text  - I can use letter, number, and space keys  - I can explain what the keys that I have learnt about already do  - I can identify the toolbar and use bold, italic, and underline  - I can type capital letters  - I can change the font  - I can select a word by double-clicking  - I can select all of the text by clicking and dragging  - I can decide if my changes have improved my writing  - I can say what tool I used to change the text  - I can use ‘undo’ to remove changes  - I can compare using a computer with using a pencil and paper  - I can say which method I like best  - I can write a message on a computer and on paper | - I can choose a series of words that can be enacted as a sequence  - I can follow instructions given by someone else  - I can give clear and unambiguous instructions  - I can create different algorithms for a range of sequences (using the same commands)  - I can show the difference in outcomes between two sequences that consist of the same commands  - I can use an algorithm to program a sequence on a floor robot  - I can compare my prediction to the program outcome  - I can follow a sequence  - I can predict the outcome of a sequence  - I can explain the choices I made for my mat design  - I can identify different routes around my mat  - I can test my mat to make sure that it is usable  - I can create an algorithm to meet my goal  - I can explain what my algorithm should achieve  - I can use my algorithm to create a program  - I can plan algorithms for different parts of a task  - I can put together the different parts of my program  - I can test and debug each part of the program |
|  | [Computing systems and networks – IT around us](https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us) | [Creating media – Digital photography](https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography) | [Programming B – Introduction to animation](https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation)  (from Y1) | [Data and information – Pictograms](https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms) | [Creating media – Making music](https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music) | [Programming B – An introduction to quizzes](https://teachcomputing.org/curriculum/key-stage-1/programming-b-an-introduction-to-quizzes) |
| **KS1**  **Cycle 1**  **2022-2023** | - I can describe some uses of computers  - I can identify examples of computers  - I can identify that a computer is a part of information technology  - I can explain the purpose of information technology in the home  - I can move and resize images  - I can open a file  - I can compare types of information technology  - I can find examples of information technology  - I can talk about uses of information technology  - I can demonstrate how information technology is used in a shop  - I can explain how information technology helps people  - I can recognise that information technology can be connected  - I can list different uses of information technology  - I can recognise how to use information technology responsibly  - I can say how those rules/guides can help me  - I can enjoy a variety of activities (not just on screen)  - I can explain simple guidance for using information technology in different environments and settings  - I can identify the choices that I make when using information technology | - I can capture digital photos and talk about my experience  - I can sort devices into old and new  - I can talk about how to take a photograph  - I can explain the process of taking a good photograph  - I can explain why a photo looks better in portrait or landscape format  - I can take photos in both landscape and portrait format  - I can discuss how to take a good photograph  - I can identify what is wrong with a photograph  - I can improve a photograph by retaking it  - I can experiment with different light sources  - I can explore the effect that light has on a photo  - I can focus on an object  - I can explain my choices  - I can recognise that images can be changed  - I can use a tool to achieve a desired effect  - I can apply a range of photography skills to capture a photo  - I can identify which images are real and which have been changed  - I can recognise which images have been changed | - I can compare different programming tools  - I can find which commands move a sprite  - I can use commands to move a sprite  - I can run my program  - I can use a start block in a program  - I can use more than one block by joining them together  - I can change the value  - I can find blocks which have numbers  - I can say what happens when I change a value  - I can add blocks to each of my sprites  - I can delete a sprite  - I can show that a project can include more than one sprite  - I can choose appropriate artwork for my project  - I can create an algorithm for each sprite  - I can decide how each sprite will move | - I can compare totals in a tally chart  - I can record data in a tally chart  - I can represent a tally count as a total  - I can enter data onto a computer  - I can use a computer to view data in a different format  - I can use pictograms to answer simple questions about objects  - I can explain what the pictogram shows  - I can organise data in a tally chart  - I can use a tally chart to create a pictogram  - I can answer ‘more than’/’less than’ and ’most/least’ questions about an attribute  - I can create a pictogram to arrange objects by an attribute  - I can tally objects using a common attribute  - I can choose a suitable attribute to compare people  - I can collect the data I need  - I can create a pictogram and draw conclusions from it  - I can give simple examples of why information should not be shared  - I can share what I have found out using a computer  - I can use a computer program to present information in different ways | - I can describe how music makes me feel, e.g. happy or sad  - I can identify simple differences in pieces of music  - I can listen with concentration to a range of music (links to the Music curriculum)  - I can create a rhythm pattern  - I can explain that music is created and played by humans  - I can play an instrument following a rhythm pattern  - I can connect images with sounds  - I can relate an idea to a piece of music  - I can use a computer to experiment with pitch and duration  - I can identify that music is a sequence of notes  - I can refine my musical pattern on a computer  - I can use a computer to create a musical pattern using three notes  - I can describe an animal using sounds  - I can explain my choices  - I can save my work  - I can explain how I made my work better  - I can listen to music and describe how it makes me feel  - I can reopen my work | - I can identify that a program needs to be started  - I can identify the start of a sequence  - I can show how to run my program  - I can change the outcome of a sequence of commands  - I can match two sequences with the same outcome  - I can predict the outcome of a sequence of commands  - I can build the sequences of blocks I need  - I can decide which blocks to use to meet the design  - I can tell the actions of a sprite in an algorithm  - I can choose backgrounds for the design  - I can choose characters for the design  - I can create a program based on the new design  - I can build sequences of blocks to match my design  - I can choose the images for my own design  - I can create an algorithm  - I can compare my project to my design  - I can debug  - I can improve my project by adding features |
|  | [Computing systems and networks – Connecting computers](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers) | [Creating media – Animation](https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation) | [Programming A – Sequence in music](https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music) | [Data and information – Branching databases](https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases) | [Creating media – Desktop publishing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktop-publishing) | [Programming A – Repetition in shapes](https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes)  (from Y4) |
| **LKS2**  **Cycle 1**  **2021-2022** | - I can explain that digital devices accept inputs  - I can explain that digital devices produce outputs  - I can follow a process  - I can classify input and output devices  - I can design a digital device  - I can model a simple process  - I can explain how I use digital devices for different activities  - I can recognise similarities between using digital devices and non-digital tools  - I can suggest differences between using digital devices and non-digital tools  - I can discuss why we need a network switch  - I can explain how messages are passed through multiple connections  - I can recognise different connections  - I can demonstrate how information can be passed between devices  - I can explain the role of a switch, server, and wireless access point in a network  - I can recognise that a computer network is made up of a number of devices  - I can identify how devices in a network are connected with one another  - I can identify networked devices around me  - I can identify the benefits of computer networks | - I can create an effective flip book-style animation  - I can draw a sequence of pictures  - I can explain how an animation/flip book works  - I can create an effective stop frame animation  - I can explain why little changes are needed for each frame  - I can predict what an animation will look like  - I can break down a story into settings, characters and events  - I can create a storyboard  - I can describe an animation that is achievable on screen  - I can evaluate the quality of my animation  - I can review a sequence of frames to check my work  - I can use onion skinning to help me make small changes between frame  - I can evaluate another learner’s animation  - I can explain ways to make my animation better  - I can improve my animation based on feedback  - I can add other media to my animation  - I can evaluate my final film  - I can explain why I added other media to my animation | - I can explain that objects in Scratch have attributes (linked to)  - I can identify the objects in a Scratch project (sprites, backdrops)  - I can recognise that commands in Scratch are represented as blocks  - I can choose a word which describes an on-screen action for my design  - I can create a program following a design  - I can identify that each sprite is controlled by the commands I choose  - I can create a sequence of connected commands  - I can explain that the objects in my project will respond exactly to the code  - I can start a program in different ways  - I can combine sound commands  - I can explain what a sequence is  - I can order notes into a sequence  - I can build a sequence of commands  - I can decide the actions for each sprite in a program  - I can make design choices for my artwork  - I can identify and name the objects I will need for a project  - I can implement my algorithm as code  - I can relate a task description to a design | - I can create two groups of objects separated by one attribute  - I can investigate questions with yes/no answers  - I can make up a yes/no question about a collection of objects  - I can arrange objects into a tree structure  - I can create a group of objects within an existing group  - I can select an attribute to separate objects  - I can group objects using my own yes/no questions  - I can prove my branching database works  - I can select objects to arrange in a branching database  - I can create questions and apply them to a tree structure  - I can select a theme and choose a variety of objects  - I can use my branching database to answer questions  - I can compare two branching database structures  - I can create yes/no questions using given attributes  - I can explain that questions need to be ordered carefully to split objects into similarly sized groups  - I can compare two ways of presenting information  - I can explain what a branching database tells me  - I can explain what a pictogram tells me | - I can explain the difference between text and images  - I can identify the advantages and disadvantages of using text and images  - I can recognise that text and images can communicate messages clearly  - I can change font style, size, and colours for a given purpose  - I can edit text  - I can explain that text can be changed to communicate more clearly  - I can create a template for a particular purpose  - I can define the term 'page orientation'  - I can recognise placeholders and say why they are important  - I can choose the best locations for my content  - I can make changes to content after I’ve added it  - I can paste text and images to create a magazine cover  - I can choose a suitable layout for a given purpose  - I can identify different layouts  - I can match a layout to a purpose  - I can compare work made on desktop publishing to work created by hand  - I can identify the uses of desktop publishing in the real world  - I can say why desktop publishing might be helpful | - I can create a code snippet for a given purpose  - I can explain the effect of changing a value of a command  - I can program a computer by typing commands  - I can test my algorithm in a text-based language (Logo)  - I can use a template to create a design for my program  - I can write an algorithm to produce a given outcome  - I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves  - I can identify patterns in a sequence, eg ‘step 3 times’ means the same as ‘step, step, step’  - I can use a count-controlled loop to produce a given outcome  - I can choose which values to change in a loop  - I can identify the effect of changing the number of times a task is repeated  - I can predict the outcome of a program containing a count-controlled loop  - I can explain that a computer can repeatedly call a procedure  - I can identify ‘chunks’ of actions in the real world  - I can use a procedure in a program  - I can design a program that includes count-controlled loops  - I can develop my program by debugging it  - I can make use of my design to write a program |
|  | [Computing systems and networks – The Internet](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet) | [Creating media – Audio editing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing) | [Programming B – Events and actions](https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions)  (from Y3) | [Data and information – Data logging](https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging) | [Creating media – Photo editing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing) | [Programming B – Repetition in games](https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games) |
| **LKS2**  **Cycle 2**  **2022-2023** | - I can demonstrate how information is shared across the internet  - I can describe the internet as a network of networks  - I can discuss why a network needs protecting  - I can describe the different networked devices and how they connect  - I can explain how the internet allows us to view the World Wide Web  - I can recognise that the World Wide Web is the part of the internet that contains websites and web pages  - I can describe how to access websites on the WWW  - I can describe where websites are stored when uploaded to the WWW  - I can explain the types of media that can be shared on the World Wide Web (WWW)  - I can create media which can be found on websites  - I can explain that new content can be created online  - I can recognise that I can add content to the WWW  - I can explain that there are rules to protect content  - I can explain that websites and their content are created by people  - I can suggest who owns the content on websites  - I can explain that not everything on the World Wide Web is true.  - I can explain why I need to think carefully before I share or re-share content  - I can explain why some information I find online may not be honest, accurate, or legal | - I can identify digital devices that can record sound and play it back  - I can identify the inputs and outputs required to play audio or record sound  - I can recognise the range of sounds that can be recorded  - I can discuss what other people include when recording sound for a podcast  - I can suggest how to improve my recording  - I can use a device to record audio and play back sound  - I can discuss why it is useful to be able to save digital recordings  - I can plan and write the content for a podcast  - I can save a digital recording as a file  - I can discuss ways in which audio recordings can be altered  - I can edit sections of an audio recording  - I can open a digital recording from a file  - I can choose suitable sounds to include in a podcast  - I can discuss sounds that other people combine  - I can use editing tools to arrange sections of audio  - I can discuss the features of a digital recording I like  - I can explain that digital recordings need to be exported to share them  - I can suggest improvements to a digital recording | - I can choose which keys to use for actions and explain my choices  - I can explain the relationship between an event and an action  - I can identify a way to improve a program  - I can choose a character for my project  - I can choose a suitable size for a character in a maze  - I can program movement  - I can choose blocks to set up my program  - I can consider the real world when making design choices  - I can use a programming extension  - I can build more sequences of commands to make my design work  - I can choose suitable keys to turn on additional features  - I can identify additional features (from a given set of blocks)  - I can match a piece of code to an outcome  - I can modify a program using a design  - I can test a program against a given design  - I can evaluate my project  - I can implement my design  - I can make design choices and justify them | - I can choose a data set to answer a given question  - I can identify data that can be gathered over time  - I can suggest questions that can be answered using a given data set  - I can explain that sensors are input devices  - I can identify that data from sensors can be recorded  - I can use data from a sensor to answer a given question  - I can identify a suitable place to collect data  - I can identify the intervals used to collect data  - I can talk about the data that I have captured  - I can import a data set  - I can use a computer program to sort data  - I can use a computer to view data in different ways  - I can plan how to collect data using a data logger  - I can propose a question that can be answered using logged data  - I can use a data logger to collect data  - I can draw conclusions from the data that I have collected  - I can explain the benefits of using a data logger  - I can interpret data that has been collected using a data logger | - I can explain the effect that editing can have on an image  - I can explore how images can be changed in real life  - I can identify changes that we can make to an image  - I can change the composition of an image by selecting parts of it  - I can consider why someone might want to change the composition of an image  - I can explain what has changed in an edited image  - I can choose effects to make my image fit a scenario  - I can explain why my choices fit a scenario  - I can talk about changes made to images  - I can choose appropriate tools to retouch an image  - I can give examples of positive and negative effects that retouching can have on an image  - I can identify how an image has been retouched  - I can combine parts of images to create new images  - I can sort images into ‘fake’ or ‘real’ and explain my choices  - I can talk about fake images around me  - I can compare the original image with my completed publication  - I can consider the effect of adding other elements to my work  - I can evaluate the impact of my publication on others through feedback | - I can list an everyday task as a set of instructions including repetition  - I can modify a snippet of code to create a given outcome  - I can predict the outcome of a snippet of code  - I can choose when to use a count-controlled and an infinite loop  - I can modify loops to produce a given outcome  - I can recognise that some programming languages enable more than one process to be run at once  - I can choose which action will be repeated for each object  - I can evaluate the effectiveness of the repeated sequences used in my program  - I can explain what the outcome of the repeated action should be  - I can explain the effect of my changes  - I can identify which parts of a loop can be changed  - I can re-use existing code snippets on new sprites  - I can develop my own design explaining what my project will do  - I can evaluate the use of repetition in a project  - I can select key parts of a given project to use in my own design  - I can build a program that follows my design  - I can evaluate the steps I followed when building my project  - I can refine the algorithm in my design |
|  | [Computing systems and networks – Sharing information](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information) | [Creating media – Video editing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing) | [Programming A – Selection in physical computing](https://teachcomputing.org/curriculum/key-stage-2/programming-a-selection-in-physical-computing) | [Data and information – Flat-file databases](https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases) | [Creating media – Vector drawing](https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing) | [Programming A – Variables in games](https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games)  (from Y6) |
| **UKS2**  **Cycle 1**  **2021-2022** | - I can describe that a computer system features inputs, processes, and outputs  - I can explain that computer systems communicate with other devices  - I can explain that systems are built using a number of parts  - I can explain the benefits of a given computer system  - I can identify tasks that are managed by computer systems  - I can identify the human elements of a computer system  - I can explain that data is transferred over networks in packets  - I can explain that networked digital devices have unique addresses  - I can recognise that data is transferred using agreed methods  - I can explain that the internet allows different media to be shared  - I can recognise that connected digital devices can allow us to access shared files stored online  - I can send information over the internet in different ways  - I can compare working online with working offline  - I can make thoughtful suggestions on my group’s work  - I can suggest strategies to ensure successful group work  - I can explain how the internet enables effective collaboration  - I can identify different ways of working together online  - I can recognise that working together on the internet can be public or private | - I can explain that a video can include both visual and audio media  - I can explain the benefits of adding audio to a video  - I can plan a video project using a storyboard  - I can choose the most suitable digital device for recording my project  - I can identify and name digital devices that can record video and sound  - I can locate and identify the working features of a digital device that can record video  - I can demonstrate suitable methods of using a digital device to capture my video  - I can demonstrate the safe use and handling of devices  - I can select a suitable device and software to capture my video  - I can explain why lighting and angle are important in creating an effective video  - I can list some of the features of an effective video  - I can record a video that demonstrates some of the features of an effective video  - I can explain how to improve a video by reshooting and editing  - I can select the correct tools to make edits to my video  - I can store, retrieve, and export my recording to a computer  - I can evaluate my video and share my opinions  - I can make edits to my video and improve the final outcome  - I can recognise that my choices when making a video will impact on the quality of the final outcome | - I can build a simple circuit to connect a microcontroller to a computer  - I can explain why I used an infinite loop  - I can program a microcontroller to light an LED  - I can connect more than one output device to a microcontroller  - I can decide which output devices I control with a count-controlled loop  - I can design sequences for given output devices  - I can experiment with a ‘do until’ loop  - I can explain that a condition is something that can either be true or false (e.g. whether a value is more than 10, or whether a button has been pressed)  - I can program a microcontroller to respond to an input  - I can explain that a condition being met can start an action  - I can identify a condition and an action in my project  - I can use selection (an ‘if… then…’ statement) to direct the flow of a program  - I can create a detailed drawing of my project  - I can describe what my project will do (the task)  - I can identify a condition to start an action (real world)  - I can test and debug my project  - I can use selection to produce an intended outcome  - I can write an algorithm to control lights and a motor | - I can create multiple questions about the same field  - I can explain how information can be recorded  - I can order, sort, and group my data cards  - I can choose which field to sort data by to answer a given question  - I can explain what a ‘field’ and a ‘record’ is in a database  - I can navigate a flat-file database to compare different views of information  - I can combine grouping and sorting to answer more specific questions  - I can explain how information can be grouped  - I can group information to answer questions  - I can choose multiple criteria to answer a given question  - I can choose which field and value are required to answer a given question  - I can outline how ‘AND’ and ‘OR’ can be used to refine data selection  - I can explain the benefits of using a computer to create graphs  - I can refine a chart by selecting a particular filter  - I can select an appropriate chart to visually compare data  - I can ask questions that will need more than one field to answer  - I can present my findings to a group  - I can refine a search in a real-world context | - I can discuss how a vector drawing is different from paper-based drawings  - I can identify the main drawing tools  - I can recognise that vector drawings are made using shapes  - I can explain that each element added to a vector drawing is an object  - I can identify the shapes used to make a vector drawing  - I can move, resize, and rotate objects I have duplicated  - I can explain how alignment grids and resize handles can be used to improve consistency  - I can modify objects to create different effects  - I can use the zoom tool to help me add detail to my drawings  - I can change the order of layers in a vector drawing  - I can identify that each added object creates a new layer in the drawing  - I can identify which objects are in the front layer or in the back layer of a drawing  - I can copy part of a drawing by duplicating several objects  - I can group to create a single object  - I can reuse a group of objects to further develop my vector drawing  - I can apply what I have learned about vector drawings  - I can suggest improvements to a vector drawing  - I create alternatives to vector drawings | - I can explain that the way that a variable changes can be defined  - I can identify examples of information that is variable  - I can identify that variables can hold numbers or letters  - I can explain that a variable has a name and a value  - I can identify a program variable as a placeholder in memory for a single value  - I can recognise that the value of a variable can be changed  - I can decide where in a program to change a variable  - I can make use of an event in a program to set a variable  - I can recognise that the value of a variable can be used by a program  - I can choose the artwork for my project  - I can create algorithms for my project  - I can explain my design choices  - I can choose a name that identifies the role of a variable  - I can create the artwork for my project  - I can test the code that I have written  - I can extend my game further using more variables  - I can identify ways that my game could be improved  - I can share my game with others |
|  | [Computing systems and networks – Communication](https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-communication) | [Creating media – Web page creation](https://teachcomputing.org/curriculum/key-stage-2/creating-media-web-page-creation) | [Programming B – Selection in quizzes](https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes)  (from Y5) | [Data and information – Spreadsheets](https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets) | [Creating media – 3D Modelling](https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling) | [Programming B – Sensing](https://teachcomputing.org/curriculum/key-stage-2/programming-b-sensing) |
| **UKS2**  **Cycle 2**  **2022-2023** | - I can compare results from different search engines  - I can complete a web search to find specific information  - I can refine my search  - I can explain why we need tools to find things online  - I can recognise the role of web crawlers in creating an index  - I can relate a search term to the search engine’s index  - I can explain that a search engine follows rules to rank relevant pages  - I can explain that search results are ordered  - I can suggest some of the criteria that a search engine checks to decide on the order of results  - I can describe some of the ways that search results can be influenced  - I can explain how search engines make money  - I can recognise some of the limitations of search engines  - I can choose methods of communication to suit particular purposes  - I can explain the different ways in which people communicate  - I can identify that there are a variety of ways of communicating over the internet  - I can compare different methods of communicating on the internet  - I can decide when I should and should not share  - I can explain that communication on the internet may not be private | - I can discuss the different types of media used on websites  - I can explore a website  - I know that websites are written in HTML  - I can draw a web page layout that suits my purpose  - I can recognise the common features of a web page  - I can suggest media to include on my page  - I can describe what is meant by the term ‘fair use’  - I can find copyright-free images  - I can say why I should use copyright-free images  - I can add content to my own web page  - I can evaluate what my web page looks like on different devices and suggest/make edits.  - I can preview what my web page looks like  - I can describe why navigation paths are useful  - I can explain what a navigation path is  - I can make multiple web pages and link them using hyperlinks  - I can create hyperlinks to link to other people's work  - I can evaluate the user experience of a website  - I can explain the implication of linking to content owned by others | - I can identify conditions in a program  - I can modify a condition in a program  - I can recall how conditions are used in selection  - I can create a program with different outcomes using selection  - I can identify the condition and outcomes in an if…then… else statement  - I can use selection in an infinite loop to check a condition  - I can design the flow of a program which contains ‘if… then… else…’  - I can explain that program flow can branch according to a condition  - I can show that a condition can direct program flow in one of two ways  - I can identify the outcome of user input in an algorithm  - I can outline a given task  - I can use a design format to outline my project  - I can implement my algorithm to create the first section of my program  - I can share my program with others  - I can test my program  - I can extend my program further  - I can identify ways the program could be improved  - I can identify what setup code my project needs | - I can answer questions from an existing data set  - I can ask simple relevant questions which can be answered using data  - I can explain the relevance of data headings  - I can apply an appropriate number format to a cell  - I can build a data set in a spreadsheet application  - I can explain what an item of data is  - I can construct a formula in a spreadsheet  - I can explain the relevance of a cell’s data type  - I can identify that changing inputs changes outputs  - I can apply a formula to multiple cells by duplicating it  - I can create a formula which includes a range of cells  - I can recognise that data can be calculated using different operations  - I can apply a formula to calculate the data I need to answer questions  - I can explain why data should be organised  - I can use a spreadsheet to answer questions  - I can produce a graph  - I can suggest when to use a table or graph  - I can use a graph to show the answer to questions | - I can discuss the similarities and differences between 2D and 3D shapes  - I can explain why we might represent 3D objects on a computer  - I can select, move, and delete a digital 3D shape  - I can change the colour of a 3D object  - I can identify how graphical objects can be modified  - I can resize a 3D object  - I can position 3D objects in relation to each other  - I can rotate a 3D object  - I can select and duplicate multiple 3D objects  - I can create digital 3D objects of an appropriate size  - I can group a digital 3D shape and a placeholder to create a hole in an object  - I can identify the 3D shapes needed to create a model of a real-world object  - I can choose which 3D objects I need to construct my model  - I can modify multiple 3D objects  - I can plan my 3D model  - I can decide how my model can be improved  - I can evaluate my model against a given criterion  - I can modify my model to improve it | - I can apply my knowledge of programming to a new environment  - I can test my program on an emulator  - I can transfer my program to a controllable device  - I can determine the flow of a program using selection  - I can identify examples of conditions in the real world  - I can use a variable in an if… then… else… statement to select the flow of a program  - I can experiment with different physical inputs  - I can explain that if you read a variable, the value remains  - I can use a condition to change a variable  - I can explain the importance of the order of conditions in else if statements  - I can modify a program to achieve a different outcome  - I can use an operand (e.g. <>=) in an if… then… statement  - I can decide what variables to include in a project  - I can design the algorithm for my project  - I can design the program flow for my project  - I can create a program based on my design  - I can test my program against my design  - I can use a range of approaches to find and fix bugs |