

COMPUTING PROGRESSION



| Year 1 | | |
|--|--|--|
| Previous year's content | Year 1 content | Subsequent year's content |
| <p>Computing systems and networks</p> | <p>Technology around us: Recognising technology in school and using it responsibly.</p> <ul style="list-style-type: none"> • I can explain that pictures can be made in lots of different ways • I can spot the differences between painting on a computer and on paper • I can say whether I prefer painting using a computer or using paper • 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 use a mouse to open a program • I can click and drag to make objects on a screen • I can use a mouse to create a picture • I can say what a keyboard is for • I can type my name on a computer • I can save my work to a file • I can open my work from a file • I can use the arrow keys to move the cursor • I can delete letters • I can identify rules to keep us safe and healthy when we are using technology in and beyond the home • I can give examples of some of these rules • I can discuss how we benefit from these rules | <p>Information technology around us: Identifying IT and how its responsible use improves our world in school and beyond.</p> <ul style="list-style-type: none"> • I can identify examples of computers • I can describe some uses of computers • I can identify that a computer is a part of IT • I can identify examples of IT • I can sort school IT by what it's used for • I can identify that some IT can be used in more than one way • I can find examples of information technology • I can sort IT by where it is found • I can talk about uses of information technology • I can recognise common types of technology • I can demonstrate how IT devices work together • I can say why we use IT • I can list different uses of information technology • I can talk about different rules for using IT • I can say how rules can help keep me safe • I can identify the choices that I make when using IT • I can use IT for different types of activities <p>I can explain the need to use IT in different ways</p> |
| <p>Creating media</p> | <p>Digital painting: Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally</p> <ul style="list-style-type: none"> • I can make marks on a screen and explain which tools I used • I can draw lines 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 make appropriate colour choices • I can create a picture in the style of an artist | <p>Digital photography: Capturing and changing digital photographs for different purposes.</p> <ul style="list-style-type: none"> • I can recognise what devices can be used to take photographs • I can talk about how to take a photograph • I can explain what I did to capture a digital photo • I can explain the process of taking a good photograph • I can take photos in both landscape and portrait format • I can explain why a photo looks better in portrait or landscape format • I can identify what is wrong with a photograph • I can discuss how to take a good photograph • I can improve a photograph by retaking it • I can explore the effect that light has on a photo |

COMPUTING PROGRESSION



| | | | |
|---------------------------|--|---|---|
| | | <ul style="list-style-type: none"> • I can explain that different paint tools do different jobs • 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 can make dots of colour on the page • I can change the colour and brush sizes • 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 spot the differences between painting on a computer and on paper • I can say whether I prefer painting using a computer or using paper <p>Digital writing: Using a computer to create and format text, before comparing to writing non-digitally.</p> <ul style="list-style-type: none"> • I can open a word processor • I can recognise keys on a keyboard • I can identify and find keys on a keyboard • I can enter text into a computer • I can use letter, number, and Space keys • I can use Backspace to remove text • I can type capital letters • I can explain what the keys that I have already learnt about do • I can identify the toolbar and use bold, italic, and underline • I can select a word by double-clicking • I can select all of the text by clicking and dragging • I can change the font • I can say what tool I used to change the text • I can decide if my changes have improved my writing • I can use 'Undo' to remove changes • I can make changes to text on a computer • I can explain the differences between typing and writing • I can say why I prefer typing or writing | <ul style="list-style-type: none"> • I can experiment with different light sources • I can explain why a picture may be unclear • I can recognise that images can be changed • I can use a tool to achieve a desired effect • I can explain my choices • I can apply a range of photography skills to capture a photo • I can recognise which photos have been changed • I can identify which photos are real and which have been changed <p>Making music: Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p> <ul style="list-style-type: none"> • 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 describe how music makes me feel, e.g. happy or sad • I can create a rhythm pattern • I can play an instrument following a rhythm pattern • I can explain that music is created and played by humans • I can connect images with sounds • I can use a computer to experiment with pitch and duration • I can relate an idea to a piece of music • I can identify that music is a sequence of notes • I can use a computer to create a musical pattern using three notes • I can refine my musical pattern on a computer • I can describe an animal using sounds • I can explain my choices • I can save my work • I can reopen my work • I can explain how I made my work better • I can listen to music and describe how it makes me feel |
| <p>Programming</p> | | <p>Moving a robot: Writing short algorithms and programs for floor robots, and predicting program outcomes.</p> <ul style="list-style-type: none"> • I can predict the outcome of a command on a device • I can match a command to an outcome • I can run a command on a device | <p>Robot algorithms: Creating and debugging programs, and using logical reasoning to make predictions.</p> <ul style="list-style-type: none"> • I can follow instructions given by someone else • I can choose a series of words that can be enacted as a sequence • I can give clear and unambiguous instructions |

COMPUTING PROGRESSION



| | | | |
|------------------------------------|--|---|--|
| | | <ul style="list-style-type: none"> • I can follow an instruction • I can recall words that can be acted out • I can give directions • I can compare forwards and backwards movements • I can start a sequence from the same place • I can predict the outcome of a sequence involving forwards and backwards commands • 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 explain what my program should do • I can choose the order of commands in a sequence • I can debug my program • I can identify several possible solutions • I can plan two programs • I can use two different programs to get to the same place <p>Programming animations: Designing and programming the movement of a character on screen to tell stories.</p> <ul style="list-style-type: none"> • I can find the commands to move a sprite • I can use commands to move a sprite • I can compare different programming tools • I can use more than one block by joining them together • I can use a Start block in a program • I can run my program • I can find blocks that have numbers • I can change the value • I can say what happens when I change a value • I can show that a project can include more than one sprite • I can delete a sprite • I can add blocks to each of my sprites • I can choose appropriate artwork for my project • I can decide how each sprite will move • I can create an algorithm for each sprite • I can use sprites that match my design • I can add programming blocks based on my algorithm • I can test the programs I have created | <ul style="list-style-type: none"> • I can create different algorithms for a range of sequences (using the same commands) • I can use an algorithm to program a sequence on a floor robot • I can show the difference in outcomes between two sequences that consist of the same commands • I can follow a sequence • I can predict the outcome of a sequence • I can compare my prediction to the program outcome • 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 explain what my algorithm should achieve • I can create an algorithm to meet my goal • I can use my algorithm to create a program • I can plan algorithms for different parts of a task • I can test and debug each part of the program • I can put together the different parts of my program <p>Programming quizzes: Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p> <ul style="list-style-type: none"> • I can identify the start of a sequence • I can identify that a program needs to be started • I can show how to run my program • I can predict the outcome of a sequence of commands • I can match two sequences with the same outcome • I can change the outcome of a sequence of commands • I can work out the actions of a sprite in an algorithm • I can decide which blocks to use to meet the design • I can build the sequences of blocks I need • 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 choose the images for my own design • I can create an algorithm • I can build sequences of blocks to match my design • I can compare my project to my design • I can improve my project by adding features • I can debug |
| <p>Data and Information</p> | | <p>Grouping data: Exploring object labels, then using them to sort and group objects by properties.</p> | <p>Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer.</p> |

COMPUTING PROGRESSION



| | | | |
|-------------------|--|---|---|
| | | <ul style="list-style-type: none"> I can describe objects using labels I can match objects to groups I can identify the label for a group of objects I can count objects I can group objects I can count a group of objects I can describe an object I can describe a property of an object I can find objects with similar properties I can group similar objects I can group objects in more than one way I can count how many objects share a property 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 decide how to group objects to answer a question I can compare groups of objects I can record and share what I have found | <ul style="list-style-type: none"> I can record data in a tally chart I can represent a tally count as a total I can compare totals in a tally chart 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 organise data in a tally chart I can use a tally chart to create a pictogram I can explain what the pictogram shows I can tally objects using a common attribute I can create a pictogram to arrange objects by an attribute I can answer 'more than'/'less than' and 'most/least' questions about an 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 use a computer program to present information in different ways I can share what I have found out using a computer I can give simple examples of why information should not be shared |
| Vocabulary | | Keyboard, mouse, monitor, file, word processor, toolbar. Bold, italic, undo typing, command, outcome, device, sequence, program, delete | Refine, pattern, outcome, sequence, prediction algorithm, debug, data, pictogram, tally chart, attribute |

| Year 2 | | | |
|---------------------------------------|--|---|--|
| | Previous year's content | Year 2 content | Subsequent year's content |
| Computing systems and networks | <p>Technology around us: Recognising technology in school and using it responsibly.</p> <ul style="list-style-type: none"> I can explain that pictures can be made in lots of different ways I can spot the differences between painting on a computer and on paper I can say whether I prefer painting using a computer or using paper 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 use a mouse to open a program I can click and drag to make objects on a screen I can use a mouse to create a picture I can say what a keyboard is for | <p>Information technology around us: Identifying IT and how its responsible use improves our world in school and beyond.</p> <ul style="list-style-type: none"> I can identify examples of computers I can describe some uses of computers I can identify that a computer is a part of IT I can identify examples of IT I can sort school IT by what it's used for I can identify that some IT can be used in more than one way I can find examples of information technology I can sort IT by where it is found I can talk about uses of information technology I can recognise common types of technology I can demonstrate how IT devices work together I can say why we use IT | <p>Connecting computers: Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.</p> <ul style="list-style-type: none"> 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 describe a simple process I can design a digital device I can explain how I use digital devices for different activities I can recognise similarities between using digital devices and using non-digital tools I can suggest differences between using digital devices and using non-digital tools I can recognise different connections |

COMPUTING PROGRESSION



| | | | |
|------------------------------|---|--|--|
| | <ul style="list-style-type: none"> • I can type my name on a computer • I can save my work to a file • I can open my work from a file • I can use the arrow keys to move the cursor • I can delete letters • I can identify rules to keep us safe and healthy when we are using technology in and beyond the home • I can give examples of some of these rules • I can discuss how we benefit from these rules | <ul style="list-style-type: none"> • I can list different uses of information technology • I can talk about different rules for using IT • I can say how rules can help keep me safe • I can identify the choices that I make when using IT • I can use IT for different types of activities • I can explain the need to use IT in different ways | <ul style="list-style-type: none"> • I can explain how messages are passed through multiple connections • I can discuss why we need a network switch • I can recognise that a computer network is made up of a number of devices • 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 identify how devices in a network are connected together • I can identify networked devices around me • I can identify the benefits of computer networks |
| <p>Creating media</p> | <p>Digital painting: Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally</p> <ul style="list-style-type: none"> • I can make marks on a screen and explain which tools I used • I can draw lines 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 make appropriate colour choices • I can create a picture in the style of an artist • I can explain that different paint tools do different jobs • 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 can make dots of colour on the page • I can change the colour and brush sizes • 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 spot the differences between painting on a computer and on paper • I can say whether I prefer painting using a computer or using paper <p>Digital writing: Using a computer to create and format text, before comparing to writing non-digitally.</p> | <p>Digital photography: Capturing and changing digital photographs for different purposes.</p> <ul style="list-style-type: none"> • I can recognise what devices can be used to take photographs • I can talk about how to take a photograph • I can explain what I did to capture a digital photo • I can explain the process of taking a good photograph • I can take photos in both landscape and portrait format • I can explain why a photo looks better in portrait or landscape format • I can identify what is wrong with a photograph • I can discuss how to take a good photograph • I can improve a photograph by retaking it • I can explore the effect that light has on a photo • I can experiment with different light sources • I can explain why a picture may be unclear • I can recognise that images can be changed • I can use a tool to achieve a desired effect • I can explain my choices • I can apply a range of photography skills to capture a photo • I can recognise which photos have been changed • I can identify which photos are real and which have been changed <p>Making music: Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p> <ul style="list-style-type: none"> • I can identify simple differences in pieces of music • I can listen with concentration to a range of music (links to the Music curriculum) | <p>Stop-frame animation: Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p> <ul style="list-style-type: none"> • I can draw a sequence of pictures • I can create an effective flip book—style animation • I can explain how an animation/flip book works • I can predict what an animation will look like • I can explain why little changes are needed for each frame • I can create an effective stop-frame animation • I can break down a story into settings, characters and events • I can describe an animation that is achievable on screen • I can create a storyboard • I can use onion skinning to help me make small changes between frames • I can review a sequence of frames to check my work • I can evaluate the quality of my animation • I can explain ways to make my animation better • I can evaluate another learner’s animation • I can improve my animation based on feedback • I can add other media to my animation • I can explain why I added other media to my animation • I can evaluate my final film <p>Desktop publishing: Creating documents by modifying text, images, and page layouts for a specified purpose.</p> <ul style="list-style-type: none"> • I can explain the difference between text and images • I can recognise that text and images can communicate messages clearly |

COMPUTING PROGRESSION



| | | | |
|---------------------------|---|--|--|
| | <ul style="list-style-type: none"> I can open a word processor I can recognise keys on a keyboard I can identify and find keys on a keyboard I can enter text into a computer I can use letter, number, and Space keys I can use Backspace to remove text I can type capital letters I can explain what the keys that I have already learnt about do I can identify the toolbar and use bold, italic, and underline I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font I can say what tool I used to change the text I can decide if my changes have improved my writing I can use 'Undo' to remove changes I can make changes to text on a computer I can explain the differences between typing and writing <p>I can say why I prefer typing or writing</p> | <ul style="list-style-type: none"> I can describe how music makes me feel, e.g. happy or sad I can create a rhythm pattern I can play an instrument following a rhythm pattern I can explain that music is created and played by humans I can connect images with sounds I can use a computer to experiment with pitch and duration I can relate an idea to a piece of music I can identify that music is a sequence of notes I can use a computer to create a musical pattern using three notes I can refine my musical pattern on a computer I can describe an animal using sounds I can explain my choices I can save my work I can reopen my work I can explain how I made my work better I can listen to music and describe how it makes me feel | <ul style="list-style-type: none"> I can identify the advantages and disadvantages of using text and images 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 explain what 'page orientation' means I can recognise placeholders and say why they are important I can create a template for a particular purpose I can choose the best locations for my content I can paste text and images to create a magazine cover I can make changes to content after I've added it I can identify different layouts I can match a layout to a purpose I can choose a suitable layout for a given purpose I can identify the uses of desktop publishing in the real world I can say why desktop publishing might be helpful I can compare work made on desktop publishing to work created by hand |
| <p>Programming</p> | <p>Moving a robot: Writing short algorithms and programs for floor robots, and predicting program outcomes.</p> <ul style="list-style-type: none"> I can predict the outcome of a command on a device I can match a command to an outcome I can run a command on a device I can follow an instruction I can recall words that can be acted out I can give directions I can compare forwards and backwards movements I can start a sequence from the same place I can predict the outcome of a sequence involving forwards and backwards commands 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 explain what my program should do I can choose the order of commands in a sequence I can debug my program I can identify several possible solutions I can plan two programs I can use two different programs to get to the same place | <p>Robot algorithms: Creating and debugging programs, and using logical reasoning to make predictions.</p> <ul style="list-style-type: none"> I can follow instructions given by someone else I can choose a series of words that can be enacted as a sequence I can give clear and unambiguous instructions I can create different algorithms for a range of sequences (using the same commands) I can use an algorithm to program a sequence on a floor robot I can show the difference in outcomes between two sequences that consist of the same commands I can follow a sequence I can predict the outcome of a sequence I can compare my prediction to the program outcome 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 explain what my algorithm should achieve I can create an algorithm to meet my goal I can use my algorithm to create a program I can plan algorithms for different parts of a task I can test and debug each part of the program I can put together the different parts of my program | <p>Sequencing sounds: Creating sequences in a block-based programming language to make music</p> <ul style="list-style-type: none"> I can identify the objects in a Scratch project (sprites, backdrops) I can explain that objects in Scratch have attributes (linked to) I can recognise that commands in Scratch are represented as blocks I can identify that each sprite is controlled by the commands I choose I can choose a word which describes an on-screen action for my plan I can create a program following a design I can start a program in different ways 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 explain what a sequence is I can combine sound commands 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 |

COMPUTING PROGRESSION



| | | | |
|------------------------------------|--|---|--|
| | <p>Programming animations: Designing and programming the movement of a character on screen to tell stories.</p> <ul style="list-style-type: none"> • I can find the commands to move a sprite • I can use commands to move a sprite • I can compare different programming tools • I can use more than one block by joining them together • I can use a Start block in a program • I can run my program • I can find blocks that have numbers • I can change the value • I can say what happens when I change a value • I can show that a project can include more than one sprite • I can delete a sprite • I can add blocks to each of my sprites • I can choose appropriate artwork for my project • I can decide how each sprite will move • I can create an algorithm for each sprite • I can use sprites that match my design • I can add programming blocks based on my algorithm • I can test the programs I have created | <p>Programming quizzes: Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p> <ul style="list-style-type: none"> • I can identify the start of a sequence • I can identify that a program needs to be started • I can show how to run my program • I can predict the outcome of a sequence of commands • I can match two sequences with the same outcome • I can change the outcome of a sequence of commands • I can work out the actions of a sprite in an algorithm • I can decide which blocks to use to meet the design • I can build the sequences of blocks I need • 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 choose the images for my own design • I can create an algorithm • I can build sequences of blocks to match my design • I can compare my project to my design • I can improve my project by adding features • I can debug | <ul style="list-style-type: none"> • I can identify and name the objects I will need for a project • I can relate a task description to a design • I can implement my algorithm as code <p>Events and actions in programs: Writing algorithms and programs that use a range of events to trigger sequences of actions.</p> <ul style="list-style-type: none"> • I can explain the relationship between an event and an action • I can choose which keys to use for actions and explain my choices • 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 use a programming extension • I can consider the real world when making design choices • I can choose blocks to set up my program • I can identify additional features (from a given set of blocks) • I can choose suitable keys to turn on additional features • I can build more sequences of commands to make my design work • I can test a program against a given design • I can match a piece of code to an outcome • I can modify a program using a design • I can make design choices and justify them • I can implement my design • I can evaluate my project |
| <p>Data and Information</p> | <p>Grouping data: Exploring object labels, then using them to sort and group objects by properties.</p> <ul style="list-style-type: none"> • I can describe objects using labels • I can match objects to groups • I can identify the label for a group of objects • I can count objects • I can group objects • I can count a group of objects • I can describe an object • I can describe a property of an object • I can find objects with similar properties • I can group similar objects • I can group objects in more than one way | <p>Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer.</p> <ul style="list-style-type: none"> • I can record data in a tally chart • I can represent a tally count as a total • I can compare totals in a tally chart • 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 organise data in a tally chart • I can use a tally chart to create a pictogram • I can explain what the pictogram shows • I can tally objects using a common attribute | <p>Branching databases: Building and using branching databases to group objects using yes/no questions.</p> <ul style="list-style-type: none"> • I can investigate questions with yes/no answers • I can make up a yes/no question about a collection of objects • I can create two groups of objects separated by one attribute • I can select an attribute to separate objects into groups • I can create a group of objects within an existing group • I can arrange objects into a tree structure • I can select objects to arrange in a branching database |

COMPUTING PROGRESSION



| | | | |
|-------------------|---|---|--|
| | <ul style="list-style-type: none"> I can count how many objects share a property 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 decide how to group objects to answer a question I can compare groups of objects I can record and share what I have found | <ul style="list-style-type: none"> I can create a pictogram to arrange objects by an attribute I can answer 'more than'/'less than' and 'most/least' questions about an 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 use a computer program to present information in different ways I can share what I have found out using a computer I can give simple examples of why information should not be shared | <ul style="list-style-type: none"> I can group objects using my own yes/no questions I can prove my branching database works 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 branching database structures I can select a theme and choose a variety of objects I can create questions and apply them to a tree structure I can use my branching database to answer questions I can explain what a pictogram tells me I can explain what a branching database tells me I can compare two ways of presenting information |
| Vocabulary | Keyboard, mouse, monitor, file, word processor, toolbar. Bold, italic, undo typing, command, outcome, device, sequence, program, delete | Refine, pattern, outcome, sequence, prediction algorithm, debug, data, pictogram, tally chart, attribute | Process, connections, network, switch, server, wireless, effective, stop-frame animation, storyboard, onion skinning, feedback, scratch, sprites, backdrop, blocks, code, implement, evaluate, branching, database |

| Year 3 | | | |
|---------------------------------------|--|--|--|
| | Previous year's content | Year 3 content | Subsequent year's content |
| Computing systems and networks | <p>Information technology around us: Identifying IT and how its responsible use improves our world in school and beyond.</p> <ul style="list-style-type: none"> I can identify examples of computers I can describe some uses of computers I can identify that a computer is a part of IT I can identify examples of IT I can sort school IT by what it's used for I can identify that some IT can be used in more than one way I can find examples of information technology I can sort IT by where it is found I can talk about uses of information technology I can recognise common types of technology I can demonstrate how IT devices work together I can say why we use IT I can list different uses of information technology I can talk about different rules for using IT I can say how rules can help keep me safe I can identify the choices that I make when using IT I can use IT for different types of activities <p>I can explain the need to use IT in different ways</p> | <p>Connecting computers: Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.</p> <ul style="list-style-type: none"> 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 describe a simple process I can design a digital device I can explain how I use digital devices for different activities I can recognise similarities between using digital devices and using non-digital tools I can suggest differences between using digital devices and using non-digital tools I can recognise different connections I can explain how messages are passed through multiple connections I can discuss why we need a network switch I can recognise that a computer network is made up of a number of devices I can demonstrate how information can be passed between devices | <p>The internet: Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.</p> <ul style="list-style-type: none"> I can describe the internet as a network of networks I can demonstrate how information is shared across the internet I can discuss why a network needs protecting I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web contains websites and web pages I can explain the types of media that can be shared on the WWW I can describe where websites are stored when uploaded to the WWW I can describe how to access websites on the WWW I can explain what media can be found on websites I can recognise that I can add content to the WWW I can explain that internet services can be used to create content online I can explain what media can be found on websites |

COMPUTING PROGRESSION



| | | | |
|-----------------------|---|--|--|
| | | <ul style="list-style-type: none"> • I can explain the role of a switch, server, and wireless access point in a network • I can identify how devices in a network are connected together • I can identify networked devices around me • I can identify the benefits of computer networks | <ul style="list-style-type: none"> • I can recognise that I can add content to the WWW • I can explain that internet services can be used to create content online • I can explain that not everything on the World Wide Web is true • I can explain why some information I find online may not be honest, accurate, or legal • I can explain why I need to think carefully before I share or reshare content |
| Creating media | <p>Digital photography: Capturing and changing digital photographs for different purposes.</p> <ul style="list-style-type: none"> • I can recognise what devices can be used to take photographs • I can talk about how to take a photograph • I can explain what I did to capture a digital photo • I can explain the process of taking a good photograph • I can take photos in both landscape and portrait format • I can explain why a photo looks better in portrait or landscape format • I can identify what is wrong with a photograph • I can discuss how to take a good photograph • I can improve a photograph by retaking it • I can explore the effect that light has on a photo • I can experiment with different light sources • I can explain why a picture may be unclear • I can recognise that images can be changed • I can use a tool to achieve a desired effect • I can explain my choices • I can apply a range of photography skills to capture a photo • I can recognise which photos have been changed • I can identify which photos are real and which have been changed <p>Making music: Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p> <ul style="list-style-type: none"> • 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 describe how music makes me feel, e.g. happy or sad • I can create a rhythm pattern • I can play an instrument following a rhythm pattern | <p>Stop-frame animation: Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p> <ul style="list-style-type: none"> • I can draw a sequence of pictures • I can create an effective flip book—style animation • I can explain how an animation/flip book works • I can predict what an animation will look like • I can explain why little changes are needed for each frame • I can create an effective stop-frame animation • I can break down a story into settings, characters and events • I can describe an animation that is achievable on screen • I can create a storyboard • I can use onion skinning to help me make small changes between frames • I can review a sequence of frames to check my work • I can evaluate the quality of my animation • I can explain ways to make my animation better • I can evaluate another learner's animation • I can improve my animation based on feedback • I can add other media to my animation • I can explain why I added other media to my animation • I can evaluate my final film <p>Desktop publishing: Creating documents by modifying text, images, and page layouts for a specified purpose.</p> <ul style="list-style-type: none"> • I can explain the difference between text and images • I can recognise that text and images can communicate messages clearly • I can identify the advantages and disadvantages of using text and images • I can change font style, size, and colours for a given purpose | <p>Audio editing: Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p> <ul style="list-style-type: none"> • 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 use a device to record audio and play back sound • I can suggest how to improve my recording • I can discuss what other people include when recording sound for a podcast • I can plan and write the content for a podcast • I can discuss why it is useful to be able to save digital recordings • I can save a digital recording as a file • I can open a digital recording from a file • I can discuss ways in which audio recordings can be altered • I can edit sections of of an audio recording • I can discuss sounds that other people combine • I can choose suitable sounds to include in a podcast • I can use editing tools to arrange sections of audio • I can explain that digital recordings need to be exported to share them • I can discuss the features of a digital recording I like • I can suggest improvements to a digital recording <p>Photo editing: Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.</p> <ul style="list-style-type: none"> • I can identify changes that we can make to an image • I can explore how images can be changed in real life |

COMPUTING PROGRESSION



| | | | |
|---------------------------|--|--|---|
| | <ul style="list-style-type: none"> • I can explain that music is created and played by humans • I can connect images with sounds • I can use a computer to experiment with pitch and duration • I can relate an idea to a piece of music • I can identify that music is a sequence of notes • I can use a computer to create a musical pattern using three notes • I can refine my musical pattern on a computer • I can describe an animal using sounds • I can explain my choices • I can save my work • I can reopen my work • I can explain how I made my work better • I can listen to music and describe how it makes me feel | <ul style="list-style-type: none"> • I can edit text • I can explain that text can be changed to communicate more clearly • I can explain what 'page orientation' means • I can recognise placeholders and say why they are important • I can create a template for a particular purpose • I can choose the best locations for my content • I can paste text and images to create a magazine cover • I can make changes to content after I've added it • I can identify different layouts • I can match a layout to a purpose • I can choose a suitable layout for a given purpose • I can identify the uses of desktop publishing in the real world • I can say why desktop publishing might be helpful • I can compare work made on desktop publishing to work created by hand | <ul style="list-style-type: none"> • I can explain the effect that editing can have on an image • I can explain what has changed in an edited 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 talk about changes made to images • I can choose effects to make my image fit a scenario • I can explain why my choices fit a scenario • I can identify how an image has been retouched • I can give examples of positive and negative effects that retouching can have on an image • I can choose appropriate tools to retouch an image • I can sort images into 'fake' or 'real' and explain my choices • I can combine parts of images to create new images • I can talk about fake images around me • I can consider the effect of adding other elements to my work • I can compare the original image with my completed publication • I can evaluate the impact of my publication on others through feedback |
| <p>Programming</p> | <p>Robot algorithms: Creating and debugging programs, and using logical reasoning to make predictions.</p> <ul style="list-style-type: none"> • I can follow instructions given by someone else • I can choose a series of words that can be enacted as a sequence • I can give clear and unambiguous instructions • I can create different algorithms for a range of sequences (using the same commands) • I can use an algorithm to program a sequence on a floor robot • I can show the difference in outcomes between two sequences that consist of the same commands • I can follow a sequence • I can predict the outcome of a sequence • I can compare my prediction to the program outcome • 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 explain what my algorithm should achieve • I can create an algorithm to meet my goal • I can use my algorithm to create a program • I can plan algorithms for different parts of a task • I can test and debug each part of the program | <p>Sequencing sounds: Creating sequences in a block-based programming language to make music</p> <ul style="list-style-type: none"> • I can identify the objects in a Scratch project (sprites, backdrops) • I can explain that objects in Scratch have attributes (linked to) • I can recognise that commands in Scratch are represented as blocks • I can identify that each sprite is controlled by the commands I choose • I can choose a word which describes an on-screen action for my plan • I can create a program following a design • I can start a program in different ways • 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 explain what a sequence is • I can combine sound commands • 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 | <p>Repetition in shapes: Using a text-based programming language to explore count-controlled loops when drawing shapes.</p> <ul style="list-style-type: none"> • I can program a computer by typing commands • I can explain the effect of changing a value of a command • I can create a code snippet for a given purpose • I can use a template to draw what I want my program to do • I can write an algorithm to produce a given outcome • I can test my algorithm in a text-based language • I can identify repetition in everyday tasks • I can identify patterns in a sequence • I can use a count-controlled loop to produce a given outcome • I can identify repetition in everyday tasks • I can identify patterns in a sequence • I can use a count-controlled loop to produce a given outcome • I can identify 'chunks' of actions in the real world • I can use a procedure in a program • I can explain that a computer can repeatedly call a procedure |

COMPUTING PROGRESSION



| | | | |
|------------------------------------|--|--|---|
| | <ul style="list-style-type: none"> I can put together the different parts of my program <p>Programming quizzes: Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p> <ul style="list-style-type: none"> I can identify the start of a sequence I can identify that a program needs to be started I can show how to run my program I can predict the outcome of a sequence of commands I can match two sequences with the same outcome I can change the outcome of a sequence of commands I can work out the actions of a sprite in an algorithm I can decide which blocks to use to meet the design I can build the sequences of blocks I need 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 choose the images for my own design I can create an algorithm I can build sequences of blocks to match my design I can compare my project to my design I can improve my project by adding features I can debug | <ul style="list-style-type: none"> I can identify and name the objects I will need for a project I can relate a task description to a design I can implement my algorithm as code <p>Events and actions in programs: Writing algorithms and programs that use a range of events to trigger sequences of actions.</p> <ul style="list-style-type: none"> I can explain the relationship between an event and an action I can choose which keys to use for actions and explain my choices 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 use a programming extension I can consider the real world when making design choices I can choose blocks to set up my program I can identify additional features (from a given set of blocks) I can choose suitable keys to turn on additional features I can build more sequences of commands to make my design work I can test a program against a given design I can match a piece of code to an outcome I can modify a program using a design I can make design choices and justify them I can implement my design I can evaluate my project | <ul style="list-style-type: none"> I can design a program that includes count-controlled loops I can make use of my design to write a program I can develop my program by debugging it <p>Repetition in games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p> <ul style="list-style-type: none"> I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome I can modify loops to produce a given outcome I can choose when to use a count-controlled and an infinite loop 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 explain what the outcome of the repeated action should be I can evaluate the effectiveness of the repeated sequences used in my program I can identify which parts of a loop can be changed I can explain the effect of my changes I can re-use existing code snippets on new sprites 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 develop my own design explaining what my project will do I can refine the algorithm in my design I can build a program that follows my design I can evaluate the steps I followed when building my project |
| <p>Data and Information</p> | <p>Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer.</p> <ul style="list-style-type: none"> I can record data in a tally chart I can represent a tally count as a total I can compare totals in a tally chart 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 organise data in a tally chart | <p>Branching databases: Building and using branching databases to group objects using yes/no questions.</p> <ul style="list-style-type: none"> I can investigate questions with yes/no answers I can make up a yes/no question about a collection of objects I can create two groups of objects separated by one attribute I can select an attribute to separate objects into groups I can create a group of objects within an existing group I can arrange objects into a tree structure | <p>Data logging: Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p> <ul style="list-style-type: none"> I can choose a data set to answer a given question I can suggest questions that can be answered using a given data set I can identify data that can be gathered over time I can explain that sensors are input devices I can use data from a sensor to answer a given question |

COMPUTING PROGRESSION



| | | | |
|-------------------|--|---|---|
| | <ul style="list-style-type: none"> I can use a tally chart to create a pictogram I can explain what the pictogram shows I can tally objects using a common attribute I can create a pictogram to arrange objects by an attribute I can answer 'more than'/'less than' and 'most/least' questions about an 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 use a computer program to present information in different ways I can share what I have found out using a computer I can give simple examples of why information should not be shared | <ul style="list-style-type: none"> I can select objects to arrange in a branching database I can group objects using my own yes/no questions I can prove my branching database works 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 branching database structures I can select a theme and choose a variety of objects I can create questions and apply them to a tree structure I can use my branching database to answer questions I can explain what a pictogram tells me I can explain what a branching database tells me I can compare two ways of presenting information | <ul style="list-style-type: none"> I can identify that data from sensors can be recorded 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 to view data in different ways I can use a computer program to sort data I can propose a question that can be answered using logged data I can plan how to collect data using a data logger I can use a data logger to collect data I can interpret data that has been collected using a data logger I can draw conclusions from the data that I have collected I can explain the benefits of using a data logger |
| Vocabulary | Refine, pattern, outcome, sequence, prediction algorithm, debug, data, pictogram, tally chart, attribute | Process, connections, network, switch, server, wireless, effective, stop-frame animation, storyboard, onion skinning, feedback, scratch, sprites, backdrop, blocks, code, implement, evaluate, branching, database | Recording, podcast, digital, audio, composition, image, elements, snippet, repetition, input device, data logger, |

Year 4

| | Previous year's content | Year 4 content | Subsequent year's content |
|---------------------------------------|---|--|---|
| Computing systems and networks | <p>Connecting computers: Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.</p> <ul style="list-style-type: none"> 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 describe a simple process I can design a digital device I can explain how I use digital devices for different activities I can recognise similarities between using digital devices and using non-digital tools I can suggest differences between using digital devices and using non-digital tools I can recognise different connections I can explain how messages are passed through multiple connections I can discuss why we need a network switch I can recognise that a computer network is made up of a number of devices | <p>The internet: Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.</p> <ul style="list-style-type: none"> I can describe the internet as a network of networks I can demonstrate how information is shared across the internet I can discuss why a network needs protecting I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web contains websites and web pages I can explain the types of media that can be shared on the WWW I can describe where websites are stored when uploaded to the WWW I can describe how to access websites on the WWW I can explain what media can be found on websites I can recognise that I can add content to the WWW | <p>Sharing information: Identifying and exploring how information is shared between digital systems.</p> <ul style="list-style-type: none"> I can explain that systems are built using a number of parts I can describe that a computer system features inputs, processes, and outputs I can explain that computer systems communicate with other devices I can identify tasks that are managed by computer systems I can identify the human elements of a computer system I can explain the benefits of a given computer system I can recognise that data is transferred using agreed methods I can explain that networked digital devices have unique addresses I can explain that data is transferred over networks in packets I can recognise that connected digital devices can allow us to access shared files stored online |

COMPUTING PROGRESSION



| | | | |
|------------------------------|--|--|--|
| | <ul style="list-style-type: none"> 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 identify how devices in a network are connected together I can identify networked devices around me <p>I can identify the benefits of computer networks</p> | <ul style="list-style-type: none"> I can explain that internet services can be used to create content online I can explain what media can be found on websites I can recognise that I can add content to the WWW I can explain that internet services can be used to create content online I can explain that not everything on the World Wide Web is true I can explain why some information I find online may not be honest, accurate, or legal I can explain why I need to think carefully before I share or reshare content | <ul style="list-style-type: none"> I can send information over the internet in different ways I can explain that the internet allows different media to be shared I can suggest strategies to ensure successful group work I can make thoughtful suggestions on my group's work I can compare working online with working offline 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 how the internet enables effective collaboration |
| <p>Creating media</p> | <p>Stop-frame animation: Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p> <ul style="list-style-type: none"> I can draw a sequence of pictures I can create an effective flip book—style animation I can explain how an animation/flip book works I can predict what an animation will look like I can explain why little changes are needed for each frame I can create an effective stop-frame animation I can break down a story into settings, characters and events I can describe an animation that is achievable on screen I can create a storyboard I can use onion skinning to help me make small changes between frames I can review a sequence of frames to check my work I can evaluate the quality of my animation I can explain ways to make my animation better I can evaluate another learner's animation I can improve my animation based on feedback I can add other media to my animation I can explain why I added other media to my animation I can evaluate my final film <p>Desktop publishing: Creating documents by modifying text, images, and page layouts for a specified purpose.</p> | <p>Audio editing: Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p> <ul style="list-style-type: none"> 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 use a device to record audio and play back sound I can suggest how to improve my recording I can discuss what other people include when recording sound for a podcast I can plan and write the content for a podcast I can discuss why it is useful to be able to save digital recordings I can save a digital recording as a file I can open a digital recording from a file I can discuss ways in which audio recordings can be altered I can edit sections of of an audio recording I can discuss sounds that other people combine I can choose suitable sounds to include in a podcast I can use editing tools to arrange sections of audio I can explain that digital recordings need to be exported to share them I can discuss the features of a digital recording I like I can suggest improvements to a digital recording <p>Photo editing: Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.</p> | <p>Video editing: Planning, capturing, and editing video to produce a short film.</p> <ul style="list-style-type: none"> I can explain that video is a visual media format I can identify features of videos I can compare features in different videos I can identify and find features on a digital video recording device I can experiment with different camera angles I can make use of a microphone I can suggest filming techniques for a given purpose I can capture video using a range of filming techniques I can review how effective my video is I can outline the scenes of my video I can decide which filming techniques I will use I can create and save video content I can store, retrieve, and export my recording to a computer I can select the correct tools to make edits to my video I can make edits to my video and improve the final outcome I can recognise that my choices when making a video will impact the quality of the final outcome I can evaluate my video and share my opinions <p>Vector drawing: Creating images in a drawing program by using layers and groups of objects.</p> <ul style="list-style-type: none"> I can recognise that vector drawings are made using shapes |

COMPUTING PROGRESSION



| | | | |
|---------------------------|---|--|--|
| | <ul style="list-style-type: none"> • I can explain the difference between text and images • I can recognise that text and images can communicate messages clearly • I can identify the advantages and disadvantages of using text and images • 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 explain what 'page orientation' means • I can recognise placeholders and say why they are important • I can create a template for a particular purpose • I can choose the best locations for my content • I can paste text and images to create a magazine cover • I can make changes to content after I've added it • I can identify different layouts • I can match a layout to a purpose • I can choose a suitable layout for a given purpose • I can identify the uses of desktop publishing in the real world • I can say why desktop publishing might be helpful • I can compare work made on desktop publishing to work created by hand | <ul style="list-style-type: none"> • I can identify changes that we can make to an image • I can explore how images can be changed in real life • I can explain the effect that editing can have on an image • I can explain what has changed in an edited 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 talk about changes made to images • I can choose effects to make my image fit a scenario • I can explain why my choices fit a scenario • I can identify how an image has been retouched • I can give examples of positive and negative effects that retouching can have on an image • I can choose appropriate tools to retouch an image • I can sort images into 'fake' or 'real' and explain my choices • I can combine parts of images to create new images • I can talk about fake images around me • I can consider the effect of adding other elements to my work • I can compare the original image with my completed publication • I can evaluate the impact of my publication on others through feedback | <ul style="list-style-type: none"> • I can experiment with the shape and line tools • I can discuss how vector drawings are different from paper-based drawings • I can identify the shapes used to make a vector drawing • I can explain that each element added to a vector drawing is an object • I can move, resize, and rotate objects I have duplicated • I can use the zoom tool to help me add detail to my drawings • I can explain how alignment grids and resize handles can be used to improve consistency • I can modify objects to create a new image • I can identify that each added object creates a new layer in the drawing • I can change the order of layers in a vector drawing • I can use layering to create an image • I can copy part of a drawing by duplicating several objects • I can recognise when I need to group and ungroup objects • I can reuse a group of objects to further develop my vector drawing • I can create a vector drawing for a specific purpose • I can reflect on the skills I have used and why I have used them • I can compare vector drawings to freehand paint drawings |
| <p>Programming</p> | <p>Sequencing sounds: Creating sequences in a block-based programming language to make music</p> <ul style="list-style-type: none"> • I can identify the objects in a Scratch project (sprites, backdrops) • I can explain that objects in Scratch have attributes (linked to) • I can recognise that commands in Scratch are represented as blocks • I can identify that each sprite is controlled by the commands I choose • I can choose a word which describes an on-screen action for my plan • I can create a program following a design • I can start a program in different ways • 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 explain what a sequence is • I can combine sound commands | <p>Repetition in shapes: Using a text-based programming language to explore count-controlled loops when drawing shapes</p> <ul style="list-style-type: none"> • I can program a computer by typing commands • I can explain the effect of changing a value of a command • I can create a code snippet for a given purpose • I can use a template to draw what I want my program to do • I can write an algorithm to produce a given outcome • I can test my algorithm in a text-based language • I can identify repetition in everyday tasks • I can identify patterns in a sequence • I can use a count-controlled loop to produce a given outcome • I can identify the effect of changing the number of times a task is repeated | <p>Selection in physical computing: Exploring conditions and selection using a programmable microcontroller.</p> <ul style="list-style-type: none"> • I can create a simple circuit and connect it to a microcontroller • I can program a microcontroller to make an LED switch on • I can explain what an infinite loop does • I can connect more than one output component to a microcontroller • I can use a count-controlled loop to control outputs • I can design sequences that use count-controlled loops • I can explain that a condition is either true or false • I can design a conditional loop • I can program a microcontroller to respond to an input • I can explain that a condition being met can start an action |

COMPUTING PROGRESSION



| | | | |
|------------------------------------|--|--|--|
| | <ul style="list-style-type: none"> 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 relate a task description to a design I can implement my algorithm as code <p>Events and actions in programs: Writing algorithms and programs that use a range of events to trigger sequences of actions.</p> <ul style="list-style-type: none"> I can explain the relationship between an event and an action I can choose which keys to use for actions and explain my choices 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 use a programming extension I can consider the real world when making design choices I can choose blocks to set up my program I can identify additional features (from a given set of blocks) I can choose suitable keys to turn on additional features I can build more sequences of commands to make my design work I can test a program against a given design I can match a piece of code to an outcome I can modify a program using a design I can make design choices and justify them I can implement my design I can evaluate my project | <ul style="list-style-type: none"> I can predict the outcome of a program containing a count-controlled loop I can choose which values to change in a loop I can identify 'chunks' of actions in the real world I can use a procedure in a program I can explain that a computer can repeatedly call a procedure I can design a program that includes count-controlled loops I can make use of my design to write a program I can develop my program by debugging it <p>Repetition in games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p> <ul style="list-style-type: none"> I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome I can modify loops to produce a given outcome I can choose when to use a count-controlled and an infinite loop 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 explain what the outcome of the repeated action should be I can evaluate the effectiveness of the repeated sequences used in my program I can identify which parts of a loop can be changed I can explain the effect of my changes I can re-use existing code snippets on new sprites 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 develop my own design explaining what my project will do I can refine the algorithm in my design I can build a program that follows my design I can evaluate the steps I followed when building my project | <ul style="list-style-type: none"> 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 identify a real-world example of a condition starting an action I can describe what my project will do I can create a detailed drawing of my project I can write an algorithm that describes what my model will do I can use selection to produce an intended outcome I can test and debug my project <p>Selection in quizzes: Exploring selection in programming to design and code an interactive quiz.</p> <ul style="list-style-type: none"> I can recall how conditions are used in selection I can identify conditions in a program I can modify a condition in a program I can use selection in an infinite loop to check a condition I can identify the condition and outcomes in an 'if... then... else...' statement I can create a program with different outcomes using selection I can explain that program flow can branch according to a condition I can design the flow of a program which contains 'if... then... else...' I can show that a condition can direct program flow in one of two ways I can outline a given task I can use a design format to outline my project I can identify the outcome of user input in an algorithm I can implement my algorithm to create the first section of my program I can test my program I can share my program with others I can identify ways the program could be improved I can identify the setup code I need in my program I can extend my program further |
| <p>Data and Information</p> | <p>Branching databases: Building and using branching databases to group objects using yes/no questions.</p> <ul style="list-style-type: none"> I can investigate questions with yes/no answers I can make up a yes/no question about a collection | <p>Data logging: Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p> <ul style="list-style-type: none"> I can choose a data set to answer a given question | <p>Flat-file databases: Using a database to order data and create charts to answer questions</p> <ul style="list-style-type: none"> I can create multiple questions about the same field I can explain how information can be recorded |

COMPUTING PROGRESSION



| | | | |
|--------------------------|--|---|--|
| | <p>of objects</p> <ul style="list-style-type: none"> • I can create two groups of objects separated by one attribute • I can select an attribute to separate objects into groups • I can create a group of objects within an existing group • I can arrange objects into a tree structure • I can select objects to arrange in a branching database • I can group objects using my own yes/no questions • I can prove my branching database works • 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 branching database structures • I can select a theme and choose a variety of objects • I can create questions and apply them to a tree structure • I can use my branching database to answer questions • I can explain what a pictogram tells me • I can explain what a branching database tells me • I can compare two ways of presenting information | <ul style="list-style-type: none"> • I can suggest questions that can be answered using a given data set • I can identify data that can be gathered over time • I can explain that sensors are input devices • I can use data from a sensor to answer a given question • I can identify that data from sensors can be recorded • 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 to view data in different ways • I can use a computer program to sort data • I can propose a question that can be answered using logged data • I can plan how to collect data using a data logger • I can use a data logger to collect data • I can interpret data that has been collected using a data logger • I can draw conclusions from the data that I have collected • I can explain the benefits of using a data logger | <ul style="list-style-type: none"> • I can order, sort, and group my data cards • I can navigate a flat-file database to compare different views of information • I can explain what a 'field' and a 'record' is in a database • I can choose which field to sort data by to answer a given question • I can explain how information can be grouped • I can group information to answer questions • I can combine grouping and sorting to answer more specific questions • 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 choose multiple criteria to answer a given question • I can select an appropriate chart to visually compare data • I can refine a chart by selecting a particular filter • I can explain the benefits of using a computer to create graphs • I can ask questions that will need more than one field to answer • I can refine a search in a real-world context • I can present my findings to a group |
| <p>Vocabulary</p> | <p>Process, connections, network, switch, server, wireless, effective, stop-frame animation, storyboard, onion skinning, feedback, scratch, sprites, backdrop, blocks, code, implement, evaluate, branching, database</p> | <p>Recording, podcast, digital, audio, composition, image, elements, snippet, repetition, input device, data logger,</p> | <p>Input, output, process, visual media, techniques, export, vector drawing, resize, rotate, duplicate, alignment grid, layer, freehand, microcontroller, conditional loop, infinite loop, branch, database, multiple criteria</p> |



| Year 5 | | | |
|---------------------------------------|--|---|---|
| | Previous year's content | Year 5 content | Subsequent year's content |
| Computing systems and networks | <p>The internet: Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.</p> <ul style="list-style-type: none"> I can describe the internet as a network of networks I can demonstrate how information is shared across the internet I can discuss why a network needs protecting I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web contains websites and web pages I can explain the types of media that can be shared on the WWW I can describe where websites are stored when uploaded to the WWW I can describe how to access websites on the WWW I can explain what media can be found on websites I can recognise that I can add content to the WWW I can explain that internet services can be used to create content online I can explain what media can be found on websites I can recognise that I can add content to the WWW I can explain that internet services can be used to create content online I can explain that not everything on the World Wide Web is true I can explain why some information I find online may not be honest, accurate, or legal I can explain why I need to think carefully before I share or reshare content | <p>Sharing information: Identifying and exploring how information is shared between digital systems.</p> <ul style="list-style-type: none"> I can explain that systems are built using a number of parts I can describe that a computer system features inputs, processes, and outputs I can explain that computer systems communicate with other devices I can identify tasks that are managed by computer systems I can identify the human elements of a computer system I can explain the benefits of a given computer system I can recognise that data is transferred using agreed methods I can explain that networked digital devices have unique addresses I can explain that data is transferred over networks in packets 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 explain that the internet allows different media to be shared I can suggest strategies to ensure successful group work I can make thoughtful suggestions on my group's work I can compare working online with working offline 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 how the internet enables effective collaboration | <p>Internet communication: Recognising how the WWW can be used to communicate and be searched to find information</p> <ul style="list-style-type: none"> I can complete a web search to find specific information I can refine my search I can compare results from different search engines 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 search results are ordered I can explain that a search engine follows rules to rank relevant pages 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 recognise some of the limitations of search engines I can explain how search engines make money 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 choose methods of communication to suit particular purposes 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 |
| Creating media | <p>Audio editing: Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p> | <p>Video editing: Planning, capturing, and editing video to produce a short film.</p> <ul style="list-style-type: none"> I can explain that video is a visual media format I can identify features of videos | <p>Webpage creation: Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.</p> <ul style="list-style-type: none"> I can explore a website |



- 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 use a device to record audio and play back sound
- I can suggest how to improve my recording
- I can discuss what other people include when recording sound for a podcast
- I can plan and write the content for a podcast
- I can discuss why it is useful to be able to save digital recordings
- I can save a digital recording as a file
- I can open a digital recording from a file
- I can discuss ways in which audio recordings can be altered
- I can edit sections of of an audio recording
- I can discuss sounds that other people combine
- I can choose suitable sounds to include in a podcast
- I can use editing tools to arrange sections of audio
- I can explain that digital recordings need to be exported to share them
- I can discuss the features of a digital recording I like
- I can suggest improvements to a digital recording

Photo editing: Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.

- I can identify changes that we can make to an image
- I can explore how images can be changed in real life
- I can explain the effect that editing can have on an image
- I can explain what has changed in an edited 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 talk about changes made to images
- I can choose effects to make my image fit a scenario
- I can explain why my choices fit a scenario
- I can identify how an image has been retouched
- I can give examples of positive and negative effects that retouching can have on an image
- I can choose appropriate tools to retouch an image
- I can sort images into 'fake' or 'real' and explain my

- I can compare features in different videos
- I can identify and find features on a digital video recording device
- I can experiment with different camera angles
- I can make use of a microphone
- I can suggest filming techniques for a given purpose
- I can capture video using a range of filming techniques
- I can review how effective my video is
- I can outline the scenes of my video
- I can decide which filming techniques I will use
- I can create and save video content
- I can store, retrieve, and export my recording to a computer
- I can select the correct tools to make edits to my video
- I can make edits to my video and improve the final outcome
- I can recognise that my choices when making a video will impact the quality of the final outcome
- I can evaluate my video and share my opinions

Vector drawing: Creating images in a drawing program by using layers and groups of objects.

- I can recognise that vector drawings are made using shapes
- I can experiment with the shape and line tools
- I can discuss how vector drawings are different from paper-based drawings
- I can identify the shapes used to make a vector drawing
- I can explain that each element added to a vector drawing is an object
- I can move, resize, and rotate objects I have duplicated
- I can use the zoom tool to help me add detail to my drawings
- I can explain how alignment grids and resize handles can be used to improve consistency
- I can modify objects to create a new image
- I can identify that each added object creates a new layer in the drawing
- I can change the order of layers in a vector drawing
- I can use layering to create an image
- I can copy part of a drawing by duplicating several objects

- I can discuss the different types of media used on websites
- I know that websites are written in HTML
- I can recognise the common features of a web page
- I can suggest media to include on my page
- I can draw a web page layout that suits my purpose
- I can say why I should use copyright-free images
- I can find copyright-free images
- I can describe what is meant by the term 'fair use'
- I can add content to my own web page
- I can preview what my web page looks like
- I can evaluate what my web page looks like on different devices and suggest/make edits.
- I can explain what a navigation path is
- I can describe why navigation paths are useful
- I can make multiple web pages and link them using hyperlinks
- I can explain the implication of linking to content owned by others
- I can create hyperlinks to link to other people's work
- I can evaluate the user experience of a website

3D modelling: Planning, developing, and evaluating 3D computer models of physical objects.

- 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 identify how graphical objects can be modified
- I can resize a 3D object
- I can change the colour of a 3D object
- I can rotate a 3D object
- I can position 3D objects in relation to each other
- I can select and duplicate multiple 3D objects
- I can identify the 3D shapes needed to create a model of a real-world object
- 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 plan my 3D model
- I can choose which 3D objects I need to construct my model
- I can modify multiple 3D objects
- I can decide how my model can be improved
- I can modify my model to improve it

COMPUTING PROGRESSION



| | | | |
|--------------------|--|--|---|
| | <ul style="list-style-type: none"> choices I can combine parts of images to create new images I can talk about fake images around me I can consider the effect of adding other elements to my work I can compare the original image with my completed publication I can evaluate the impact of my publication on others through feedback | <ul style="list-style-type: none"> I can recognise when I need to group and ungroup objects I can reuse a group of objects to further develop my vector drawing I can create a vector drawing for a specific purpose I can reflect on the skills I have used and why I have used them I can compare vector drawings to freehand paint drawings | <ul style="list-style-type: none"> I can evaluate my model against a given criterion |
| Programming | <p>Repetition in shapes: Using a text-based programming language to explore count-controlled loops when drawing shapes.</p> <ul style="list-style-type: none"> I can program a computer by typing commands I can explain the effect of changing a value of a command I can create a code snippet for a given purpose I can use a template to draw what I want my program to do I can write an algorithm to produce a given outcome I can test my algorithm in a text-based language I can identify repetition in everyday tasks I can identify patterns in a sequence I can use a count-controlled loop to produce a given outcome I can identify repetition in everyday tasks I can identify patterns in a sequence I can use a count-controlled loop to produce a given outcome I can identify 'chunks' of actions in the real world I can use a procedure in a program I can explain that a computer can repeatedly call a procedure I can design a program that includes count-controlled loops I can make use of my design to write a program I can develop my program by debugging it <p>Repetition in games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p> <ul style="list-style-type: none"> I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome I can modify loops to produce a given outcome | <p>Selection in physical computing: Exploring conditions and selection using a programmable microcontroller.</p> <ul style="list-style-type: none"> I can create a simple circuit and connect it to a microcontroller I can program a microcontroller to make an LED switch on I can explain what an infinite loop does I can connect more than one output component to a microcontroller I can use a count-controlled loop to control outputs I can design sequences that use count-controlled loops I can explain that a condition is either true or false I can design a conditional loop 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 identify a real-world example of a condition starting an action I can describe what my project will do I can create a detailed drawing of my project I can write an algorithm that describes what my model will do I can use selection to produce an intended outcome I can test and debug my project <p>Selection in quizzes: Exploring selection in programming to design and code an interactive quiz.</p> <ul style="list-style-type: none"> I can recall how conditions are used in selection I can identify conditions in a program I can modify a condition in a program | <p>Variables in games: Exploring variables when designing and coding a game</p> <ul style="list-style-type: none"> I can identify examples of information that is variable I can explain that the way that a variable changes can be defined I can identify that variables can hold numbers or letters I can identify a program variable as a placeholder in memory for a single value I can explain that a variable has a name and a 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 explain my design choices I can create algorithms for my project I can create the artwork for my project I can choose a name that identifies the role of a variable I can test the code that I have written I can identify ways that my game could be improved I can extend my game further using more variables I can share my game with others <p>Sensing: Designing and coding a project that captures inputs from a physical device</p> <ul style="list-style-type: none"> I can test my program on an emulator I can transfer my program to a controllable device |

COMPUTING PROGRESSION



| | | | |
|------------------------------------|--|---|---|
| | <ul style="list-style-type: none"> • I can choose when to use a count-controlled and an infinite loop • 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 explain what the outcome of the repeated action should be • I can evaluate the effectiveness of the repeated sequences used in my program • I can identify which parts of a loop can be changed • I can explain the effect of my changes • I can re-use existing code snippets on new sprites • 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 develop my own design explaining what my project will do • I can refine the algorithm in my design • I can build a program that follows my design <p>I can evaluate the steps I followed when building my project</p> | <ul style="list-style-type: none"> • I can use selection in an infinite loop to check a condition • I can identify the condition and outcomes in an 'if... then... else...' statement • I can create a program with different outcomes using selection • I can explain that program flow can branch according to a condition • I can design the flow of a program which contains 'if... then... else...' • I can show that a condition can direct program flow in one of two ways • I can outline a given task • I can use a design format to outline my project • I can identify the outcome of user input in an algorithm • I can implement my algorithm to create the first section of my program • I can test my program • I can share my program with others • I can identify ways the program could be improved • I can identify the setup code I need in my program • I can extend my program further | <ul style="list-style-type: none"> • I can apply my knowledge of programming to a new environment • 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 determine the flow of a program using selection • I can use a condition to change a variable • I can experiment with different physical inputs • I can explain that if you read a variable, the value remains • I can explain the importance of the order of conditions in else, if statements • I can use an operand (e.g. <=>) in an if, then statement • I can modify a program to achieve a different outcome • 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 |
| <p>Data and Information</p> | <p>Data logging: Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p> <ul style="list-style-type: none"> • I can choose a data set to answer a given question • I can suggest questions that can be answered using a given data set • I can identify data that can be gathered over time • I can explain that sensors are input devices • I can use data from a sensor to answer a given question • I can identify that data from sensors can be recorded • 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 to view data in different ways • I can use a computer program to sort data | <p>Flat-file databases: Using a database to order data and create charts to answer questions</p> <ul style="list-style-type: none"> • 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 navigate a flat-file database to compare different views of information • I can explain what a 'field' and a 'record' is in a database • I can choose which field to sort data by to answer a given question • I can explain how information can be grouped • I can group information to answer questions • I can combine grouping and sorting to answer more specific questions • 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 | <p>Introduction to spreadsheets: Answering questions by using spreadsheets to organise and calculate data</p> <ul style="list-style-type: none"> • I can explain the relevance of data headings • I can answer questions from an existing data set • I can ask simple relevant questions which can be answered using data • I can explain what an item of data is • I can apply an appropriate number format to a cell • I can build a data set in a spreadsheet application • I can explain the relevance of a cell's data type • I can construct a formula in a spreadsheet • I can identify that changing inputs changes outputs • I can recognise that data can be calculated using different operations • I can create a formula which includes a range of cells |

COMPUTING PROGRESSION



| | | | |
|-------------------|---|--|--|
| | <ul style="list-style-type: none"> I can propose a question that can be answered using logged data I can plan how to collect data using a data logger I can use a data logger to collect data I can interpret data that has been collected using a data logger I can draw conclusions from the data that I have collected I can explain the benefits of using a data logger | <ul style="list-style-type: none"> I can choose multiple criteria to answer a given question I can select an appropriate chart to visually compare data I can refine a chart by selecting a particular filter I can explain the benefits of using a computer to create graphs I can ask questions that will need more than one field to answer I can refine a search in a real-world context I can present my findings to a group | <ul style="list-style-type: none"> I can apply a formula to multiple cells by duplicating it I can use a spreadsheet to answer questions I can explain why data should be organised I can apply a formula to calculate the data I need to answer questions I can produce a graph I can use a graph to show the answer to questions I can suggest when to use a table or graph |
| Vocabulary | Recording, podcast, digital, audio, composition, image, elements, snippet, repetition, input device, data logger, | Input, output, process, visual media, techniques, export, vector drawing, resize, rotate, duplicate, alignment grid, layer, freehand, microcontroller, conditional loop, infinite loop, branch, database, multiple criteria | Web crawlers, limitations, HTML, copyright, navigation path, hyperlinks, graphical criterion, variable, placeholder, memory, emulator, controllable device, operand, bug, format, cell, formula |

Year 6

| | Previous year's content | Year 6 content |
|---------------------------------------|---|---|
| Computing systems and networks | <p>Sharing information: Identifying and exploring how information is shared between digital systems.</p> <ul style="list-style-type: none"> I can explain that systems are built using a number of parts I can describe that a computer system features inputs, processes, and outputs I can explain that computer systems communicate with other devices I can identify tasks that are managed by computer systems I can identify the human elements of a computer system I can explain the benefits of a given computer system I can recognise that data is transferred using agreed methods I can explain that networked digital devices have unique addresses I can explain that data is transferred over networks in packets 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 explain that the internet allows different media to be shared I can suggest strategies to ensure successful group | <p>Internet communication: Recognising how the WWW can be used to communicate and be searched to find information</p> <ul style="list-style-type: none"> I can complete a web search to find specific information I can refine my search I can compare results from different search engines 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 search results are ordered I can explain that a search engine follows rules to rank relevant pages 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 recognise some of the limitations of search engines I can explain how search engines make money 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 choose methods of communication to suit particular purposes 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 |



| | | |
|------------------------------|--|---|
| | <p>work</p> <ul style="list-style-type: none"> • I can make thoughtful suggestions on my group's work • I can compare working online with working offline • 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 how the internet enables effective collaboration | |
| <p>Creating media</p> | <p>Video editing: Planning, capturing, and editing video to produce a short film.</p> <ul style="list-style-type: none"> • I can explain that video is a visual media format • I can identify features of videos • I can compare features in different videos • I can identify and find features on a digital video recording device • I can experiment with different camera angles • I can make use of a microphone • I can suggest filming techniques for a given purpose • I can capture video using a range of filming techniques • I can review how effective my video is • I can outline the scenes of my video • I can decide which filming techniques I will use • I can create and save video content • I can store, retrieve, and export my recording to a computer • I can select the correct tools to make edits to my video • I can make edits to my video and improve the final outcome • I can recognise that my choices when making a video will impact the quality of the final outcome • I can evaluate my video and share my opinions <p>Vector drawing: Creating images in a drawing program by using layers and groups of objects.</p> <ul style="list-style-type: none"> • I can recognise that vector drawings are made using shapes • I can experiment with the shape and line tools • I can discuss how vector drawings are different from paper-based drawings • I can identify the shapes used to make a vector drawing | <p>Webpage creation: Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.</p> <ul style="list-style-type: none"> • I can explore a website • I can discuss the different types of media used on websites • I know that websites are written in HTML • I can recognise the common features of a web page • I can suggest media to include on my page • I can draw a web page layout that suits my purpose • I can say why I should use copyright-free images • I can find copyright-free images • I can describe what is meant by the term 'fair use' • I can add content to my own web page • I can preview what my web page looks like • I can evaluate what my web page looks like on different devices and suggest/make edits. • I can explain what a navigation path is • I can describe why navigation paths are useful • I can make multiple web pages and link them using hyperlinks • I can explain the implication of linking to content owned by others • I can create hyperlinks to link to other people's work • I can evaluate the user experience of a website <p>3D modelling: Planning, developing, and evaluating 3D computer models of physical objects.</p> <ul style="list-style-type: none"> • 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 identify how graphical objects can be modified • I can resize a 3D object • I can change the colour of a 3D object • I can rotate a 3D object • I can position 3D objects in relation to each other • I can select and duplicate multiple 3D objects • I can identify the 3D shapes needed to create a model of a real-world object • 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 plan my 3D model • I can choose which 3D objects I need to construct my model • I can modify multiple 3D objects • I can decide how my model can be improved |



| | | |
|---------------------------|---|---|
| | <ul style="list-style-type: none"> • I can explain that each element added to a vector drawing is an object • I can move, resize, and rotate objects I have duplicated • I can use the zoom tool to help me add detail to my drawings • I can explain how alignment grids and resize handles can be used to improve consistency • I can modify objects to create a new image • I can identify that each added object creates a new layer in the drawing • I can change the order of layers in a vector drawing • I can use layering to create an image • I can copy part of a drawing by duplicating several objects • I can recognise when I need to group and ungroup objects • I can reuse a group of objects to further develop my vector drawing • I can create a vector drawing for a specific purpose • I can reflect on the skills I have used and why I have used them • I can compare vector drawings to freehand paint drawings | <ul style="list-style-type: none"> • I can modify my model to improve it • I can evaluate my model against a given criterion |
| <p>Programming</p> | <p>Selection in physical computing: Exploring conditions and selection using a programmable microcontroller.</p> <ul style="list-style-type: none"> • I can create a simple circuit and connect it to a microcontroller • I can program a microcontroller to make an LED switch on • I can explain what an infinite loop does • I can connect more than one output component to a microcontroller • I can use a count-controlled loop to control outputs • I can design sequences that use count-controlled loops • I can explain that a condition is either true or false • I can design a conditional loop • 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 identify a real-world example of a condition starting an action | <p>Variables in games: Exploring variables when designing and coding a game</p> <ul style="list-style-type: none"> • I can identify examples of information that is variable • I can explain that the way that a variable changes can be defined • I can identify that variables can hold numbers or letters • I can identify a program variable as a placeholder in memory for a single value • I can explain that a variable has a name and a 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 explain my design choices • I can create algorithms for my project • I can create the artwork for my project • I can choose a name that identifies the role of a variable • I can test the code that I have written • I can identify ways that my game could be improved • I can extend my game further using more variables • I can share my game with others <p>Sensing: Designing and coding a project that captures inputs from a physical device</p> <ul style="list-style-type: none"> • I can test my program on an emulator |



| | | |
|------------------------------------|--|---|
| | <ul style="list-style-type: none"> • I can describe what my project will do • I can create a detailed drawing of my project • I can write an algorithm that describes what my model will do • I can use selection to produce an intended outcome • I can test and debug my project <p>Selection in quizzes: Exploring selection in programming to design and code an interactive quiz.</p> <ul style="list-style-type: none"> • I can recall how conditions are used in selection • I can identify conditions in a program • I can modify a condition in a program • I can use selection in an infinite loop to check a condition • I can identify the condition and outcomes in an 'if... then... else...' statement • I can create a program with different outcomes using selection • I can explain that program flow can branch according to a condition • I can design the flow of a program which contains 'if... then... else...' • I can show that a condition can direct program flow in one of two ways • I can outline a given task • I can use a design format to outline my project • I can identify the outcome of user input in an algorithm • I can implement my algorithm to create the first section of my program • I can test my program • I can share my program with others • I can identify ways the program could be improved • I can identify the setup code I need in my program • I can extend my program further | <ul style="list-style-type: none"> • I can transfer my program to a controllable device • I can apply my knowledge of programming to a new environment • 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 determine the flow of a program using selection • I can use a condition to change a variable • I can experiment with different physical inputs • I can explain that if you read a variable, the value remains • I can explain the importance of the order of conditions in else, if statements • I can use an operand (e.g. <=>) in an if, then statement • I can modify a program to achieve a different outcome • 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 |
| <p>Data and Information</p> | <p>Flat-file databases: Using a database to order data and create charts to answer questions</p> <ul style="list-style-type: none"> • 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 navigate a flat-file database to compare different views of information • I can explain what a 'field' and a 'record' is in a database • I can choose which field to sort data by to answer a given question | <p>Introduction to spreadsheets: Answering questions by using spreadsheets to organise and calculate data</p> <ul style="list-style-type: none"> • I can explain the relevance of data headings • I can answer questions from an existing data set • I can ask simple relevant questions which can be answered using data • I can explain what an item of data is • I can apply an appropriate number format to a cell • I can build a data set in a spreadsheet application • I can explain the relevance of a cell's data type • I can construct a formula in a spreadsheet |

COMPUTING PROGRESSION



| | | |
|-------------------|--|---|
| | <ul style="list-style-type: none"> • I can explain how information can be grouped • I can group information to answer questions • I can combine grouping and sorting to answer more specific questions • 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 choose multiple criteria to answer a given question • I can select an appropriate chart to visually compare data • I can refine a chart by selecting a particular filter • I can explain the benefits of using a computer to create graphs • I can ask questions that will need more than one field to answer • I can refine a search in a real-world context • I can present my findings to a group | <ul style="list-style-type: none"> • I can identify that changing inputs changes outputs • I can recognise that data can be calculated using different operations • I can create a formula which includes a range of cells • I can apply a formula to multiple cells by duplicating it • I can use a spreadsheet to answer questions • I can explain why data should be organised • I can apply a formula to calculate the data I need to answer questions • I can produce a graph • I can use a graph to show the answer to questions • I can suggest when to use a table or graph |
| Vocabulary | Input, output, process, visual media, techniques, export, vector drawing, resize, rotate, duplicate, alignment grid, layer, freehand, microcontroller, conditional loop, infinite loop, branch, database, multiple criteria | Web crawlers, limitations, HTML, copyright, navigation path, hyperlinks, graphical criterion, variable, placeholder, memory, emulator, controllable device, operand, bug, format, cell, formula |