



# Cherry Tree Academy Medium Term Computing Cycle A

Autumn 1		
Computer Systems and Networks		
KS1	Year 1	Year 2
	L1: What is IT? L2: What IT do we have in school? L3: What types of IT do we have in the world? L4: What are the benefits of IT? L5: Why is it important to use IT safely and how can we keep ourselves safe when using IT? L6: How can we use IT in different ways?	L1: What is IT? L2: What IT do we have in school? L3: What types of IT do we have in the world? L4: What are the benefits of IT? L5: Why is it important to use IT safely and how can we keep ourselves safe when using IT? L6: How can we use IT in different ways?
Key Concepts to assess	L1: Children can identify examples of computers and identify that a computer is a part of IT. L2: Children can identify examples of IT in school and sort school IT by what it is used for. L3: Children can find examples of IT and sort where it is found. L4: Children can recognise common types of technology. They can say why we use IT. L5: Children can talk about the rules for using IT. They know how rules can help keep them safe. L6: Children can use IT for different types of activities and can explain the need to use IT in different ways.	L1: Children can identify examples of computers, describe some uses of computers and identify that a computer is a part of IT. L2: Children can identify examples of IT in school and sort school IT by what it is used for. They can identify that some IT can be used in more than one way. L3: Children can find examples of IT and sort where it is found. They can talk about uses of IT. L4: Children can recognise common types of technology. They can demonstrate how IT devices work together and say why we use IT. L5: Children can list different uses of IT and can talk about the rules for using IT. They know how rules can help keep them safe. L6: Children can identify the choices that they make when using IT. They can use IT for different types of activities and can explain the need to use IT in different ways.
Vocabulary	Information technology (IT), computer, laptop	Information technology (IT), computer, laptop, barcode, scanner/scan
Experiences		
SMSC		
British Values	Rule of Law – laws and rules around IT use	
School Values	Honest – Importance of following rules around IT use.	

# Cherry Tree Academy Medium Term Computing Cycle A

Autumn 2		
KS1	Digital Photography	
	Year 1	Year 2
	L1: How do you take a photograph? L2: Can you take a photograph that is landscape and portrait? L3: What makes a good photograph? L4: Why is lighting important when taking a photograph? L5: How can different effects be used to change an image? L6: Are all photographs real?	L1: How do you take a photograph? L2: Can you take a photograph that is landscape and portrait? L3: What makes a good photograph? L4: Why is lighting important when taking a photograph? L5: How can different effects be used to change an image? L6: Are all photographs real?
<b>Key Concepts to assess</b>	L1: Children can recognise what devices can be used to take photographs and they can talk about how to take a photograph. L2: Children can explain the process of taking a good photograph and can take photographs in both landscape and portrait format. L3: Children can discuss how to take a good photograph and can improve a photograph by retaking it. L4: Children can explore the effect that light has on a photo. Children can explain why a picture may be unclear. L5: Children can recognise that images can be changed and can use a tool to achieve a desired effect. L6: Children can capture a photo. Children can recognise which photos have been changed and can which ones are real.	L1: Children can recognise what devices can be used to take photographs and they can talk about how to take a photograph. Children can explain what they did to capture a digital photo. L2: Children can explain the process of taking a good photograph and can take photographs in both landscape and portrait format. Children can explain why a photo looks better in portrait or landscape format. L3: Children can identify what is wrong with a photograph. Children can discuss how to take a good photograph and can improve a photograph by retaking it. L4: Children can explore the effect that light has on a photo and can experiment with different light sources. Children can explain why a picture may be unclear. L5: Children can recognise that images can be changed and can use a tool to achieve a desired effect. Children can explain their choices. L6: Children can apply a range of photography skills to capture a photo. Children can recognise which photos have been changed and can which ones are real.
<b>Vocabulary</b>	camera, photograph, capture, image, digital, landscape, portrait, Framing, subject, flash, focus, background, Editing, filter	Device, camera, photograph, capture, image, digital, landscape, portrait, Framing, subject, compose, Light sources, flash, focus, background, Editing, filter, Format
<b>Experiences</b>		
<b>SMSC</b>	Moral – changing photographs (should we do this?)	
<b>British Values</b>	Mutual respect – when taking photographs of other people.	
<b>School Values</b>	Considerate – when taking photographs of other people.	



# Cherry Tree Academy Medium Term Computing Cycle A

Spring 1		
Creating Media – Making Music		
KS1	Year 1	Year 2
	L1: How does different music make you feel? L2: What are rhythms and patterns in music? L3: How can music be used? L4: What are musical notes and what is tempo? L5: How can we create digital music? L6: How can we review and edit music?	L1: How does different music make you feel? L2: What are rhythms and patterns in music? L3: How can music be used? L4: What are musical notes and what is tempo? L5: How can we create digital music? L6: How can we review and edit music?
Key Concepts to assess	L1: Children can describe music using adjectives. Children can say what they like and dislike about a piece of music. L2: Children can create a rhythm pattern and can play an instrument following a rhythm pattern. L3: Children can connect images with sounds. Children can use a computer to experiment with pitch. L4: Children can identify that music is a sequence of notes. Children can use a computer to refine a musical pattern. L5: Children can create a simple rhythm on the computer which represents an animal they have chosen and can add a sequence of notes to the rhythm. L6: Children can review their work. Children can listen to music and describe how it makes them feel.	L1: Children can identify simple different in pieces of music and can describe music using adjectives. Children can say what they like and dislike about a piece of music. L2: Children can create a rhythm pattern and can play an instrument following a rhythm pattern. Children can explain that music is created and played by humans. L3: Children can connect images with sounds. Children can use a computer to experiment with pitch and can relate an idea to a piece of music. L4: Children can identify that music is a sequence of notes. Children can explain how music can be played in different ways and can use a computer to refine a musical pattern. L5: Children can create a rhythm on the computer which represents an animal they have chosen and can add a sequence of notes to the rhythm. L6: Children can review their work and explain how they have changed it. Children can listen to music and describe how it makes them feel.
Vocabulary	Music, quiet, loud, feelings, rhythm, pulse, pitch, tempo, notes, instrument, Create, Open, select, tool	Music, quiet, loud, feelings, emotions, Pattern, rhythm, pulse, pitch, tempo, notes, instrument, Create, Open, edit, select, tool
Experiences		
SMSC	Spiritual – music and the affect it has on different people	
British Values		
School Values	Honest – when evaluating work Resilient – things go wrong in computing and we have to find ways to fix the problems without getting upset.	

# Cherry Tree Academy Medium Term Computing Cycle A

Spring 2		
Programming - BeeBots		
KS1	Year 1	Year 2
	L1: Can you follow and give instructions? L2: How does the order of a set of instructions affect the outcome? L3: Can you predict the outcome of a program? L4: How can we make a mat for the floor robot? L5: Can you design an algorithm? L6: Can you create and debug a program?	L1: Can you follow and give instructions? L2: How does the order of a set of instructions affect the outcome? L3: Can you predict the outcome of a program? L4: How can we make a mat for the floor robot? L5: Can you design an algorithm? L6: Can you create and debug a program?
Key Concepts to assess	L1: Children can follow instructions and with some support give instructions. L2: Children can use an algorithm to program a sequence of a floor robot and can show the difference in outcomes between two sequences that consist of the same instructions. L3: Children can follow a sequence and can predict the outcome of a sequence. L4: Children can identify different routes around their mat and can test their mat to make sure it is usable. L5: Children can create an algorithm to meet their goal and can use their algorithm to create a program. L6: Children can test and debug each part of the program. Children can plan algorithms for different parts of a task.	L1: Children can follow instructions given by someone else and can give clear instructions. L2: Children can use the same instructions to create different algorithms. Children can use an algorithm to program a sequence of a floor robot and can show the difference in outcomes between two sequences that consist of the same instructions. L3: Children can follow a sequence and can predict the outcome of a sequence. Children can compare their prediction to the program outcome. L4: Children can explain the choices they have made for their mat designs. Children can identify different routes around their mat and can test their mat to make sure it is usable. L5: Children can explain what their algorithm should achieve. Children can create an algorithm to meet their goal and can use their algorithm to create a program. L6: Children can test and debug each part of the program. Children can plan algorithms for different parts of a task and can put together the different parts of the program.
Vocabulary	Instruction, sequence, clear, algorithm, program order, prediction, design, route, mat, Debugging	Instruction, sequence, clear, unambiguous, algorithm, program order, prediction, Artwork, design, route, mat, Debugging, decomposition
Experiences		
SMSC		
British Values		
School Values	Honest – when making predictions and comparing to outcomes.	

# Cherry Tree Academy Medium Term Computing Cycle A

Summer 1		
Data and Information - Pictograms		
KS1	Year 1	Year 2
	<p>L1: How can we count and compare using a tally chart?</p> <p>L2: How can data be entered onto a pictogram using a computer?</p> <p>L3: How can we use the computer to create a pictogram?</p> <p>L4: What is an attribute?</p> <p>L5: How can people be describe using attributes?</p> <p>L6: How can we present information in different ways?</p>	<p>L1: How can we count and compare using a tally chart?</p> <p>L2: How can data be entered onto a pictogram using a computer?</p> <p>L3: How can we use the computer to create a pictogram?</p> <p>L4: What is an attribute?</p> <p>L5: How can people be describe using attributes?</p> <p>L6: How can we present information in different ways?</p>
Key Concepts to assess	<p>L1: Children can record data in a tally chart and can represent a tally count as a total. With support children can compare totals in a tally chart.</p> <p>L2: Children can enter data onto a computer. Children can use pictograms to answer simple questions about objects.</p> <p>L3: Children can organize data in a tally chart. Children can use a tally chart to create a pictogram.</p> <p>L4: Children can tally objects using a common attribute. Children can create a pictogram to arrange objects by an attribute.</p> <p>L5: With support children can choose a suitable attribute to compare people. Children can collect the date they need and use it to create a pictogram.</p> <p>L6: Children can use a computer program to present information in different ways. -</p>	<p>L1: Children can record data in a tally chart and can represent a tally count as a total. Children can compare totals in a tally chart.</p> <p>L2: Children can enter data onto a computer and can use a computer to view data in a different format. Children can use pictograms to answer simple questions about objects.</p> <p>L3: Children can organise data in a tally chart. Children can use a tally chart to create a pictogram and explain what the pictogram shows.</p> <p>L4: Children can tally objects using a common attribute. Children can create a pictogram to arrange objects by an attribute and can answer comparison questions about an attribute.</p> <p>L5: Children can choose a suitable attribute to compare people. Children can collect the date they need and use it to create a pictogram which they can draw conclusions from.</p> <p>L6: Children can use a computer program to present information in different ways. Children can share what they have found out using a computer and give examples of why information should not be shared.</p>
Vocabulary	More than, less than, most, least, organise, data, object, tally chart, total , Pictogram, enter, data, Attribute, group, same, different, conclusion, block diagram, common, sharing, data	More than, less than, most, least, organise, data, object, tally chart, votes, total , Pictogram, enter, data, compare, Attribute, group, same, different, most popular, least popular, conclusion, block diagram, common, sharing, data
Experiences		
SMSC		
British Values	<p>Rule of Law – laws around information sharing</p> <p>Democracy – when voting as part of tally chart work</p>	
School Values	Honest	



# Cherry Tree Academy Medium Term Computing Cycle A

Summer 2		
Programming – Scratch Jnr		
KS1	Year 1	Year 2
	L1: How can we start and run a sequence in Scratch Jnr? L2: What is an outcome? L3: What is design and how can we use design in our program? L4: How can we change a design? L5: How can we design and create a program? L6: How can we make our design better?	L1: How can we start and run a sequence in Scratch Jnr? L2: What is an outcome? L3: What is design and how can we use design in our program? L4: How can we change a design? L5: How can we design and create a program? L6: How can we make our design better?
Key Concepts to assess	L1: Children can identify the start of a sequence. Children can show how to run their program. L2: Children can predict the outcome of a sequence of commands. Children can match two sequences with the same outcome. L3: Children can decide which blocks to use to meet the design and can build the sequences of blocked needed. L4: Children can choose backgrounds and characters for the design. L5: Children can choose the images for their own design. Children can create an algorithm. With support children can build sequences of blocks to match their design. L6: With support children can compare their project to their design. Children can improve their project by adding new features.	L1: Children can identify the start of a sequence and identify that a program needs to be started. Children can show how to run their program. L2: Children can predict the outcome of a sequence of commands. Children can match two sequences with the same outcome. Children can change the outcome of a sequence of commands. L3: Children can work out the actions of a sprite in an algorithm. Children can decide which blocks to use to meet the design and can build the sequences of blocked needed. L4: Children can choose backgrounds and characters for the design. Children can create a program based on the new design. L5: Children can choose the images for their own design. Children can create an algorithm. Children can build sequences of blocks to match their design. L6: Children can compare their project to their design. Children can improve their project by adding new features. Children can debug their program.
Vocabulary	Sequence, command, program, run, start, predict, program, blocks, Sprite, algorithm, design, sequence, change, build, match, Compare, features	Sequence, command, program, run, start, outcome, predict, program, blocks, Sprite, algorithm, design, sequence, Actions, project, modify, change, build, match, Compare, debug, features, evaluate
Experiences		
SMSC		
British Values		
School Values		



# Cherry Tree Academy Medium Term Computing

LKS2	Autumn 1	
	Computer systems and networks	
	Year 3	Year 4
	L1: How does a digital device work? L2: What parts make up a digital device? L3: How do digital devices help us? L4: How am I connected? L5: How are computers connected? L6: What does our school network look like?	
<b>Key Concepts to assess</b>	L1: Children know how to follow a process and that digital devices accept inputs and produce outputs. L2: Children will develop their knowledge of the relationship between inputs, processes, and outputs. L3: Children will apply their learning from Lessons 1 and 2 by using programs in conjunction with inputs and outputs on a digital device. They will create two pieces of work with the same focus, using digital devices to create one piece of work, and non-digital tools to create the other. L4: Children will explain how computers are joined together to form networks. L5: Children will examine each device's functionality and look at the benefits of networking computers. L6: Children will understand and discuss network infrastructure in a real-world setting.	L1: Children can explain how digital devices accept inputs and produce outputs. L2: Children will apply their knowledge to devices and parts of devices that they will be familiar with from their everyday surroundings. L3: Children will compare and contrast the two approaches. L4: Children will explain how and why computers are joined together to form networks. L5: Children can recognise that a computer network is made of a number of devices, and demonstrate how information can be passed between devices. L6: Children will relate network infrastructure in a real-world setting to the activities in previous lessons.
<b>Vocabulary</b>	Input, output, digital devices, process, wifi, tablets, mobile phones, connections	Networks, server, wireless access point, infrastructure
<b>Experiences</b>		
<b>SMSC</b>		
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	



## Cherry Tree Academy Medium Term Computing

LKS2	Autumn 2	
	Programming a sequence in music	
	Year 3	Year 4
	L1: What is Scratch? L2: How can I use programming Sprites? L3: How can I experiment with sequences? L4: Can I create my own sequence? L5: How can I change the appearance? L6: Can I make an instrument?	
<b>Key Concepts to assess</b>	L1: Children will familiarise themselves with the basic layout of the screen and use basic features of the program. L2: Children will create a program following a design for more than one sprite. L3: Children will start a program in different ways and create a sequence of connected commands. L4: Children will experiment with sequences and explore creating their own sequences. L5: Children will change the appearance of a sprite and backdrops to change the appearance of the stage. L6: Children will identify and name the objects needed for a project, and implement their algorithm as a code.	L1: Children will be able to compare Scratch to other programming environments. L2: Children will create code to replicate a given outcome and experiment with new motion blocks. L3: Children will be able to explain how the objects in their project will respond exactly to the code. L4: Children will explain what a sequence is, order notes into a sequence and combine sound commands. L5: Children will apply the skills in Activity 1 and 2 to design and create their own project, including sequences, sprites with costumes, and multiple backdrops. L6: Children will evaluate their code, identifying which parts can be improved in future projects.
<b>Vocabulary</b>	Scratch, sprites, backdrops, blocks, commands, actions, costumes.	Attributes, motion blocks
<b>Experiences</b>		
<b>SMSC</b>	Preparation for adulthood, exploring career options.	
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	





# Cherry Tree Academy Medium Term Computing

LKS2	Spring 1	
	Photo editing	
	Year 3	Year 4
	L1: How can I change digital images L2: How can I recolour images? L3: Can I improve an edit by cloning? L4: How can I experiment with tools? L5: Can I describe and create my own image? L6: How can I use feedback to guide making changes?	
<b>Key Concepts to assess</b>	L1: Children will explore and discuss image composition, rotating and cropping an image to edit it. L2: Children will experiment with different colour effects and explain why they chose the effects. L3: Children can add to the composition of an image by cloning and identify how a photo edit can be improved. L4: Children can experiment with tools to select and copy part of an image, they can use a range of tools to copy between images, and can explain why photos might be edited. L5: Children will describe the image they want to create and choose suitable images for their project. L6: Children can combine text and their image to complete the project. They can use feedback to guide making changes.	L1: Children will confidently use photo editing software and can explain why they might edit an image. L2: Children will be able to explain how different colour effects make you think and feel different things. L3: Children can remove parts of an image using cloning and can explain why they have chosen to use specific edits. L4: Children can explain why they have chosen to use the tools they have and discuss with peers the benefits and challenges of photo editing. L5: Children will create a project that is a combination of other images. L6: Children can independently review images against a given criteria.
<b>Vocabulary</b>	Digital image, rotate, crop, colour effects, select, copy, tools	Composition, cloning, combine, criteria
<b>Experiences</b>		
<b>SMSC</b>	Preparation for adulthood, exploring career options, online safety	
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	



# Cherry Tree Academy Medium Term Computing

LKS2	Spring 2	
	Audio production	
	Year 3	Year 4
	L1: How do I record sound? L2: How do I edit audio L3: How can I plan a podcast? L4: How can I create a podcast? L5: Does combining audio improve the sound? L6: What are the strengths and weaknesses of my podcast?	
<b>Key Concepts to assess</b>	L1: Children will identify the input and output devices used to play and record sound and use a computer to record audio. L2: Children will record and re-record their voices to improve their recordings. They will identify the features of a podcast. L3: Children will import and align sound effects to create layers in their recordings. They will plan appropriate content for a podcast. L4: Children will review their voice tracks for their podcasts. They will review their recordings and re-record where necessary. L5: Children will arrange multiple sounds to create the effect they want. L6: Children will listen to a recording to identify its strengths. They will choose appropriate edits to improve their podcast.	L1: Children will discuss the copyright issues around recording sound and will know that the person who records the sound can say who is allowed to use it. L2: Children will inspect the soundwave view to know where to trim their recording and will explain why they have done so. They will identify which sounds can be added to a podcast. L3: Children will be able to save their project so it remains editable. They will explain how sounds can be combined to make a podcast more engaging. L4: Children will edit, trim and align their voice recordings. They will explain why they have chosen to re-record where necessary. L5: Children will be able to explain the difference between saving a project and exporting an audio file. L6: Children will identify strengths and areas of weakness within their podcast and edit accordingly. They will explain why they have made the edits they have.
<b>Vocabulary</b>	Microphone, speaker, headphone, podcast, audio, soundwave, sound effects, layers, background music.	Audacity, ownership, copyright, trim, align.
<b>Experiences</b>		
<b>SMSC</b>	Preparation for adulthood, exploring career options.	
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	



# Cherry Tree Academy Medium Term Computing

LKS2	Summer 1	
	Branching databases	
	Year 3	Year 4
	L1: Can I create questions with yes/no answers? L2: How can I make groups? L3: Can I create a branching database? L4: How can I structure a branching database? L5: Can I plan a branching database? L6: How should I make a dinosaur identifier?	
<b>Key Concepts to assess</b>	L1: Children will investigate and create questions with a yes/no answer. L2: Children will arrange objects into a tree structure and select an attribute to separate objects into groups. L3: Children will select objects to arrange in a branching database, group objects using their own yes/no questions and will test their branching database to see if it works. L4: Children will create yes/no questions using given attributes and compare two branching database structures. L5: Children will independently plan a branching database by creating a physical representation. They will arrange the questions and objects into a tree structure. L6: Children will create a branching database that reflects their plan and work with a partner to test their identification tool.	L1: Children will create two groups of objects, separated by one attribute. L2: Children will create a group of objects within an existing group. L3: Children will evaluate their branching database to see if it works and make appropriate changes where relevant. L4: Children will explain that questions needed to be ordered carefully to split objects into similarly sized groups. L5: Children will separate a group of objects effectively by thinking of the attributes of objects. They will evaluate their planned tree structure and make any improvements before testing the structure. L6: Children will create a branching database that reflect their plan and can give accurate feedback to a partner whilst testing. They will suggest real-world uses for branching databases.
<b>Vocabulary</b>	Questions, investigate, groups, branching database, compare	Attributes, tree structure
<b>Experiences</b>		
<b>SMSC</b>	Preparation for adulthood, exploring career options.	
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	



## Cherry Tree Academy Medium Term Computing

LKS2	Summer 2	
	Programming B: repetition in games	
	Year 3	Year 4
	L1: How can I use loops to create shapes? L2: How I use different loops? L3: Can I animate my name? L4: Can I modify a game? L5: Can I design a game? L6: Can I create a game?	
<b>Key Concepts to assess</b>	L1: Children will list an everyday task as a set of instructions including repetition and can predict the outcome of a snippet code. L2: Children will modify loops to produce a given outcome and choose when to use a count-controlled and infinite loop. L3: Children will choose which action will be repeated for each object and explain what the outcome of the repeated action should be. L4: Children will identify which parts of a loop can be changed and explain the effect of their changes. L5: Children will develop their own design selecting key parts of an existing project to use and explaining what their project will do. L6: Children will build a program that follows their design. With a partner they will be able to evaluate the steps they followed whilst building the project.	L1: Children will modify a snippet code to create a given outcome. L2: Children will recognise that some programming languages enable more than one process to be run at once. L3: Children will evaluate the effectiveness of the repeated sequences used in their program. L4: Children will be skilled enough to know when to re-use existing code snippets on new sprites. L5: Children will evaluate their use of repetition in a project and can explain why they have selected the key parts for use in their own project. L6: Children will refine the algorithm in their design. They will independently evaluate the steps they followed whilst building their project.
<b>Vocabulary</b>	Repetition, loops, instructions, snippet code, repeated action, algorithm, program	Programming languages, count-controlled loops, infinite, re-use
<b>Experiences</b>		
<b>SMSC</b>	Preparation for adulthood, exploring career options.	
<b>British Values</b>	Mutual respect, rule of law	
<b>School Values</b>	Honest, resilient, healthy	



Autumn 1		
UKS2	Computer Systems and Networks	
	Year 5	Year 6
	<p>L1: How can computers be connected together?</p> <p>L2: What is the role of computers in our lives?</p> <p>L3: What is a search engine and how do we use it?</p> <p>L4: How do search engines select what to show us?</p> <p>L5: What is the ranking of results?</p> <p>L6: Why is the ranking of results important, and how does it affect different people?</p>	<p>L1: How can computers be connected, and what are the benefits and challenges of different connection methods?</p> <p>L2: What is the role of computers in our lives, and how has this role evolved over time?</p> <p>L3: What is a search engine, how do we use it effectively, and what are some advanced search techniques?</p> <p>L4: How do search engines select what to show us, and what algorithms influence these selections?</p> <p>L5: What is the ranking of results, and what factors contribute to the ranking?</p> <p>L6: Why is the ranking of results important, how does it affect different people, and what are the implications of biased or manipulated rankings?</p>
Key Concepts to assess	<p>L1: Children will know that systems are built using a number of parts that communicate with each other.</p> <p>L2: Children will know the tasks managed by computer systems and how to keep personal information safe online.</p> <p>L3: Children will know how to use web searches to find specific information.</p> <p>L4: Children will know how to recognise the role of web crawlers in creating an index.</p> <p>L5: Children will explain that a search engine follows rules to rank results.</p> <p>L6: Children will describe some of the ways that search results can be influenced</p>	<p>L1: Children will understand how systems are built using multiple parts that communicate with each other, including the benefits and challenges of different connection methods.</p> <p>L2: Children will understand the tasks managed by computer systems, how to keep personal information safe online, and the evolving role of computers in our lives.</p> <p>L3: Children will demonstrate how to use web searches to find specific information and employ advanced search techniques.</p> <p>L4: Children will explain the role of web crawlers in creating an index and how algorithms influence search results.</p> <p>L5: Children will understand that a search engine follows rules to rank results and identify the factors that contribute to this ranking.</p> <p>L6: Children will describe ways search results can be influenced and understand the implications of biased or manipulated rankings on different people.</p>



## Cherry Tree Academy Medium Term Computing

Vocabulary	Searchers, search term, links , location, Search engines, crawlers Webpage creators, terms, text, images	Searchers, search term, links , location, Search engines, crawlers Webpage creators, terms, text, images, https, reliable, source, algorithm. System, perform, components, input, output
Experiences	Plan safer internet day assembly	
SMSC	Social- have computers and access to a wealth of information had any negative consequences?	
British Values	Rule of Law- how are we protected online?	
School Values	Considerate- when posting on line be considerate of others feelings.	



Autumn 2		
UKS2	Programming: Selection in physical computing	
	Year 5	Year 6
	<p>L1: Children will understand how to control a simple circuit connected to a computer.</p> <p>L2: Children will learn about count-controlled loops and their application in programming.</p> <p>L3: Children will explore how to control a loop based on specific conditions being met.</p> <p>L4: Children will investigate the concept of continuously checking whether a condition has been met using loops.</p> <p>L5: Children will learn about selection and how it can be practically implemented in programming.</p> <p>L6: Children will explore how to control a physical computing project through programming.</p>	<p>L1: Children will understand advanced methods to control circuits connected to computers, considering various connection methods.</p> <p>L2: Children will explore count-controlled loops and their practical applications in programming, including iterative processes.</p> <p>L3: Children will master conditional loops and understand how to manipulate loops based on specific conditions.</p> <p>L4: Children will investigate continuous checking of conditions in loops, understanding efficiency and practical implications.</p> <p>L5: Children will delve into the concept of selection and its implementation in programming, including conditional statements.</p> <p>L6: Children will demonstrate proficiency in programming for physical computing projects, applying learned skills to control devices effectively.</p>
Key Concepts to assess	<p>L1: Children will create a simple circuit and connect it to a microcontroller.</p> <p>L2: Children will use a count-controlled loop to regulate outputs.</p> <p>L3: Children will design and implement a true or false conditional loop.</p> <p>L4: Children will explain how a condition being met triggers an action.</p> <p>L5: Children will identify a real-world scenario where a condition triggers an action and describe the function of their project.</p> <p>L6: Children will develop an algorithm detailing the operation of their model.</p>	<p>L1: Children will create a simple circuit, connect it to a microcontroller, and explain what an infinite loop does.</p> <p>L2: Children will use a count-controlled loop to control outputs and design sequences that utilize count-controlled loops.</p> <p>L3: Children will design a true or false conditional loop and program a microcontroller to respond to an input.</p> <p>L4: Children will be able to explain that a condition being met can initiate an action and use selection (an 'if...then...' statement) to direct the flow of a program.</p> <p>L5: Children will identify a real-world example of a condition initiating an action, describe what their project will do, and create a detailed drawing of their project.</p> <p>L6: Children will write an algorithm that describes what their model will do and can test and debug their project.</p>



## Cherry Tree Academy Medium Term Computing

Vocabulary	Repetition, shapes, loops, code, snippet, count controlled loop, patterns, predict, simple circuit microcontroller, infinite loop, LED, switch, Crumble motor, components, connect, output, input conditional loop, Crumble controller,	Repetition, shapes, loops, accuracy, logo text-based, code, snippet, count controlled loop, patterns, predict, simple circuit microcontroller, infinite loop, LED, switch, Crumble motor, components, connect, output, input conditional loop, Crumble controller, debugging, Circuit, infinite, repetition, conditions, represent
Experiences	Share programmed projects with KS1	
SMSC	Cultural- how much do computers influence our everyday lives?	
British Values	Democracy- could we create a program for voting or would this lead to inaccurate outcomes	
School Values	Healthy- how can we maintain our health by limiting access to computers?	





Spring 1		
UKS2	Creating Media	
	Year 5	Year 6
	L1: How can we use different drawing tools to achieve various outcomes? L2: What's a vector drawing and how do I create one? L3: How can I achieve my desired artistic effects? L4: Can drawings include layers for added complexity? L5: How does grouping elements make the design process more manageable? L6: What are the differences between vector and traditional (raster) drawing techniques?	L1: How can we use advanced drawing tools to achieve specific artistic outcomes? L2: What's a vector drawing, and how does it differ from raster-based drawing methods? L3: How can I manipulate vectors to achieve intricate artistic effects? L4: Can complex drawings benefit from layering techniques, and how do they enhance the final product? L5: How does strategic grouping of elements streamline the design workflow in digital art? L6: What are the unique advantages and limitations of vector graphics compared to traditional drawing methods?
Key Concepts to assess	L1: Children will learn that vector drawings are created using shapes and will experiment with the shape and line tools. L2: Children will explain that each element added to a vector drawing is an object. L3: Children will use the zoom tool to help them add detail to drawings and explain how alignment grids and resize handles can improve consistency. L4: Children will identify that each added object creates a new layer in the drawing. L5: Children will recognise when they need to group and ungroup objects. L6: Children will create a vector drawing for a specific purpose. 3.5	L1: Children will know that vector drawings are made using shapes, will experiment with the shape and line tools, and explain how these differ from traditional drawings. L2: Children will explain that each element added to a vector drawing is an object and will be able to move, resize, and rotate objects. L3: Children will use the zoom tool to help them add detail to drawings and explain how alignment grids and resize handles can be used to improve consistency. L4: Children will know how to identify that each added object creates a new layer in the drawing and change the order of layers in a vector drawing. L5: Children will recognise when they need to group and ungroup objects and will reuse a group of objects to further develop their vector drawing. L6: Children will create a vector drawing for a specific purpose and reflect on the skills used and why they used them.
Vocabulary	Examine, variety, manipulate. Dimensions, ungrouping composition digital image rotate crop colour effects cloning select and copy tools combine, vector	Examine, variety, manipulate. Dimensions, ungrouping composition digital image rotate crop colour effects cloning select and copy tools combine drawing tools vectordrawings move resize rotate duplicate zoom tool alignment grids modify layer grouping ungrouping



## Cherry Tree Academy Medium Term Computing

Experiences	Produce a vector drawing to create a poster to advertise Sports tournament for PE.
SMSC	Cultural- will digital art replace painted art?
British Values	Individual liberty- can we express ourselves with digital art in the same way as painted art?.
School Values	Resilience- to persevere when faced with challenges.



Spring 2		
UKS2	Programming: Sensing	
	Year 5	Year 6
	L1: How can we create a program to run on a controllable device? L2: What is a selection and how can it control the flow of a program? L3: How can a user update a variable with input? L4: Can a conditional statement compare a variable to a value? L5: Can we use inputs and outputs within a controllable device? L6: How can I develop my program?	L1: How can we design and implement a program to operate on a controllable device effectively? L2: What is a selection and how can it be utilized to control and optimize the flow of a program? L3: How can a user efficiently update a variable using input and ensure its accuracy within the program? L4: Can a conditional statement effectively compare a variable to a specified value and execute the appropriate action? L5: How can inputs and outputs be effectively integrated and managed within a controllable device to achieve desired outcomes? L6: How can I systematically develop, refine, and optimize my program to enhance functionality and user experience?
Key Concepts to assess	L1: Children will be able to test their program on an emulator. L2: Children will know how to use a variable in an if-then-else statement to control the flow of a program. L3: Children will use a condition to modify a variable. L4: Children will know how to use an operator (e.g., <, >, =) in an if-then statement. L5: Children will design the algorithm for their project. L6: Children will test their program against the original design.	L1: Children will be able to test their program on an emulator and transfer the program to a controllable device. L2: Children will know how to use a variable in an if-then-else statement to control the flow of a program and determine the flow of a program using selection. L3: Children will use a condition to modify a variable and experiment with different physical inputs. L4: Children will know how to use an operator (e.g., <, >, =) in an if-then statement and explain the importance of the order of conditions in else-if statements. L5: Children will design the algorithm for their project and decide which variables to include in a project. L6: Children will test their program against the original design and use a range of approaches to identify and fix bugs.
Vocabulary	Process, device, micro: bit emulator variable selection condition operand	Process, device, explore, features, flow, micro: bit input process output controllable device emulator variable selection condition operand



## Cherry Tree Academy Medium Term Computing

Experiences	Design a program to share with parents in an open evening
SMSC	Social- present their project to a group of other children.
British Values	Mutual respect- listen and offer constructive feedback to peers on their program.
School Values	Resilience- work methodically to debug a program.



Summer 1		
UKS2	3D modelling	
	Year 5	Year 6
	<p>L1: How can we work in three dimensions on a computer?</p> <p>L2: Can 3D objects be manipulated on screen, and how?</p> <p>L3: What happens when we combine 3D objects on screen?</p> <p>L4: How can I use software to create a 3D model for a purpose?</p> <p>L5: Can I use software to plan a 3D model?</p> <p>L6: How can we turn our design into reality?</p>	<p>L1: How can we work in three dimensions on a computer, and what are the advanced tools available for this?</p> <p>L2: Can 3D objects be manipulated on screen, and how can we utilize advanced techniques to refine their appearance?</p> <p>L3: What are the implications when combining complex 3D objects on screen, and how does this impact design outcomes?</p> <p>L4: How can I use sophisticated software features to create intricate 3D models tailored for specific purposes, and what are the considerations for precision?</p> <p>L5: Can I use advanced software tools to meticulously plan and visualize complex 3D models, and what strategies ensure efficient planning?</p> <p>L6: How can we effectively translate our intricate designs into physical reality using advanced manufacturing techniques and materials?</p>
Key Concepts to assess	<p>L1: Children will understand how to view 3D shapes from different perspectives.</p> <p>L2: Children will be able to resize an object in three dimensions and lift/lower 3D objects.</p> <p>L3: Children will rotate objects in three dimensions and duplicate them when needed.</p> <p>L4: Children will accurately size 3D objects and demonstrate how placeholders can create holes in 3D objects.</p> <p>L5: Children will analyse a 3D model and select objects to incorporate into a 3D model.</p> <p>L6: Children will construct a 3D model based on a design and evaluate how it could be improved.</p>	<p>L1: Children will understand how to view 3D shapes from different perspectives and move 3D shapes relative to each other.</p> <p>L2: Children will be able to resize an object in three dimensions, lift/lower 3D objects, and recolour them.</p> <p>L3: Children will rotate objects in three dimensions, duplicate them when needed, and group them.</p> <p>L4: Children will accurately size 3D objects, demonstrate that placeholders can create holes in 3D objects, and combine several 3D objects.</p> <p>L5: Children will be able to analyse a 3D model, choose objects to use in a 3D model, and combine objects within a design.</p> <p>L6: Children will construct a 3D model based on a design, evaluate how it could be improved, and make these modifications.</p>
Vocabulary	Tinkercad 3D modelling 3 dimensions perspectives resize rotate duplicate place holders construct design model	Tinkercad 3D modelling 3 dimensions perspectives resize rotate duplicate place holders construct design model resize rotate duplicate zoom tool alignment grids modify layer grouping ungrouping



## Cherry Tree Academy Medium Term Computing

Experiences	Present finished to model in parents open evening.
SMSC	Social: work collaboratively to evaluate constructively.
British Values	Individual liberty- respect the different choices each person makes when designing their model.
School Values	Resilience- overcome challenges and aspects of the model that do not go to plan..



Summer 2		
Introduction to Spreadsheets		
UKS2	Year 5	Year 6
	<p>L1: What is a data set and how can we make one?</p> <p>L2: What is formatting and why do we use it?</p> <p>L3: What are formulas and how can they help us?</p> <p>L4: Can we alter a formula's output?</p> <p>L5: Can we use a spreadsheet to help plan an event?</p> <p>L6: How can we present our data to answer a question?</p>	<p>L1: What is a data set, and how can we create and manage one effectively?</p> <p>L2: What is formatting in spreadsheets, and why is it essential for presenting data effectively?</p> <p>L3: How do formulas work in spreadsheets, and how can they be used to perform complex calculations?</p> <p>L4: Can we modify a formula to produce different outcomes based on varying conditions?</p> <p>L5: How can we utilise a spreadsheet to meticulously organise and coordinate tasks for planning an event?</p> <p>L6: What strategies can we use to present data from a spreadsheet to effectively address specific questions or problems?</p>
Key Concepts to assess	<p>L1: Children will be able to collect data and enter it into a spreadsheet.</p> <p>L2: Children will be able to explain what a data item is and choose an appropriate format for cells.</p> <p>L3: Children will explain which data types can be used in calculations and construct formulas within a spreadsheet.</p> <p>L4: Children will know how to calculate data using different operations across a range of cells.</p> <p>L5: Children will be able to use a spreadsheet to answer questions and explain the importance of organizing data.</p> <p>L6: Children will know how to create a chart to illustrate their findings.</p>	<p>L1: Children will be able to collect data, enter it into a spreadsheet, and suggest ways to structure it.</p> <p>L2: Children will be able to explain what a data item is, choose an appropriate format for a cell, and apply it correctly.</p> <p>L3: Children will explain which data types can be used in calculations, construct formulas within a spreadsheet, and identify how changing inputs affects outputs.</p> <p>L4: Children will know how to calculate data using different operations across a range of cells, including duplication over multiple cells.</p> <p>L5: Children will be able to use a spreadsheet to answer questions, explaining why data should be organised and how it can be used to answer questions.</p> <p>L6: Children will know how to produce a chart to answer a question and explain when a table may be more appropriate.</p>
Vocabulary	order sort fields record flat file database grouping sorting values criteria chart formulas cells	order sort fields record flat file database grouping sorting values criteria chart formulas cells spreadsheet format inputs outputs calculations charts results present



## Cherry Tree Academy Medium Term Computing

Experiences	Planning and holding an event.
SMSC	Cultural- how has the use of data bases and spreadsheets influenced our lives?
British Values	Rule of law- discuss how our personal data is ours and the rights around others storing and using this information.
School Values	Inclusive- how can we make sure our event we plan includes everybody?