

**Brief overview**

Students will complete a range of projects that teach them creativity but also thinking logically and how a computer system works. They start off learning about how to be responsible when Online including the threats of being Online and how they can keep themselves safe. This unit aims to get the students to think about how they act Online and the appropriateness of their digital footprint. The second project they learn is what a computer system is and the difference between hardware and software as well as learning how to convert binary and denary. The next two projects aim to develop logic thinking and problem-solving skills through using Kodu game lab and solving programming challenges on Micro:Bits. Students finish the year with a creative project learning about the importance of a visual identity and creating resources for a children’s party.

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Unit title</b>	<p><b>Introduction to the school systems</b></p> <p>CAT Tests</p> <p>NGRT Tests</p>	<p><b>1. My Digital Life</b></p>	<p><b>2. Understanding computers</b></p>	<p><b>3. Computational Thinking through Kodu</b></p>	<p><b>4. Micro: Bit programming</b></p>	<p><b>5. Artwork and imaging</b></p>
<b>Big question/ core concept</b>	<ol style="list-style-type: none"> <li>How do we make sure we use the school system safely?</li> <li>What is a secure password?</li> <li>Why is having a good file structure important?</li> </ol>	<ol style="list-style-type: none"> <li>What is a digital footprint?</li> <li>Why do we need to be cautious when Online?</li> <li>What are the main threats of being Online?</li> <li>What advice can you give when Online?</li> <li>Why do such threats exist?</li> </ol>	<ol style="list-style-type: none"> <li>Why is the CPU so important?</li> <li>What factors can affect the performance of the CPU?</li> <li>What is a computer system?</li> <li>I have seen a laptop that has a dual processor with 2.3 GHz, how fast is this?</li> <li>What is the difference between input and output devices?</li> <li>What is the purpose of an OS?</li> <li>How do we convert a denary number into Binary?</li> </ol>	<ol style="list-style-type: none"> <li>How do programs work?</li> <li>What are the limitations with programming?</li> <li>Abstraction</li> <li>Decomposition</li> </ol>	<ol style="list-style-type: none"> <li>What is a variable?</li> <li>Why is naming a variable appropriately important?</li> <li>What variable would I have in a football game?</li> <li>What sensor would I use on the Micro:Bit to track my footsteps?</li> </ol>	<ol style="list-style-type: none"> <li>What is a visual identity?</li> <li>What does a visual identity include?</li> <li>What is meant by ‘transparency’ when creating a graphic?</li> <li>Why is planning important?</li> </ol>
<b>Knowing</b>	<ul style="list-style-type: none"> <li>The school system</li> <li>Use of passwords</li> <li>File and folder organisation</li> <li>How to use the school apps: <ul style="list-style-type: none"> <li>Office 365</li> <li>WEDUC</li> <li>Educake</li> <li>Bedrock</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Dangers and risks of being Online</li> <li>Prevention methods of such dangers and risks</li> <li>What is a digital footprint?</li> <li>How do we need to act when Online?</li> <li>Tools and techniques within Powerpoint</li> </ul>	<ul style="list-style-type: none"> <li>What is a computer?</li> <li>Input and Output devices</li> <li>What is hardware?</li> <li>The CPU</li> <li>Operating systems</li> <li>Application software</li> <li>Binary and denary</li> </ul>	<ul style="list-style-type: none"> <li>How to effectively construct an algorithm to complete a task.</li> <li>The importance of sequencing to achieve the desired outcome.</li> <li>Algorithms need to be written in a specific order to be effective.</li> </ul>	<ul style="list-style-type: none"> <li>What is a variable?</li> <li>The importance of setting up variables</li> <li>Block programming – using sequencing</li> <li>Block programming – using selection</li> </ul>	<ul style="list-style-type: none"> <li>The purpose and content of proposals</li> <li>Purpose, elements &amp; design of visual identity</li> <li>Concept sketches</li> <li>Tools &amp; Techniques in image editing software to create visual identity</li> <li>Tools &amp; Techniques to create graphic products</li> </ul>
<b>Applying</b>	<ul style="list-style-type: none"> <li>Getting logged on</li> <li>Creating a secure password</li> <li>Creating folders</li> <li>Saving files with suitable names</li> <li>Getting logged on and using the school apps</li> </ul>	<ul style="list-style-type: none"> <li>Identify a range of risks when Online</li> <li>Explain what prevention methods could be taken to minimise the different risks</li> <li>Advice somebody on how to act when Online</li> <li>Define ‘Digital Footprint’</li> <li>Explain the importance of a digital footprint</li> <li>Create an informative Powerpoint</li> </ul>	<ul style="list-style-type: none"> <li>Define a computer system</li> <li>Define the term ‘hardware’</li> <li>Identify input devices</li> <li>Identify output devices</li> <li>Describe the purpose of the CPU</li> <li>Calculate the speed of a CPU</li> <li>Identify the jobs of an Operating system</li> <li>Identify suitable examples of apps for a given task</li> <li>Convert binary and denary</li> </ul>	<p><b>Decomposition.</b></p> <ul style="list-style-type: none"> <li>Break down each line of code and identify and explain the significance of each line and the importance of it. Break down the problem into smaller steps and stages to become less complex.</li> <li>Pupils need to understand that a computer program will carry out the exact and specific tasks it has been designed to do, somewhat opposite of human characteristics.</li> </ul> <p><b>Abstraction.</b></p> <ul style="list-style-type: none"> <li>Identify and explain the most necessary steps in the algorithm, taking out the lines of code and data that will not affect the outcome of the program.</li> </ul>	<ul style="list-style-type: none"> <li>Define the term ‘variable’</li> <li>Solve programming challenges that include the use of variables, sequencing and selection using Micro:Bits</li> </ul>	<ul style="list-style-type: none"> <li>Complete a proposal</li> <li>Create concept sketch ideas for a visual identity</li> <li>Create a visual identity</li> <li>Create a party invitation</li> <li>Create an activity placemat</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>Summer assessment</li> </ul>

**Brief overview**

Students will complete a range of projects that teach them creativity but also thinking logically and develop problem solving. They start off learning how to use the advanced skills in PowerPoint and the purpose of hyperlinks. This unit allows them to be creative as they develop their own adventure story. The second project they learn is how data is represented as a computer including the use of binary and hexadecimal. The next two projects aim to develop logic thinking and problem-solving skills by learning how to think like a computer and then programming their own games using Scratch. Students finish the year with a creative project using a range of software to create resources for their own theme park.

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	<b>1. Adventure story</b>	<b>2. Digital Graphics</b>	<b>3. Advanced computational Thinking</b>	<b>4. Scratch programming</b>	<b>5. Data Representation</b>	<b>6. Theme Park project</b>
Big question/ core concept	<ol style="list-style-type: none"> <li>What is a hyperlink and why do we need them?</li> <li>What is the difference between slide transitions and animations?</li> <li>Why is a master slide used?</li> </ol>	<ol style="list-style-type: none"> <li>Why is colour consideration important?</li> <li>What is a primary colour?</li> <li>What is a secondary colour?</li> <li>Why is it important to consider the composition technique within a graphic?</li> </ol>	<ol style="list-style-type: none"> <li>What is abstraction?</li> <li>What is decomposition?</li> <li>What shape is used to show a decision on a flowchart?</li> <li>What shape is used as a terminator?</li> <li>What is the difference between sequence and selection?</li> </ol>	<ol style="list-style-type: none"> <li>How do algorithms operate in the world around us?</li> <li>Why do games need objectives?</li> <li>How does a computer solve a problem?</li> <li>What is a variable?</li> <li>What is a syntax error?</li> </ol>	<ol style="list-style-type: none"> <li>Units of Storage</li> <li>Binary</li> <li>Denary</li> <li>ASCII</li> <li>Hexadecimal</li> <li>Number bases</li> </ol>	<ol style="list-style-type: none"> <li>What methods could be used to advertise a Theme Park?</li> <li>Why is research important?</li> <li>What software could be used to create a poster?</li> </ol>
Knowing	<ul style="list-style-type: none"> <li>What is a master slide?</li> <li>The different tools that can be used within PowerPoint</li> <li>What hyperlinks are and how to set them up</li> <li>The difference between animations and slide transitions</li> </ul>	<ul style="list-style-type: none"> <li>The purpose of the colour wheel and the importance of considering colours used within a graphic</li> <li>Composition techniques and the importance of considering techniques used within a graphic</li> <li>What is a visual identity?</li> <li>Planning a digital graphic: <ul style="list-style-type: none"> <li>Visualisation diagram</li> </ul> </li> <li>Creating a digital graphic</li> </ul>	<ul style="list-style-type: none"> <li>The use of abstraction and decomposition in real life scenarios</li> <li>Reading flowcharts</li> <li>Flowchart symbols</li> <li>Creating flowcharts</li> </ul>	<ul style="list-style-type: none"> <li>What makes a successful game?</li> <li>What is the purpose of a game objective?</li> <li>Importance of planning</li> <li>What is a variable?</li> <li>The importance of naming variables</li> </ul>	<ul style="list-style-type: none"> <li>How do computers read (0s and 1s)</li> <li>Why do we convert from binary to denary and vice versa.</li> <li>Converting binary and denary numbers to hexadecimal.</li> </ul>	<ul style="list-style-type: none"> <li>How to carry out effective research and the importance of research</li> <li>What makes a successful logo?</li> <li>Advertising methods and the purpose of each one</li> </ul>
Applying	<ul style="list-style-type: none"> <li>Creation of an interactive quiz to understand the use of a master slide and hyperlinks (at least 5 questions to be linked)</li> <li>Create own adventure story using a range of tools including: <ul style="list-style-type: none"> <li>Use of a master slide</li> <li>Adding &amp; formatting text</li> <li>Adding shapes</li> <li>Adding images</li> <li>Use of hyperlinks</li> <li>Slide transitions (no mouse click)</li> <li>Use of sounds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Describe the purpose of the colour wheel</li> <li>Identify the representation of a number of colours</li> <li>Identify the importance of choosing a colour when creating a graphic</li> <li>Identify the different composition techniques</li> <li>Create a visual identity for the product</li> <li>Create a visualisation diagram to plan own digital graphic</li> <li>Create digital graphic using a range of tools and techniques</li> </ul>	<ul style="list-style-type: none"> <li>Able to define 'Abstraction'</li> <li>Applying the use of abstraction to a scenario</li> <li>Able to define 'Decomposition'</li> <li>Applying the use of decomposition to a scenario</li> <li>Create a flowchart on a given scenario using sequencing</li> <li>Create a flowchart on a given scenario using selection (decisions)</li> </ul>	<ul style="list-style-type: none"> <li>Identify the purpose of a game objective</li> <li>Research and explain the strengths, weaknesses and improvements of 3 existing games</li> <li>Identify what makes a successful game</li> <li>Create a game plan</li> <li>Explain what a variable is</li> <li>Create own game</li> <li>Incorporate the use of appropriate variables in own game</li> </ul>	<ul style="list-style-type: none"> <li>Complete tasks set on identifying units of storage, smallest to largest.</li> <li>Demonstrate binary conversion</li> <li>Demonstrate denary conversion</li> <li>Why all data needs to be converted to binary before it can be processed</li> <li>Why hexadecimal numbers are used to represent binary data and how to convert between binary and hexadecimal</li> <li>Bases 2, 10 and 16 numbering systems.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out research on existing theme parks identifying existing rides and ticket prices</li> <li>Propose a new theme park</li> <li>Create a successful logo for own theme park</li> <li>Understand the importance of a poster for advertising purposes</li> <li>Create an effective poster to advertise own theme park</li> <li>Understand the importance of a trailer for advertising purposes</li> <li>Create an effective trailer to advertise own theme park</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>Summer assessment</li> </ul>

**Brief overview**

Students will complete a range of projects that will help develop their creative skills further and build upon programming skills by moving onto text programming. They will start the unit building their own App based on a scenario, this will help develop their understanding of client requirements and how to interpret them as well as developing their creativity skills. They next two units introduces them to fundamentals of programming and some of the theory before then they move onto text-based programming. Students will then complete two creative units – the first introducing them to website design and how to build an effective website before moving onto comic conventions. This unit aims to provide them with some of the basic knowledge and skills in software for any student wishing to move onto studying Creative iMedia. The final project aims to help students develop their self-awareness as they are to identify their strengths, weaknesses, skills and interests which will then progress on them developing a business concept idea and participating in a number of job roles within the media industry. This unit gives the student and insight into the many career pathways Computing offers.

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	<b>1. App Design</b>	<b>2. Programming fundamentals</b>	<b>3. Python Programming</b>	<b>4. Character and comic creation</b>	<b>5. Website design</b>	<b>6. The Media Industry</b>
Big question/ core concept	<ol style="list-style-type: none"> <li>What is an asset?</li> <li>What makes a successful app?</li> <li>What apps do you use and why?</li> <li>What is meant by the term 'event driven programming'?</li> <li>What is a variable?</li> </ol>	<ol style="list-style-type: none"> <li>What the 5 main Data Types?</li> <li>What are the 2 main searching algorithm techniques?</li> <li>How are Logic Gates constructed?</li> <li>What are Trace Tables and why are they used?</li> </ol>	<ol style="list-style-type: none"> <li>Text-based programming.</li> <li>Basic Input / Output</li> <li>Variables and Constants</li> <li>Syntax and Logic Error</li> </ol>	<ol style="list-style-type: none"> <li>What is the difference between physical and non-physical characteristics?</li> <li>What are the features of a comic?</li> <li>How would a comic that is targeted at primary children differ in one that is targeted at adults?</li> </ol>	<ol style="list-style-type: none"> <li>Why do we need to consider the audience and purpose when creating a website?</li> <li>What is a hyperlink and why are they needed?</li> <li>What makes a successful website?</li> <li>What are the features of a website?</li> </ol>	<ol style="list-style-type: none"> <li>When planning a business, what do you need to think about?</li> <li>Identify examples of transferable skills across different businesses</li> <li>Identify examples of job roles within the media industry</li> </ol>
Knowing	<ul style="list-style-type: none"> <li>What are client requirements?</li> <li>What is an asset?</li> <li>Importance of a visual identity?</li> <li>What are menu icons?</li> <li>The purpose of a landing screen</li> <li>The purpose of a main menu</li> <li>Event driven programming</li> </ul>	<ul style="list-style-type: none"> <li>Why different data types are used in programming.</li> <li>Searching algorithm consist of Binary and Linear searches</li> <li>The significance of using Logic Gates to determine the outcome of a Logic Diagram.</li> <li>Trace tables are used to test algorithms</li> </ul>	<ul style="list-style-type: none"> <li>Input and Output</li> <li>What are Arithmetic Operators?</li> <li>What are Comparison Operators?</li> <li>Sequence and Selection</li> <li>Iteration</li> </ul>	<ul style="list-style-type: none"> <li>Characteristics of a character</li> <li>Use of a concept sketch to plan a character</li> <li>Tools and techniques for creating a character</li> <li>Conventions of a comic</li> <li>Planning techniques for a comic: <ul style="list-style-type: none"> <li>Storyboard</li> </ul> </li> <li>Tools and techniques in creating a comic</li> </ul>	<ul style="list-style-type: none"> <li>What makes a successful website?</li> <li>Planning techniques for a website: <ul style="list-style-type: none"> <li>Wireframe</li> <li>Mind map</li> </ul> </li> <li>Tools and techniques for creating a website</li> <li>The purpose of hyperlinks</li> </ul>	<ul style="list-style-type: none"> <li>Different skills and interests within different business concepts</li> <li>The considerations when planning and setting up a business</li> <li>The different job roles within the media industry</li> <li>The main responsibilities of each role in the creation of media products</li> </ul>
Applying	<ul style="list-style-type: none"> <li>Interpret client requirements</li> <li>Prepare and collect assets for use in the app including own visual identity and menu icons</li> <li>Create a landing screen for the app</li> <li>Create a main menu for the app</li> <li>Explain the use of variables and event driven programming</li> <li>Complete app with the use of suitable variables</li> <li>Link the pages on the app</li> </ul>	<ul style="list-style-type: none"> <li>Data Types such as Boolean, Integer, String, Char, Float/Real.</li> <li>Advantages and Disadvantages of using Binary and Linear search.</li> <li>Constructing Logic Gates, Diagrams and Truth Tables.</li> <li>Testing and Tracing algorithms using Trace Tables.</li> </ul>	<ul style="list-style-type: none"> <li>The difference between input and output in programming.</li> <li>The difference between Arithmetic and Comparison operators.</li> <li>The significance of Sequence and Selection in programming.</li> <li>That Iteration is determined by repetition or loops.</li> </ul>	<ul style="list-style-type: none"> <li>Research existing characters and explain their physical and non-physical characteristics</li> <li>Plan own character using a concept sketch</li> <li>Create own character using different tools and techniques</li> <li>Explain the main conventions in a comic</li> <li>Plan own comic using a storyboard</li> <li>Use a range of tools and techniques to create a multipage comic</li> </ul>	<ul style="list-style-type: none"> <li>Research and explain the strengths, weaknesses and improvements of 3 existing websites</li> <li>Identify what makes a successful website</li> <li>Create a wire frame and mind map to plan own website</li> <li>Create website using a range of tools and techniques</li> <li>Link the pages of the website using hyperlinks</li> </ul>	<ul style="list-style-type: none"> <li>Identify own skills and interests</li> <li>Develop business concept ideas based on own interests and skills</li> <li>Understand the considerations for own business idea</li> <li>Develop final business idea</li> <li>Identify examples of the main responsibilities of each role in the creation of media products</li> <li>Carry out some creative job roles</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>End of topic assessment quiz</li> <li>End of topic practical assessment</li> </ul>	<ul style="list-style-type: none"> <li>Summer assessment</li> </ul>