



Year 8 ICT Medium Term Plan

Autumn Term 1A

Learning Overview (Contents)	This unit offers learners the opportunity to design graphics using vector graphic editing software. By the end of the unit learners will have produced an illustration, a logo, or some icons using vector graphics. The lessons are tailored to Inkscape (inkscape.org), which is open source and cross-platform, but the resources should be readily adaptable to any vector graphics editor. • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability
Assessment Opportunities	Half term project
Textbooks Published Lesson Resources	https://teachcomputing.org/
Home Learning Resources	Computing, secondary, Year 8 - Lesson listing Oak National Academy
Knowledge organisers	Knowledge Organizer Vector Graphics Y8.pdf

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	Welcome Back and Introduction	• Gain understanding about the ICT subject expectations and prospects • Learn about the ICT lab rules and regulations

2	Get into shapes	• Use tools to draw and modify shapes • Change the position and rotation shapes • Explain how z-order determines what is visible
3	Working with multiple objects	• Use tools to align and distribute objects to create uniformity • Explain how grouping can be used to work with several objects at once • Combine two shapes using union, intersection, and difference
4	Paths	• Explain that vector graphics are made up of paths • Create and modify straight and curved paths • Change shapes to paths and edit them
5	What will you make?	• Choose a project and plan a design • Combine tools and techniques to create a vector image • Evaluate the project against its given purpose
6	Behind the scenes	• Explain how markup defines what a vector graphic looks like • Change an object by modifying its markup • Plan improvements and implement them to develop a project
7	Showcase	• Explain key differences between vector and bitmap images • Outline which image type best suits which uses • Evaluate their image against a rubric



Year 8 ICT Medium Term Plan

Autumn Term 1B

Learning Overview (Contents)	This unit aims to provide a concise overview of how computing systems operate, conveying the essentials and abstracting away the technical details that might confuse or put off learners. The last lessons cover two interesting contemporary topics: artificial intelligence and open-source software • understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming • understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems • understand how instructions are stored and executed within a computer system
Assessment Opportunities	End of term project
Textbooks Published Lesson Resources	https://teachcomputing.org/
Home Learning Resources	Computing, secondary, Year 8 - Lesson listing Oak National Academy
Knowledge organisers	Knowledge Organizer Layers Computing Systems Y8.pdf

Week Number	Learning Overview / objective	What should pupils know, understand and be able to do by the end of the week?
1	Get in gear	• Recall that a general-purpose computing system is a device for executing programs • Recall that a program is a sequence of instructions that specify operations that are to be performed on data • Explain the difference between a general-purpose computing system and a purpose-built device

2	Under the hood	- Describe the function of the hardware components used in computing systems - Describe how the hardware components used in computing systems work together to execute programs - Recall that all computing systems, regardless of form, have a similar structure ('architecture')
3	Orchestra conductor	- Analyse how the hardware components used in computing systems work together to execute programs - Define what an operating system is, and recall its role in controlling program execution
4	Its only logical	- Describe the NOT, AND, and OR logical operators, and how they are used to form logical expressions - Use logic gates to construct logic circuits, and associate these with logical operators and expressions - Describe how hardware is built out of increasingly complex logic circuits - Recall that, since hardware is built out of logic circuits, data and instructions alike need to be represented using binary digits
5	Thinking machines	- Provide broad definitions of 'artificial intelligence' and 'machine learning' - Identify examples of artificial intelligence and machine learning in the real world - Describe the steps involved in training machines to perform tasks (gathering data, training, testing) - Describe how machine learning differs from traditional programming Associate the use of artificial intelligence with moral dilemmas
6	Sharing	Explain the implications of sharing program code
7	End of semester Assessment	Test the students' knowledge of what have been covered



Year 8 ICT Medium Term Plan

Spring Term 2A

Learning Overview (Contents)	learners will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, learners will investigate how websites are catalogued and organised for effective retrieval using search engines. By the end of the unit, learners will have a functioning website ● Create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability.
Assessment Opportunities	Half term project
Textbooks Published Lesson Resources	https://teachcomputing.org/
Home Learning Resources	Computing, secondary, Year 8 - Lesson listing Oak National Academy
Knowledge organisers	Knowledge Organizer Web Development Y8.pdf

Week Number	Learning Overview / objective	What should pupils know, understand and be able to do by the end of the week?
1	Website building blocks	● Describe what HTML is ● Use HTML to structure static web pages Modify HTML tags using inline styling to improve the appearance of web pages
2	Words are not enough	● Display images within a web page ● Apply HTML tags to construct a web page structure from a provided design
3	Taking shortcuts	● Describe what CSS is

		• Use CSS to style static web pages • Assess the benefits of using CSS to style pages instead of in-line formatting
4	Navigating the web	• Implement navigation to complete a functioning website
5	Navigating the web	• Implement navigation to complete a functioning website
6	End of term assessment preparation	• Prepare for the summative assessment
7	End of term assessment	• Complete a summative assessment



Year 8 ICT Medium Term Plan

Spring Term 2B

Learning Overview (Contents)	This unit conveys essential knowledge relating to binary representations. The activities gradually introduce learners to binary digits and how they can be used to represent text and numbers. The concepts are linked to practical applications and problems that the learners are familiar with. Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits
Assessment Opportunities	End of term assessment
Textbooks Published Lesson Resources	https://teachcomputing.org/
Home Learning Resources	Computing, secondary, Year 8 - Lesson listing Oak National Academy
Knowledge organisers	Knowledge Organizer Representations_Y8.pdf

Week Number	Learning Overview / objective	What should pupils know, understand and be able to do by the end of the week?
1	Across time and space	- List examples of representations - Recall that representations are used to store, communicate, and process information Provide examples of how different representations are appropriate for different tasks
2	Lights and drums	- Recall that characters can be represented as sequences of symbols and list examples of character coding schemes - Measure the length of a representation as the number of symbols that it contains

		• Provide examples of how symbols are carried on physical media •
3	Binary digits	• Explain what binary digits (bits) are, in terms of familiar symbols such as digits or letters • Measure the size or length of a sequence of bits as the number of binary digits that it contains
4	Numbers in binary	• Describe how natural numbers are represented as sequences of binary digits Convert a decimal number to binary and vice versa
5	Large quantities	• Convert between different units and multiples of representation size Provide examples of the different ways that binary digits are physically represented in digital devices
6	Turing's mug	• Apply the skills covered in this unit
7	Turing's mug	• Take the end of semester assessment



Year 8 ICT Medium Term Plan

Summer Term

Learning Overview (Contents)

Mobile App

students will learn about mobile app development, including how safety considerations can be implemented to aid the user's engagement. Students will begin by reviewing the project and identifying the user needs, they'll delve into the principles of user-centred design. Consideration will be given to the available hardware commonly found within smartphones; students will explore how these can be linked with safety considerations to protect the user. Finally, students will learn to create their own mobile apps using App Lab. With a focus on user-centred design, they'll code and debug their apps together, fostering teamwork and problem-solving skills. Students will evaluate their projects against user needs, emerging as proficient app creators ready to tackle real-world challenges

- Design, use, and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables, or arrays]; design and develop modular programs that use procedures or functions
- Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns

Introduction to Python programming

This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration. Emphasis is placed on tackling common misconceptions and elucidating the mechanics of program execution.

- use two or more programming languages, at least one of which is textual, to solve a variety of computational problems
- understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem

	- understand how instructions are stored and executed within a computer system - design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
Assessment Opportunities	End of term assessment Half term project
Textbooks Published Lesson Resources	https://teachcomputing.org/

Home Learning Resources	Computing, secondary, Year 8 - Lesson listing Oak National Academy Computing, secondary, Year 8 - Lesson listing Oak National Academy
Knowledge organisers	Knowledge Organizer Mobile App Development Y8.pdf Knowledge Organizer Intro Python Y8.pdf

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	Designing a Mobile App (Health and Fitness Tracker)	- Understand the objectives and requirements of the Health and Fitness Tracker app. - Recognise the importance of user-centred design principles. - Be able to brainstorm and design your own version of the app, considering key features and user interface design.
2	Introduction to online safety	- Understand key online safety concepts and their importance in app development. - Identify specific online safety measures applicable to mobile apps. - Identify online safety best practices and potential pitfalls.
3	App development	- Understand the app development process and tools used in mobile app development. - Be able to start building the core features of your Health and Fitness Tracker app.

		• Collaborate with peers to share ideas, solve problems, and provide feedback on app development progress.
4	App development	• Continue developing your Health and Fitness Tracker apps. • Collaborate with peers to troubleshoot problems, test app functionality, and provide feedback on each other's app development progress.
5	Python: Step by step	• Describe what algorithms and programs are and how they differ • Recall that a program written in a programming language needs to be translated in order to be executed by a machine • Write simple Python programs that display messages, assign values to variables, and receive keyboard input • Locate and correct common syntax errors
6	At a crossroads	• Use relational operators to form logical expressions • Use binary selection (if, else statements) to control the flow of program execution • Generate and use random integers
7	Round and round	• Use iteration (while loops) to control the flow of program execution • Use variables as counters in iterative programs
8	Putting it all together	• Take the end of term assessment