IDSALL SCHOOL
Digital Information Technology Curriculum

Our Vision for Digital Information Technology:

- The Digital Information Technology award is for learners who want to acquire technical knowledge and technical skills through vocational contexts by studying the knowledge, understanding and skills related to data management, data interpretation, data presentation and data protection as part of their Key Stage 4 learning.

- The qualification recognises the value of learning skills, knowledge and vocational attributes to complement GCSEs. The qualification will broaden the learners experience and understanding of the varied progression options available to them.

- Through our curriculum we aim to develop students digital thinking and encourage their creativity, enabling them to decompose complex problems and find efficient solutions.

- We equip students with a deep understanding of computational theory and emerging technologies and provide them with a rich experience in practical programming so that they can bring their ideas to life.

- Our students leave us as digitally literate individuals who are well-prepared to engage with and thrive in, an ever-changing technological world.

- Our curriculum intent is to equip students with the transferable skills required to thrive in our technologically driven world.
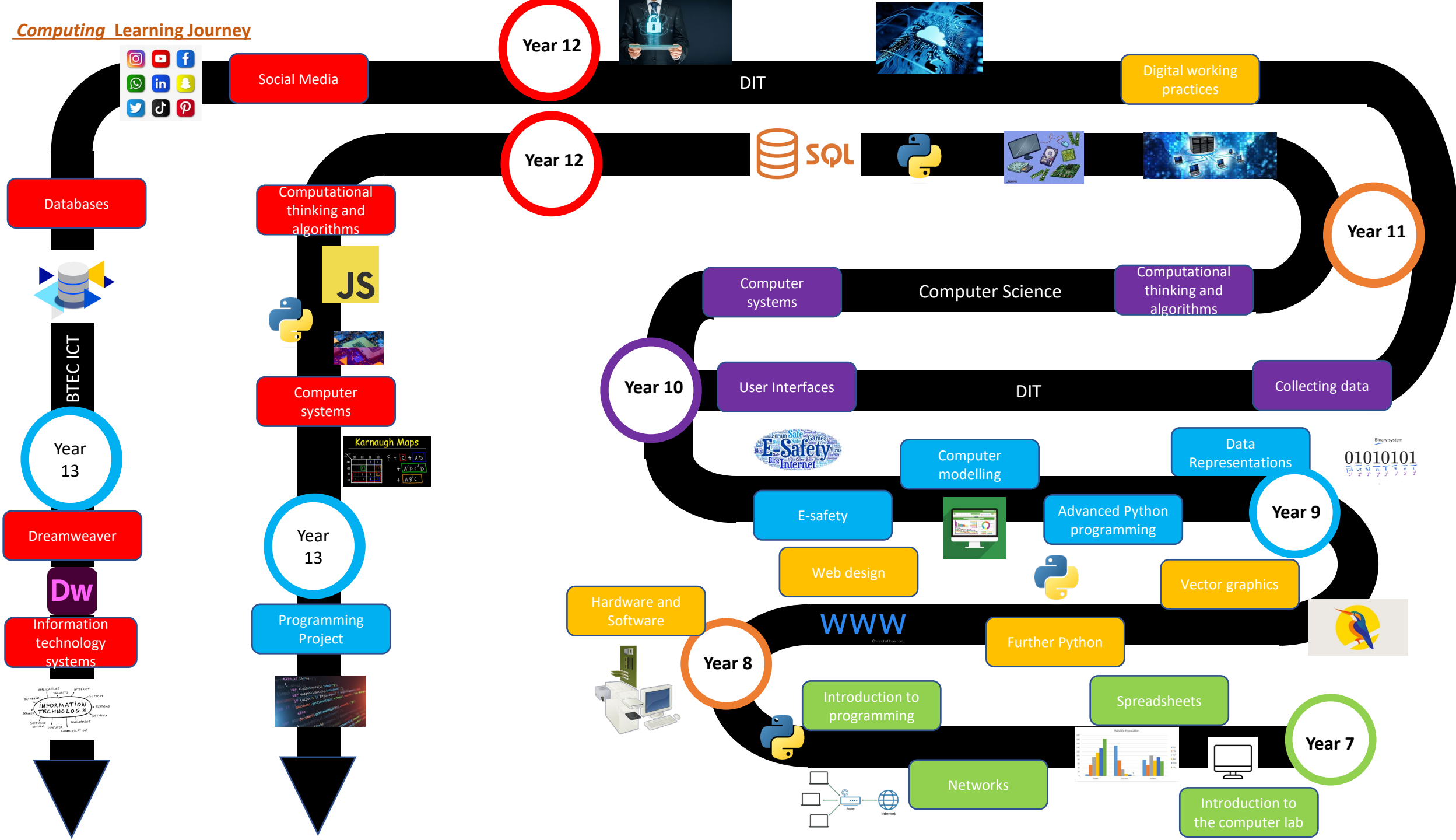
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- The Award gives learners the opportunity to develop sector-specific knowledge and skills in a practical learning environment.

- The main focus is on four areas of equal importance, which cover the:

- development of key skills that prove your aptitude in digital information technology, such as project planning, designing and creating user interfaces, creating dashboards to present and interpret data

- process that underpins effective ways of working in digital information technology, such as project planning, the iterative design process, cyber security, virtual teams, legal and ethical codes of conduct

- attitudes that are considered most important in digital information technology, including personal management and communication

- knowledge that underpins effective use of skills, process and attitudes in the sector such as how different user interfaces meet user needs, how organisations collect and use data to make decisions, virtual workplaces, cyber security and legal and ethical issues.

- This Award complements the learning in GCSE programmes such as GCSE in Computer Science by broadening experience and skills participation in different type of performance activities with the opportunity to practically apply your knowledge and skills, through project work such as developing ideas and performing for specific audiences.

Computing Learning Journey

Year 12

Social Media

DIT

Digital working practices

Year 12

SQL

Databases

Computational thinking and algorithms

JS

Year 11

Computer systems

Computer Science

Computational thinking and algorithms

BTEC ICT

Computer systems

Year 10

User Interfaces

DIT

Collecting data

Year 13

Karnaugh Maps

E-Safety

Computer modelling

Data Representations

01010101

Dreamweaver

Year 13

E-safety

Advanced Python programming

Year 9

Dw

Web design

Information technology systems

Programming Project

Hardware and Software

WWW

Further Python

Vector graphics

Year 8

Introduction to programming

Spreadsheets

Year 7

Networks

Introduction to the computer lab

Digital Information Technology

Assessment

- The assessment of Pearson BTEC International Level 2 qualifications is criterion referenced and the centre is required to assess learners' evidence against published outcomes of learning and assessment criteria. Each unit within the qualification has specified assessment and grading criteria which are to be used for grading purposes. There are three mandatory units. Component 1&2 are assignments, which are marked internally. Component 3 is an external exam.

- A summative unit grade can be awarded at pass, merit or distinction at level 1 and level 2. A distinction* can be achieved if enough UMS are gathered throughout the course.
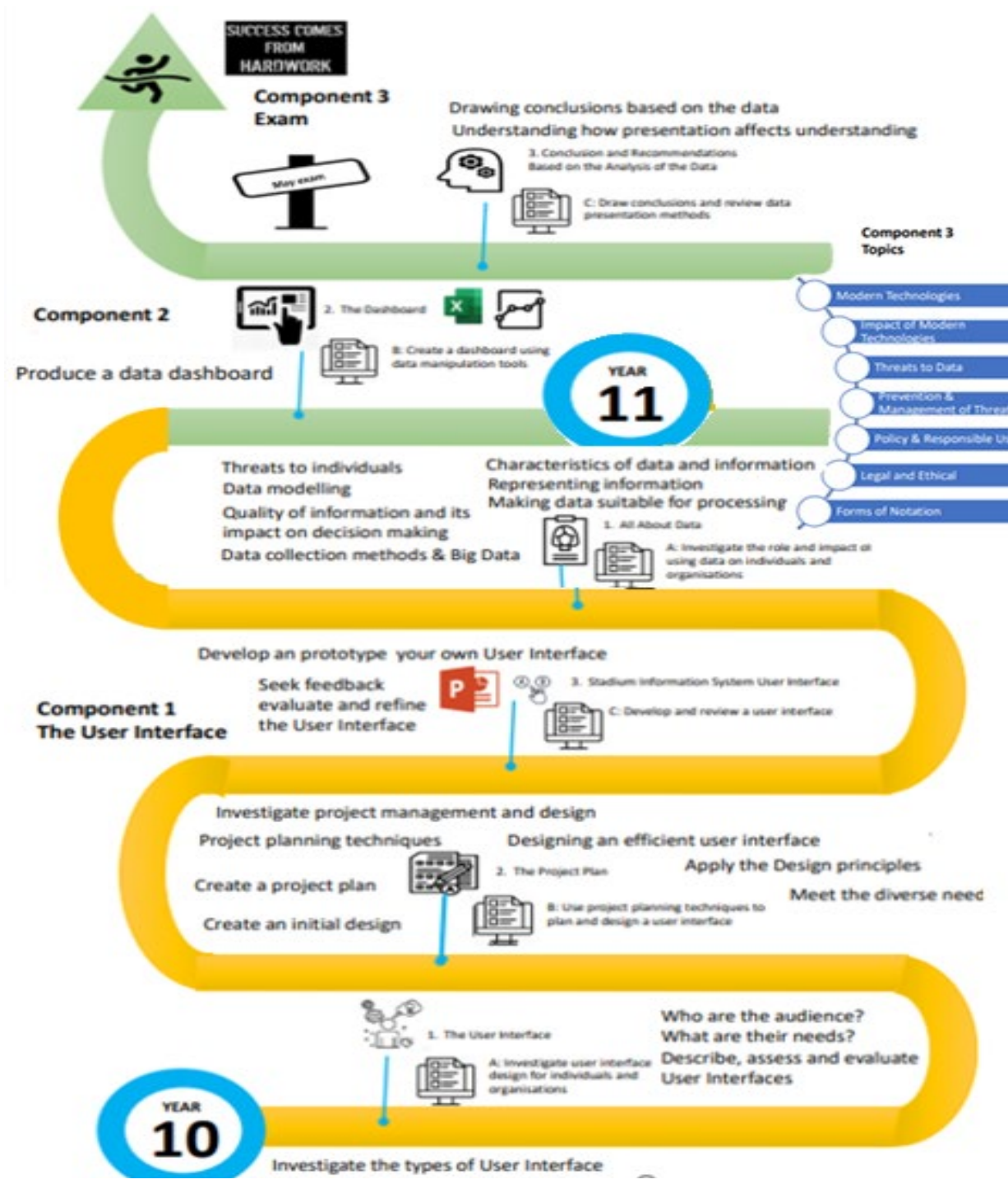
Qualification Grade	L2D*	L2D	L2M	L2P	L1D	L1M	L1P
Maximum UMS = 300	270	240	210	180	150	120	90

Learner Preparation

- As Pearson BTEC International Level 2 qualifications are all internally assessed, it is important that learners are prepared for assessment.

Learners:

- ● must be prepared for and motivated to work consistently and independently to achieve the requirements of the qualification

- ● need to understand how they will be assessed and the importance of timescales and deadlines

- ● need to appreciate fully that all the work submitted for assessment must be their own.

BTEC DIT Learning Journey

SUCCESS COMES FROM HARDWORK

Component 3 Exam

Drawing conclusions based on the data
Understanding how presentation affects understanding

3. Conclusion and Recommendations Based on the Analysis of the Data

C: Draw conclusions and review data presentation methods

Component 3 Topics

- Modern Technologies
- Impact of Modern Technologies
- Threats to Data
- Prevention & Management of Threats
- Policy & Responsible Use
- Legal and Ethical
- Forms of Notation

Component 2

2. The Dashboard

B: Create a dashboard using data manipulation tools

Produce a data dashboard

YEAR 11

Threats to individuals
Data modelling
Quality of information and its impact on decision making
Data collection methods & Big Data

Characteristics of data and information
Representing information
Making data suitable for processing

1. All About Data

A: Investigate the role and impact of using data on individuals and organisations

Develop an prototype your own User Interface

Seek feedback evaluate and refine the User Interface

3. Stadium Information System User Interface

C: Develop and review a user interface

Component 1 The User Interface

Investigate project management and design

Project planning techniques

Create a project plan

Create an initial design

2. The Project Plan

B: Use project planning techniques to plan and design a user interface

Designing an efficient user interface

Apply the Design principles

Meet the diverse need

1. The User Interface

A: Investigate user interface design for individuals and organisations

Who are the audience?
What are their needs?
Describe, assess and evaluate User Interfaces

YEAR 10

Investigate the types of User Interface

The Big Picture- Intent:
Year 10 Digital Information Technology has been designed to maximise progression and follows the Pearson L2 Diploma in Information Technology:
https://qualifications.pearson.com/en/qualifications/btec-international-level-2/information-technology.html

The Pearson BTEC International Level 2 Diploma in Information Technology qualification totals 600 Notional Learning Hours (NLH). Learners must achieve three mandatory units and optional units that provide for a combined total value of 60 to achieve the qualification
Topics covered revisit skills introduced in lower years, as well as enable students to deepen their understanding of the core concepts of IT. Students will learn practical skills that can be applied in a variety of ways in industry as well as a personal user of IT.

All students will be able to access the main content of all lessons and all students will be taught to the top with scaffolding, adaptive teaching and stretch and challenge provided where necessary.

Implementation:

Students will complete Component 1 – Exploring user interfaces unit during year 10. This will include the teaching of skills as well as the official PSA. Topics covered include the functions of speech, graphic, text, sensor interfaces, differing audience needs including accessibility, design principles and planning. Students will begin to study the theory for the spreadsheet unit in the summer term of year 10. The theory for this unit includes characteristics of data, data representation, data collection, quality of information and data processing. This will be completed in year 11 and students will sit their PSA for this unit in year 11. Students will then study and be assessed on the external unit in summer of year 11 - there is a requirement that this unit is terminal.

Lessons follow a consistent format beginning with a retrieval practice activity in the form of Revise, Recap, Review. This will normally involve students answering 3 questions from last lesson, followed by 2 questions from previous study and one more challenging question. Each activity will involve students being posed questions interleaved over multiple units delivered throughout the year. Students are encouraged to work independently through the provision of scaffolding where required. Computing lessons often involve the application or practical/technical skills. These will be modelled to students using the I do, we do, you do approach.

Key Summative Assessments:

Mock PSA assessment

Real PSA assessment

Retrieval homework.

Live marking and low stakes quizzing

Autumn Term:

Unit 1 – User interfaces

Spring term:

Unit 1 – User interfaces

Summer Term:

Unit 2 – Spreadsheets

Impact:
Students will have deepened their understanding of common office application software and will have an awareness of the need to design computer systems to be accessible to all. Students will have an understanding of the importance of identifying a target audience and techniques that can be used to retain the attention of the user. The year 10 curriculum will foster students intellectual curiosity around topics delivered and set them up in good stead for applying these skills in real life situations

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y11)
Component 1- User Interfaces	• Students will know how a range of computer devices and be able to suggest a type of device for a particular task • Understand how the type of user and device impacts upon the choice of interface • Students have a knowledge of hardware and software requirements • Explore accessibility needs and how hardware and design can help overcome these obstacles • Know best practice when designed intuitive and attentive interfaces • Be able to produce GANTT charts plotting out a timeline for the development of a project • Understand how different methodologies can be used to manage a project and know the benefits and limitations of each • Apply knowledge in creating initial designs for an interface • Develop a working prototype interface contextualised to the scenario • Review the design and implementation of the interface and identify areas of strength and weakness.	• Use of devices • Types of interface • Hardware and software influences • Audience needs • Design principles • Retaining attention • Efficient interfaces • Planning tools • Methodologies • Project proposals • Design • Development • Review	Under the hood year 8	Unit 2 - spreadsheets Unit 3 - effective working practices L3 BTEC IT (Unit 3)
Component 2 – Collecting, Presenting & Interpreting Data	• Students know the characteristics of data and how this differs from information • Know different ways in which information can be used and explain situations where they would be used.	• Data vs information • Representing information		Unit 3 - effective working practices

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y11)
Component 2 – Collecting, Presenting & Interpreting Data	• Students will understand the importance of ensuring data is valid, but validation can't ensure data is correct. Apply validation rules to spreadsheets in Excel. • Students will understand how verification can be used to ensure data is correct • Know the difference between primary and secondary data and the strengths and weaknesses of each • Know how the features of the data sample affect the quality of the data processing • Understand how factors such as sources, accuracy age completeness and volume affect the quality of information • Understand how different sectors make use of data modelling • Understand consequences of data breaches or loss • Understand how data can be imported from external sources • Apply data manipulation methods such as SUM, MAX average functions as well as simple formulae • Sort and filter columns and values • Use decision making functions • Use lookup functions • Use count functions • Use logical operators • Use subtotal functions • Apply cell referencing • Use Macros • Apply Alternative views in excel • Show data summaries for the data set • Choose appropriate presentation methods such as pivot tables, sparklines etc • Use appropriate presentation features such as the correct use of font and graphics etc.	• Validation and verification • Primary vs secondary data • Data collection features • Quality of information • Sectors that use data modelling • Threats to individuals • Data processing methods • Advanced manipulation methods • Data summaries • Presentation methods	Spreadsheets year 7	Learning outcome C Unit 3

The Big Picture- Intent:

Year 11 Digital Information Technology has been designed to maximise progression. Topics covered revisit skills introduced in lower years, as well as enable students to deepen their understanding of the core concepts of IT. Students will learn practical skills that can be applied in a variety of ways in industry as well as a personal user of IT. Students will undertake extended coursework projects to allow them to apply the skills learned in a practical way.

All students will be able to access the main content of all lessons and all students will be taught to the top with scaffolding, adaptive teaching and stretch and challenge provided where necessary.

Implementation:
Students will complete Component 2 – Collecting, presenting and interpreting data. Students will be assessed at the end of each internally assessed unit by undertaking a mock PSA before sitting the real one during the available window. Following assessment of the PSA, students will be given feedback in line with Pearson rules and will be able to make changes as appropriate.

Students will learn the theory for Component 3 – Effective digital working practices before sitting an external exam on the topic in the summer of year 11. The theory in this unit includes impact of modern technologies, cyber security, policies, implications of digital technology, legal and ethical concerns and forms of notation. Students will be regularly tested on their understanding of each topic and have a mock exam before the real exam.

Lessons follow a consistent format beginning with a retrieval practice activity in the form of Revise, Recap, Review. This will normally involve students answering 3 questions from last lesson, followed by 2 questions from previous study and one more challenging question. Each activity will involve students being posed questions interleaved over multiple units delivered throughout the year. Students are encouraged to work independently through the provision of scaffolding where required. Computing lessons often involve the application or practical/technical skills. These will be modelled to students using the I do, we do, you do approach.

Key Summative Assessments:
Mock PSA assessment

Real PSA assessment

Retrieval homework.

Live marking and low stakes quizzing

Unit 3 tests

Unit 3 mock exam

Autumn Term:
Production of Unit 2 part A coursework

Part B preparation

Spring term:
Unit 3 exam preparation

Production of part B coursework

Summer Term:
Unit 3 exam

Impact: Students will have deepened their understanding of common office application software. Students will be able to apply these skills to a practical scenario and produce a coursework piece that meets the needs of the scenario. Students will complete this qualification armed with the transferable skills that they will need to be successful in a variety of careers in the wider world. The year 11 curriculum will foster students intellectual curiosity around topics delivered and set them up in good stead for applying these skills in real life situations

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y12)
Component 2 – Collecting, Presenting & Interpreting Data	• Show data summaries for the data set • Choose appropriate presentation methods such as pivot tables, sparklines etc • Use appropriate presentation features such as the correct use of font and graphics etc. • Present findings and find trends, patterns, anomalies and errors • Make recommendations based upon findings • Students understand how to ensure that presentation methods do not allow information to be misinterpreted, introduce bias or allow inaccurate decisions to be made	• Data summaries • Presentation methods • Presentation features • Drawing conclusions based on findings • How presentation affects understanding	Spreadsheets year 7	L3 BTEC IT (Unit 2)
Component 3 – Effective Digital Working Practices	• Modern technologies Learners should learn about how current and modern technologies are used by and have an impact on organisations and their stakeholders. Learners need to know the ways in which organisations and associated individuals use modern technologies to exchange information, communicate, and complete work related tasks. Learners must be able to apply their knowledge to a range of vocational contexts. • Communication technologies: o setting up ad hoc networks (open WiFi, tethering/personal hotspot) • security issues with open networks • performance issues with ad hoc networks. • Issues affecting network availability (rural vs city locations, developed vs developing countries, available infrastructure, mobile network coverage, blackspots).	• Understand how and why modern technologies are used by organisations and stakeholders to access and manipulate data, and to provide access to systems and tools in order to complete tasks. Learners should understand the implications of these tools and technologies for organisations and stakeholders. • External threats (threats outside the organisation) to digital systems and data security: • unauthorised access/hacking (black hat) • malware (virus, worms, botnet, rootkit, Trojan, ransomware, spyware) • denial of service attacks • phishing (emails, texts, phone calls) • pharming • social engineering • shoulder surfing o 'man-in-the-middle' attacks.	E-Safety (year 7) Networks & Security (year 8)	L3 BTEC IT (Unit 1)

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y12)
Component 3 – Effective Digital Working Practices	• Features and uses of cloud storage: • setting and sharing of access rights • synchronisation of cloud and individual devices • availability (24/7) • scalability (getting more by renting/freeing to save money). Features and uses of cloud computing: • online applications • consistency of version between users (features, file types) • single shared instance of a file • collaboration tools/features. How the selection of platforms and services impacts on the use of cloud technologies: • number and complexity of features • paid for versus free • interface design (layout, accessibility, mobile vs desktop) • available devices. How cloud and 'traditional' systems are used together: • device synchronisation o online/offline working • notifications. Implications for organisations when choosing cloud technologies: • consideration of disaster recovery policies (service provider's, organisation's) • security of data (location, service provider's security procedures and features) • compatibility • maintenance (software updates, downtime, staff expertise) • getting a service/storage up and running quickly • performance considerations (responsiveness to user, complexity of task, available devices and communication technologies).	• Internal threats (threats within the organisation) to digital systems and data security: • unintentional disclosure of data • intentional stealing or leaking of information • users overriding security controls o use of portable storage devices • downloads from internet • visiting untrustworthy websites. Impact of security breach: • data loss • damage to public image • financial loss • reduction in productivity • downtime • legal action Data level protection: • firewall (hardware and software) • software/interface design (obscuring data entry, autocomplete, 'stay logged in') • anti-virus software • device hardening • procedures for backing up and recovering data • encryption of stored data (individual files, drive) • encryption of transmitted data.	Networks (year 8)	L3 BTEC IT (Unit 1)

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y12)
Component 3 – Effective Digital Working Practices	• How modern technologies can be used to manage modern teams: • collaboration tools • communication tools • scheduling and planning tools. How organisations use modern technologies to communicate with stakeholders: • communication platforms (website, social media, email, voice communication) • selection of appropriate communication channels (private/direct message, public status update) for sharing information, data and media. How modern technologies aid inclusivity and accessibility: • interface design (layout, font and colour selection) • accessibility features (screen reader support, alt text, adjustable typeface/font size, text to speech/'listen to this page') • flexibility of work hours and locations. • Positive and negative impacts of modern technologies on organisations in terms of: • required infrastructure (communication technologies, devices, local and web-based platforms) • demand on infrastructure of chosen tools/platforms • Positive and negative impacts of modern technologies on individuals: • flexibility (home/remote working) • working styles (choice of time, device, location) • impact on individual mental wellbeing (depression, loneliness, self-confidence, separation from stressful environment, feel in control of own schedule, schedule adjusted to meet needs of family, less time commuting)	• Finding weaknesses and improving system security: • ethical hacking (white hat, grey hat) • penetration testing • analyse system data/behaviours to identify potential risks. • Defining security parameters: • password policy • acceptable software/installation/usage policy • parameters for device hardening. Disaster recovery policy: • who is responsible for what • dos and don'ts for staff • defining the backup process (what is backed up, scheduling, media) • timeline for data recovery • location alternative provision (hardware, software, personnel). Actions to take after an attack: • investigate (establish severity and nature) • respond (inform/update stakeholders and appropriate authorities) • manage (containment, procedures appropriate to nature and severity) • recover (implement disaster recovery plan, remedial action) • analyse (update policy and procedures).		L3 BTEC IT (Unit 1)

Content	Disciplinary Knowledge (Skills) This is the actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for the topic, which is connected into a careful sequence of learning.	Prior Learning (Y7/8/9)	Future learning (Y12)
Component 3 – Effective Digital Working Practices	• Planning and communication in digital systems Learners should understand how individuals in the digital sector plan solutions and communicate meaning and intention. They should understand how different forms of written and diagrammatical communication can be used to express understanding and demonstrate the flow of data and information. • Understand how organisations use different forms of notation to explain systems, data and information: • data flow diagrams • flowcharts • system diagrams • tables • written information. • Be able to interpret information presented using different forms of notation in a range of contexts. • Be able to present knowledge and understanding using different forms of notations: • data flow diagrams • information flow diagrams • flowcharts.	• Students will learn how the examiners mark the exams using exemplar answers and mark schemes to be able to accurately grade work. They will then use this in their practice exam answers to be able to refine their answers to attract as many marks as possible.	Python (year 9)	L3 BTEC IT (unit 1&6)