# Co-op Academy Leeds Year 9: Computing - Long Term Plan 2023-24

All lessons will follow the Co-op Academy Lesson Journey and include a (retrieval) Do Now, Lesson Intentions, Success Criteria, Explicit Instruction, Quality Time/Practice, Review

| ROLLOVER | | | | | |
|---|---|---|---|---|---|
| Week | 37 | 38 | 39 | 40 | 41 |
| W/C Date | 26-Jun 23 | 03-Jul 23 | 010-Jul 23 | 17-Jul 23 | 24-Jul 23 |
| Specification | Programming (1)<br>Introduction To Python Programming – I | | | | |
| Topic | Program Flow | | | | |
| | | Sequence | Selection | Iteration | Trace Tables |
| Key Objectives | create a pseudocode algorithm for a specific problem | Plan a sequence of instructions for a program in python | Plan selection in set of instructions using Boolean data types and IF, THEN, and ELSE IF statements | Plan iteration in a set of instructions using FOR – NEXT; REPEAT-UNTIL; WHILE-ENDWHILE | Explain dry run testing using trace tables of changing variables |
| | create a pseudocode algorithm for a specific problem | Create a sequence of instructions for a program in python | Create a selection using Boolean data types, expressions and IF and ELSE IF statements | Create iteration in a set of instructions using FOR – NEXT; REPEAT-UNTIL; WHILE-ENDWHILE | Trace instructions using variables, selection and repetition and predict what the result will be |
| | create a pseudocode algorithm for a specific problem | Correctly execute a sequence of instructions for a program in python | Correctly execute a selection using Boolean expressions and IF and ELSE IF statements | Correctly execute iteration in a set of instructions using FOR – NEXT; REPEAT-UNTIL; WHILE-ENDWHILE | Rectify instructions involving variables, selection and repetition and make it more efficient |
| Retrieval / Assessment / DC | | | | mini test | DIRT |

***Department* Computer Science and ICT**

**Retrieval and Assessment Key**

| | |
|---|---|
| | **STAR Assessment / Summative Marking** |
| | **Quizzes / Formative Assessment and Marking** |
| | **Student Voice** |
| | **Live Feedback inc Whole Class Feedback** |
| | **DIRT** |
| | **Data Capture** |

*****The LTP has declarative (theory) and procedural (practice) knowledge and skills embedded to develop learners holistically in Digital Literacy, Computer Science and IT. It is further saturated in a contextual narrative to give learners a real-life relatable computational thinking and problem-solving perspective. *****

**Key Concepts From The National Curriculum For Computing**

1. Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
2. Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
3. Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
4. Are responsible, competent, confident and creative users of information and communication technology.

**Year 9 key knowledge, understanding and skills to be developed:**

- To know, understand and take steps to protect yourself against misinformation, disinformation, grooming, and radicalisation
- To know and understand the purpose of components of the CPU
- To know and understand specific network threats and specific security solutions
- To develop computational thinking across the problem based contextual learning
- To develop competence in the use and application of graphic manipulation tools
- To develop competence in spreadsheets and databases, and their integrated tools
- To develop python programming skills
- To develop critical reflection skills in application of artificial technology

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| Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W/C Date | 04-Sep | 11-Sep | 18-Sep | 25-Sep | 02-Oct | 09-Oct | 16-Oct | 23-Oct | HALF-TERM | 06-Nov | 13-Nov | 20-Nov | 27-Nov | 04-Dec | 11-Dec | 18-Dec | HALF-TERM | HALF-TERM |
| Specification | Digital Literacy | | ICT: Project & Contextual Based Learning | | | | | | | ICT: Project & Contextual Based Learning | | | | | | | | |
| Topic | Keeping Safe Online | | Business Spreadsheets: Ozzy's Car Detailing OR Tammy's Hair and Beauty | | | | | | | Business Spreadsheets: Ozzy's Car Detailing Or Tammy's Hair And Beauty | | | | | | | | |
| | Online MIsinformation and Disinformation (Declarative and procedural) | Online Grooming / Radicalisation (Declarative and procedural | Design A Spreadsheet For A Business | | Create A Spreadsheet For A Business | | | | | | Use Of Data Formatting And Validation Rules | | | Creating A Dashboard | | Assessment | | |
| Key Objectives | define online misinformation and disinformation | define online grooming and radicalisation | analyse requirements to a specified client brief | analyse requirements to a specified client brief | import data from a csv file | import data from a csv file | define a print area in order to present output | define a print area in order to present output | | use data formatting | enter data through use of validation form controls | enter data through use of validation form controls | enter data through use of validation form controls | explain the purpose of dashboard | create a dashboard | summative submission and marking of project | | |
| | explain the difference between online misinformation and disinformation | explain the different types of grooming and radicalisation | identify success criteria | identify success criteria | enhance layout and format of the spreadsheet | enhance layout and format of the spreadsheet | create a navigation menu | create a navigation menu | | use conditional formatting | use validation checks, | use validation checks, | use validation checks, | design the different styles of a dashboard | create a dashboard | summative submission and marking of project | | |
| | assess the different ways you can protect yourself against misinformation and disinformation | assess the impact and identify the different ways you can protect yourself | design a fully functional spreadsheet structure | design a fully functional spreadsheet structure | use form controls to facilitate data entry | use form controls to facilitate data entry | create a navigation menu | create a navigation menu | | use of date/time function | use validation messages | use validation messages | use validation messages | justify the selection of a dashboard | create a dashboard | summative submission and marking of project | | |
| Retrieval / Assessment / DC | | | | mini test | DIRT | | | STAR | DIRT | DC1 | | | | | quiz | DIRT | | |

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| Week | 16 | 17 | 18 | 19 | 20 | | 21 | 26 | 27 | 28 | 29 | 30 | | | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W/C Date | 08-Jan | 15-Jan | 22-Jan | 29-Jan | 05-Feb | HALF-TERM | 19-Feb | 26-Feb | 04-Mar | 011-Mar | 18-Mar | 25-Mar | HALF-TERM | HALF-TERM | 15-Apr |
| Specification | ICT: Project & Contextual Based Learning | | | | | | ICT: Project & Contextual Based Learning | | | | | | | | Computer Systems (1) Hardware |
| Topic | Business Databases: Anika's Ladies Fashion OR Malik's Online CyberGames: | | | | | | Business Databases: Anika's Ladies Fashion OR Malik's Online CyberGames: | | | | | | | | System Architecture |
| | Designing A Business Logo (declarative and procedural) | | Plan and Design A Database (declarative and procedural) | | | | | | Creating and Modifying a Database (procedural) | | | Assessment | | | CPU (declarative) |
| Key Objectives | analyse requirements to a specified client brief | create a business logo | analyse requirements to a specified client brief | analyse requirements to a specified client brief | design a fully loaded database structure | | design a fully loaded database structure | create tables, fields, and primary keys and assign appropriate data types | create tables, fields, and primary keys and assign appropriate data types | import data from a given CSV file and add, edit and delete records | import data from a given CSV file and add, edit and delete records | summative submission and marking of Project | | | explain the purpose of the CPU (FDE Cycle) |
| | identify success criteria | create a business logo | identify success criteria | identify success criteria | give detailed justification for field types used | | give detailed justification for field types used | apply effective validation rules and error messages | apply effective validation rules and error messages | check and test the data is error free. | check and test the data is error free. | summative submission and marking of Project | | | outline the common CPU components and their purpose |
| | identify the different entities within a specified client brief | create a business logo | identify the different entities within a specified client brief | identify the different entities within a specified client brief | justify their choice of validation rules applied to field types | | justify their choice of validation rules applied to field types | link tables using key fields and relationships | link tables using key fields and relationships | check and test the database to ensure it functions correctly | check and test the database to ensure it functions correctly | summative submission and marking of project | | | explain the on Neumann Architecture |
| Retrieval / Assessment / DC | | | | **STAR** | **DIRT** | | **DC2** | | | | **mini test and marking** | **DIRT** | | | |

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| Week | 32 | 33 | 34 | 35 | 36 | | 40 | 41 | 42 | | 43 | 44 | 45 | 46 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W/C Date | 22-Apr | 29-Apr | 6-May | 13-May | 20-May | | 3-Jun | 10-Jun | 17-Jun | | 24-Jun | 1-Jul | 8-Jul | 15-Jul |
| Specification | Computer Systems (1): Hardware | | | | | | Computer Systems (1): Ethical, legal, cultural and environmental impacts of digital technology | | | | | | | |
| Topic | System Architecture | | Memory | | | | Machine Learning: ChatCPT, Amazon Go, Killer Drones and Self-Driving Cars | Smart Cities | Ethical, Legal, Cultural and Environmental Issues | | | | | |
| | CPU Performance (declarative) | Embedded Systems (Declarative) | Primary (declarative) | Secondary (declarative) | Summative Assessment | | | | | | | | | |
| Key Objectives | describe clock speed, cache size and number of cores | state the purpose and characteristics of embedded systems | outline the purpose of RAM, ROM and virtual memory | explain the common types of storage | summative assessment and marking | HALF-TERM | define machine learning | describe unsupervised learning and its role in smart cities | outline the ethical, legal, cultural and environmental issues that arise from artificial intelligence | ROLLOVER | | | | |
| | explain how the characteristics of the CPU affect system performance | explain the function oof an embedded system | explain the characteristics of RAM and ROM | identify the storage devices and storage media for a given application | summative assessment and marking | | explain how machine learning is different to rule-based learning | explain how unsupervised learning can benefit the management of a smart city | explain the ethical, legal, cultural and environmental arguments for and against artificial intelligence | | | | | |
| | advice a client on the characteristics of the CPU and its effect on system performance | compare an embedded system with a non-embedded system | compare RAM and ROM | discuss the advantages and disadvantages of different storage devices and storage media relating to these characteristics | summative assessment and marking | | assess the benefits and limitations of machine learning using real-life examples | assess the impact of unsupervised learning on the future of living in cities | evaluate the ethical, legal, cultural and environmental issues that arise from artificial intelligence | | | | | |
| Retrieval / Assessment / DC | | | mini test | | | | STAR | DIRT | DC3 | | | | | |