UN4E200

PASSPORT TO DIGITAL

UNIT 4: USING DIGITAL TECHNOLOGY

ELEMENT 2: DATA AND CODING

INSPIRING WORCESTERSHIRE

Worcestershire Local Enterprise Partnership

THE CAREERS & ENTERPRISE COMPANY

worcestershire county council

PASSPORT TO DIGITAL

USING DIGITAL TECHNOLOGY

ELEMENT 2: DATA AND CODING

DURATION: 4 SESSIONS

YEAR GROUP: KS3/4 OR 5

STUDENTS WILL:

> Understand what data is and how to create a database
> Understand what coding and programming is
> Write, read and follow instructions accurately
> Practice and develop skills directly related to Digital
> Develop life skills
> Develop employability skills for future employment
> Hold employee encounters virtual and face to face
> Acquire and develop an appropriate vocabulary in writing and spoken language
> Listen to and understand spoken language and use spoken Standard English when appropriate

ADDITIONAL NEEDS:

> Teachers to differentiate according to need

SKILLS USED FROM SKILLS BUILDER:

> Listening
> Speaking
> Aiming High
> Problem Solving
> Teamwork
> Creativity

KEY WORDS:

> Data
> Data entry
> Database
> Coding
> Programming
> Instructions

RESOURCES FOR ALL LESSONS:

> Computer and internet access
> Digital devices
> Spreadsheet software i.e. Excel
> Floor robot (Beebot)
> Paper, pens, coloured pens/pencils
> **UN4E201** - Top Trumps
> **UN4E202** - Database
> **UN4E203** - Database questions
> **UN4E204** - Instructions
> **UN4E205** - Treasure map
> **UN4E206** - Programming
> **UN4E207** - Data entry job description

SESSION 1:
DATA ENTRY

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
1. Ask the students if they know what data is. Students may suggest other terms of data they are familiar with, i.e. phone internet data, numbers. Share the definition: **Data is information that is collected, often in the form of numbers.** **2.** Look at the top trumps resource, explain to the learners that the information on the top trumps cards is a form of data. Each card holds information about each animal. Play top trumps with the students so they can have a go at identifying different types of data. **Extension:** If you have other top trumps cards available, use these in addition to this activity and activity 5. **3.** Ask the students 'How could I gather all of this information together? I want to have all of the information about the animals in one place but when we collect large amounts of data it can take a long time to sort through it.' Encourage the learners to suggest ways they could do this and create a group discussion. Do the students suggest a tables or databases? **4.** Use the database resource to look at what a database looks like and what features are needed. Identify each feature with the learners and why these are important in a database. **5.** In pairs or individually, ask the students to create a database to gather the information from the top trumps cards. Are they able to create the database accurately? Can they complete the data entry correctly?	> Understand what data is > Be able to identify data > Engage in a game of top trumps > Recognise what a database is > Create a database > Complete the data entry > Interpret data from a database	> Computer and internet access > Digital devices > Spreadsheet software i.e. Excel > Pens > **UN4E201** - Top Trumps > **UN4E202** - Database > **UN4E203** - Database questions

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
6. Once the students have created their databases, explain to the students that they will now be able to interpret and understand the data easily, now they have organised it. Use the database questions resource and read out the questions to the students. Can they interpret their data to find out the answers to your questions? **TASK VARIATION:** For comparison, you could ask the database questions to the students when they have the loose top trump cards and repeat once they have the completed database. This will highlight how much easier it was to find the answers once you have created a database.		

SESSION 2:
WHAT IS CODING?

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
1. What is coding? Watch this video to explain to the students what coding is. **2.** In pairs or small groups, use the instructions resource with the learners. One learner will need to be the 'robot' and the others will need to be the 'coders'. Can they read the code accurately and can the 'robot' follow them? Repeat the activity with the students taking turns. Can the students then create their own codes to guide the 'robot' to an end position? **3.** Depending on your setting's resources, explore floor robots with your learners. Can they identify how the directional buttons make the robot move? Allow them to spend time exploring them. **4.** Use the treasure map resource as an example of how you could create a map to code a floor robot to follow. Task the students to create their own treasure map. Once they have created their own map, allow the students to use floor robots to test their codes. **5.** Utilise your setting's IT/Computing resources for coding, they may already subscribe to coding programmes already. If not, below is a free online coding game. Allow the students to have a go at the online coding game, can they input codes correctly? Play Rodocodo - Code Hour **TASK VARIATION:** If students are confident, add more difficult instructions in addition to directional codes.	> Understand what coding is > Follow instructions carefully > Read codes accurately > Explore floor robots and their functions > Create a treasure map > Play online coding games	> Computer and internet access > Digital devices > Floor robots > **UN4E204** - Instructions > **UN4E205** - Treasure map

SESSION 3:
PROGRAMMING

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
1. What is programming? Talk through the definition with the programming resource. Explain the similarities and difference between programming and coding. **2.** After the previous session on coding, the students should be more confident understanding how to write instructions. Utilise your setting's IT/Computing resources for programming, they may already subscribe to programmes already that would be helpful for the learners to have a go at. **3.** Allow the students an opportunity to engage with additional online programming games. Scratch - Imagine, Program, Share (mit.edu) Blockly Games Allow time for the students to use these over a few sessions to encourage them to develop their skills. **TASK VARIATION:** Students can complete the same online programming games or they can choose their own, depending on their confidence, ability and independence.	> Understand what programming is > Input instructions accurately > Play online programming games	> Computer and internet access > Digital devices > **UN4E206** - Programming

SESSION 4:
JOB DESCRIPTION EXPLORATION

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
Allow the students to look over the job description: See if they have met any of the skills through the sessions? Did they find any of the skills easy? Did they find anything difficult? Had they completed some of the tasks before? See if this would be something they would like to do as a job? For those that wish to, you could hold a mock interview asking questions around the skills they have learned related to the Digital sector. Use the Your Future Opportunities job directory to search for relevant job profiles within the sector. You might like to encourage learners to identify and look at: • Different job roles • Qualifications required • Local job vacancies	Skill identification Linking activity to careers and subject learning > Speaking > Listening > Reading	> **UN4E207** - Data entry job description

ACTIVITIES TO SUPPORT LEARNING	LEARNING OUTCOMES	DIFFERENTIATION AND RESOURCES
ADDITIONAL NOTES: You might find these websites useful when teaching about data and coding Working with data - BBC Bitesize What is a computer program? What is a program?		