Computing Medium Term Planning

Term: Spring 1	Year: 1/2	Topic/Unit: 2.4 Questioning

Key Vocabulary

Lesson 1- Pictogram, data, information

Lesson 2- Data, information, sort, avatar, question

Lesson 3- Data, information, sort, question, Binary Tree

Lesson 4- Data, information, sort, question, Binary Tree

Lesson 5- Binary Tree, database, record, field, search

Please upload Computing evidence for each lesson onto Onedrive for Mrs Weston to monitor. (Curriculum > Computing > Computing Evidence.)

Teacher Videos are located for each lesson on Purple Mash to support you with each lesson.

National Curriculum	Week	NC Coverage	Skills taught	Knowledge	Activity Outline
• Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	1 Unit 2.4 Lesson 1 Using and Creating Pictograms	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	• To show that the information provided on pictograms is of limited use beyond answering simple questions.	• Children understand that the information on pictograms cannot be used to answer more complicated questions.	_Preparation:_ Print the following sheet: - My Home – activity Open up the '2Calculate Types of Home' spreadsheet to collate with the class. Set '2Count Types of Homes' as a 2Do for the class. Select the following objective: Year: Y2 Subject: Computing Strand: IT Use technology purposefully to create, organise, store, manipulate and retrieve digital content. ✓

| | | | | | Lesson:
Display and outline the lesson aims and success criteria. Discuss vocabulary that has been used previously and introduce the new vocabulary. (Highlighted in yellow.)

Activity 1: My House
Display slide 13. Give out My Home activity and encourage children to write about what type of home they live in, what it looks like, what it is made from, how many rooms it has and how many people live there.

Collecting the Information
Display slide 14. The icon on the slide will open the file to demonstrate on the board. On the whiteboard, collate some of the information from the children' pictures. You could collate the results in the 2Calculate file Types of Homes spreadsheet on the whiteboard. Save this file as you may need it for subsequent activities. Save this resource once the results are entered.

Pictograms
Display slide 15. Explain how to design and create a simple pictogram using the information collected from the children. You can use the sample 2Count pictogram 'Types of Homes' by clicking on the icon or create one of your own. Click to reveal the points to demonstrate:
• Clicking in the rectangle then selecting an image to represent the answer or using the paint button to draw the picture.
• Clicking on the + or – to record the data. Demonstrate how to do this using 2Count |
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					Information on Pictograms
					Display slide 16. Ask the children to use the pictogram to answer some simple questions whose answer can be ascertained from the pictograms
					• How many people live in semi-detached houses?
					• Do more people live in flats than bungalows?
					• How many houses have four people living in them?
					With the class, look at what information the pictograms cannot provide you with. For instance:
					• How many semi-detached houses have four people living in them?
					• How many people living in bungalows have four or more rooms?
					Activity 2: Creating my Own Pictogram
					Display slide 17. Open the data you saved earlier on the spreadsheet. The children can then create and fill in the data in their own 2Count pictogram. Some children might need to use the sample and just enter data rather than create from scratch. Set this as a 2Do for those children
					Can the children think of any questions of their own that the pictograms cannot answer?
					Review the vocabulary at the end of the lesson. Can the children define the vocabulary used in today's lesson?
	2 Unit 2.4	Use technology purposefully to create, organise, store, manipulate	• To use yes/no questions to	• Children have used a range of yes/no questions to separate different items.	Preparation: Print the Purple Mash Avatar Game for the children. Provide scissors for their activity.

| | Lesson 2

Asking Yes/No Questions | and retrieve digital content. | separate information. | | Lesson:
Display and outline the lesson aims and success criteria. Discuss vocabulary that has been used previously and introduce the new vocabulary. (Highlighted in yellow.)

Sorting Objects
Display Slide 5. Show the children the different shapes on the slide. Show how we can use simple questions with a yes/no answer to separate them e.g.
• Is the shape red?
• Does the shape have 4 sides?

Sorting Characters
Display slide 6. Show the children four characters from the Purple Mash avatars. Choose one. Explain how we can use a range of yes/no questions to separate the avatars so we can select one. Discuss how we can ask questions relating to hair colour, hats, glasses etc.

Activity 1: Which character?
Display slide 7. Hand the children a copy of the Purple Mash Avatar Game. The children cut up the 12 images and then they play a game like Guess Who? Remind the children they can only use questions with a yes/no answer. Clicking the icon will open the file on the board for demonstration.

Activity 2: Extension (Smarter Questions)
Display slide 8. How many YES / NO questions needed to be asked before an answer was reached? |

					Can children improve on this by thinking about and improving the questions that they ask? What type of questions work well? Look at the need to split the pictures into two. Repeat the game and find the fewest number of questions needed to find an answer. Review the vocabulary at the end of the lesson. Can the children define the vocabulary used in today's lesson?
	3 Unit 2.4 Lesson 3 Binary Trees	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	• To construct a binary tree to separate different items.	• Children understand what is meant by a binary tree. • Children have designed a binary tree to sort pictures of children	_Preparation:_ **For this lesson, and following lessons, there are two possible topics for the data: Continuing to use the avatars data or using data about animals. You will need:** • 'yes' and 'no' arrows You will need several copies to construct a paper binary tree on either the floor or the wall (depending on your classroom layout). • Whiteboard/paper. • Large avatars pictures from the last lesson or large animal pictures to demonstrate • Avatar Binary Tree Images. or Animal Binary Tree Images. Print one copy per child/pair. • Binary Tree Outline. These will need to be enlarged to A3 size and printed for each child/pair. Completed examples for these are available at the end of this document. • Glue, scissors and Blu-Tack. Lesson: Display and outline the lesson aims and success criteria. Discuss vocabulary that has been used previously and introduce the new vocabulary. (Highlighted in yellow.)

					How to sort the objects on a Binary Tree: Display slide 5. Explain to the children that the class will be creating a binary tree. Since binary trees are used for identification of unknown items, the questions must be something observable rather than requiring knowledge of the item e.g. 'Does it have legs?' rather than, 'Is it an herbivore?' Splitting into equal halves will result in the fewest (average) number of steps to the solution for all the items. Write the question onto paper/whiteboard and then put 'yes'/'no' arrows on the floor or Blu-Tack them to the board. It is advisable to enlarge the arrows onto A3 paper. Use the large pictures of either the avatars or animals. Repeat until all the items are sorted individually. Select one item and check that the binary tree works and leads to the correct item. Activity 1: Creating your own Binary Tree Display slide 6. The children should complete their own binary tree using the avatars or animals and the outline sheet Activity 2: Extension (Binary Tree) Display slide 7. Recap the learning from Activity 1. What went well and what could be improved? Use the other set of images to create another binary tree. Review the vocabulary at the end of the lesson. Can the children define the vocabulary used in today's lesson?
	4 Unit 2.4 Lesson 4	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	• Use 2Question (a binary tree) to answer questions.	• Children understand that questions are limited to 'yes' and 'no' in a binary tree.	Preparation: For this lesson, and following lessons, there are two possible topics for the data: Continuing to use the avatars data or using data about animals. You will need:

		Using 2-Question – A Computer-Based Binary Tree Program			• Children understand that the user cannot use 2Question to find out answers to more complicated questions. • Children have matched 2Simple item pictures to names using a binary tree	• 2Question database – Avatars or 2Question database - Animals. <mark>Set whichever theme you selected in the previous lesson as a 2Do for your class.</mark> • Avatar Names Question Sheet or Animal Names Question Sheet. Print children copies of the worksheet which matches your chosen theme. Answers are available at the end of this document. • Extension: Debugging Challenge. Set this as a 2Do. Select the following objectives: Lesson: Display and outline the lesson aims and success criteria. Discuss vocabulary that has been used previously and introduce the new vocabulary. (Highlighted in yellow.) <u>Using a Binary Tree on the Computer</u> Display slide 5. Open the selected 2Question database. Explain each of the avatars or animals has been given a name. Use the 2Question binary tree to find out the names. With the children look at how it works, there is a demonstration on the next slide. <u>Finding Names</u> Display slide 6. Hand out the question sheets (animals or avatars). Choose an avatar or animal and then work through the database to find out the name.

Edit Objectives ✕

Year:	Y2	⌄
Subject:	Computing	⌄
Strand:	IT	⌄

Use technology purposefully to create, organise, store, manipulate and retrieve digital content. ☑

					Activity 1: Using a 2Question binary tree
					Display slide 7. Children should use the database to work out the names of the different children\animals.
					Questions that cannot be answered using a Binary Tree
					Display slide 9. Discuss with the class the limitations of the information in 2Question: Questions are limited to 'yes' and 'no' answers; we are unable to ask questions such as 'children wearing a sweater and glasses' or 'animals with no legs and a shell'. What other questions could not be answered using 2Question?
					Activity 2: Debugging Challenge
					Display slide 10. Children should open the Debugging 2Question from their 2Dos. Explain that it is not working correctly. Can they debug the database and make it work correctly? The errors are. • Orange and Peach results have been swapped over. • The images for Banana and Pineapple are mixed up. • The image for pear has been misinterpreted
					Review the vocabulary at the end of the lesson. Can the children define the vocabulary used in today's lesson?
	5 Unit 2.4 Lesson 5 Using 2Investigate:	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	• To use a database to answer more complex search questions. • To use the Search tool to find information	• Children understand what is meant by a database. • Children have used a database to answer simple and more complex search questions	Preparation: Set 2Investigate – Avatars Database as a 2Do for the class. Print a copy of 'Avatars Database Questions' for each child. There are two sets of questions. Sheet 1 are simple searches and Sheet 2 involves more complex searches. Answers can be found at the end of this document.

	A Non-Binary Database				
					Select the following objectives:

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A Non-Binary Database

Select the following objectives:

Year:	Y2	∨
Subject:	Computing	∨
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Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	☑

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Introducing a Database
Display slide 5. With the class, recap the limitations of the questions we can ask about information stored in a binary tree. Explain that this time, we are going to look at a database that allows us to ask more than one question. Open the 2Investigate database by clicking the icon.

How information is Recorded
Display slide 6. Show the record and look at how the information is stored. Clicking reveals more information.

Using the 'FIND' Tool
Display slide 7. Show the children how to use the Find tool. Explain we can search by more than one criterion. E.g., ginger hair and glasses. Clicking reveals more information.

Activity 1: Using a Database to Answer Questions
Display slide 8. Hand out the question sheets. Children should open the avatar database from their 2Dos and use it to answer the questions.

					Activity 2: Extension (Fruit Database)
					Display slide 9. Open the 2Investigate tool and then the 'Fruit' database and answer the questions using the 'Find' option to help discover the answers.
					If the children finish, can they write some questions about the database for their peers to answer?
					Answers are displayed one at a time on slide 10.
					Review the vocabulary at the end of the lesson. Can the children define the vocabulary used in today's lesson?