purple mash

Computing Scheme of Work

Unit 3.6 – Branching Databases

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Introduction

- A branching database is sometimes referred to as a 'binary tree' or a 'key'.
- Branching databases classify groups of objects.
- If you have created your branching database correctly, someone else should be able to use it to identify an object that they have in front of them, e.g., to find out the name of an insect, a fruit or vegetable by using a series of simple questions and yes/no answers.

Year 3 - Medium-term Plan

Lesson	Title	Success Criteria
1	Introducing Databases	• Children understand how YES/NO questions are structured and answered. • Children have used YES/NO questioning to play a simple game with a friend. • Children can explain why they choose a particular question to split their database. • Extension: Children can begin to use 'or more' and 'or less' in their questioning
2	Branching Databases	• Children have contributed to a class branching database about fruit. • Children have completed a branching database about vegetables. • Extension: Children can edit and adapt a branching database to accommodate new entries.
3 and 4	Creating a Branching Database on the Computer	• Children can choose a suitable topic for a branching database. • Children can select and save appropriate images. • Children can create a branching database. • Children know how to use and debug their own and others branching databases.

Lesson 1 – Introducing Databases

Aim

- To sort objects using just YES/NO questions.

Success criteria

- Children understand how YES/NO questions are structured and answered.
- Children have used YES/NO questioning to play a simple game with a friend.
- Children can explain why they choose a particular question to split their database.
- Extension: Children can begin to use 'or more' and 'or less' in their questioning.

Resources

Unless otherwise stated, all resources can be found on the main unit 3.6 page. From here, click on the icon to set a resource as a 2Do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you do not lose this page.

- Images of fruit in Appendix 1. The images can be printed for use with the class or use the online file Classifying Fruit to display and move the pictures of fruit on the whiteboard.
- Images of musical instruments Appendix 2. You will need to print copies of these for children to play with unless you have similar resources, e.g., minibeast pictures, alien/monster pictures, country flags or animals that children could use instead.
- Images of vegetables Appendix 3. You will need to print copies of these for children to play with unless you have similar resources, e.g., minibeast pictures, alien/monster pictures, country flags or animals that children could use instead.

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria
Databases	Display **slide 4.** Ask the children if they know what a database is.
Branching Databases	Display **slide 5.** Can children make any sensible guesses as to what is meant by a ***branching*** database? You will probably have to give a hint -- think of trees.

Guess the Fruit	Display **slide 6.** Show the images of the fruit and play a game where the children must find a fruit using only yes/no questions. Tell the children you are going to have some fruit for lunch; can they guess which fruit you have chosen? The children need to think of questions to separate the objects
Asking Better Questions	Display **slide 7.** Play again, but this time ask the children to think of a question that will separate the fruit into two equal groups if possible (groups with uneven numbers cannot be split exactly in half). Can anyone suggest why this is better?
Activity 1: Guess Who	Display **slide 8.** Ask children if they have played the game 'Guess Who?' In this game, there are lots more items (people) to sort through, and if you ask questions that split the people into two equal groups you will get to the solution quicker (unless you are lucky in the question that you ask). This is quite a difficult concept to understand without playing these types of games a lot. Children will gain more understanding of this in the next two lessons when they make their databases. Now let the children play a similar game themselves. They could use the pictures of the musical instruments or the vegetables
Review Success Criteria	Display **slide 10.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lesson 2 – Branching Databases

Aim

- To complete a branching database using 2Question.

Success criteria

- Children have contributed to a class branching database about fruit.
- Children have completed a branching database about vegetables.
- Children can edit and adapt a branching database to accommodate new entries.

Resources

Unless otherwise stated, all resources can be found on the main unit 3.6 page. From here, click on the icon to set a resource as a 2Do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you do not lose this page.

- Example 2Question Databases Fruits Database and Vegetables - Incomplete. Set the Vegetables - Incomplete. as a 2Do for the class.
- Images of fruit used last week.
- Blu-Tack.
- Yes/No Cards, Arrows and Blank Questions. The pictures will be used to make a branching-database model on the whiteboard or floor which will then be recreated on the computer.
- The 2Question Tool, which can be found in the Tools area of Purple Mash.

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria
What is a Branching Database?	Display **slide 4.** Recap the definition of a branching database from last week.
Creating a Branching Database	Display **slide 5.** Explain we are going to use the images of the fruit to create a branching database on the board or the floor. Use the six fruit images. Use the blank boxes to write your questions (or write them directly onto a wipeable whiteboard if you have this available). Use Blu-Tack to stick on the 'yes'/ 'no' cards and arrows to display the database as it

	develops. Alternatively, write on the whiteboard and use the Blu-Tack just for the fruit objects. Remind children of the need to start with a question that will split the fruit into two groups. Continue doing this until the branching database is complete.
Computer Based Branching Database	Display **slide 6.** Explain to the class that we are going to use the data from our paper branching database in a computer version. Show children the example fruit database. Click on the 'Play' button at the top and use the database to identify some fruit. You could also try using it to identify a fruit that is not in the database; only fruits that are in the database can be identified correctly.
Opening 2Question	Display **slide 7.** Show children how to open 2Question and create a new branching database. (If you require assistance in using the program, click on the video Help files at the top-right of 2Question.
Adding Images and Questions to a Branching Database	Display **slide 8.** Show the children how to add questions and images (fruit can be found in the Food section of the clipart gallery) to create the database. You can click the icon to open 2Question. Clicking reveals the process in steps.
Activity 1: Completing a Branching Database	Display **slide 9.** The children should go to their computers and open the 2Question file 'Vegetables' from their 2Dos. This is partially completed as it is missing the questions. Ask the children to write the questions.
Looking at the Finished Work	Display **slide 10.** Bring the children together and then look at some of their completed vegetable databases. Try playing them; do they work?
Review Success Criteria	Display **slide 11.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lessons 3 and 4 – Creating a Branching Database on the Computer

Aim

- To create a branching database of the children's choice.

Success criteria

- Children can choose a suitable topic for a branching database.
- Children can select and save appropriate images.
- Children can create a branching database.
- Children know how to use and debug their own and others' branching database.

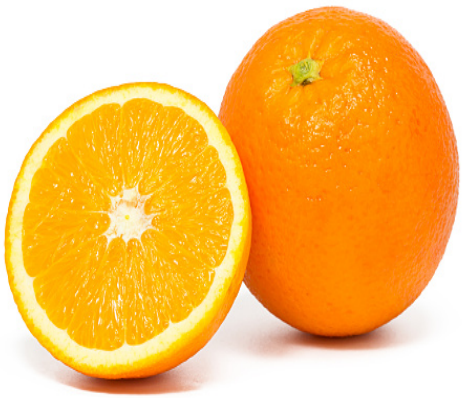
Resources

- Appendix 5; Animals examples. See lesson plan for the use of these pictures.
- For the Extension activity prepare a branching database linked to a class topic that contains errors (yes answers go to no branch, images are incorrect, etc). Set this as a 2Do for the class.

Activities

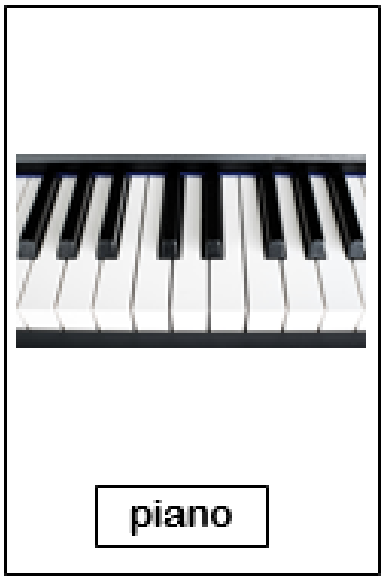
Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria
Activity 1: Planning your Branching Database	Display **slide 4.** Explain to the children that in these two lessons, the children will create their own branching database. Some children will be able to choose their own topic and gather appropriate images online. It is advisable not to choose more than 10 objects. Some children may find it easier to create a branching database about animals. At the end of this document are eight animals that could be used. These animals are easy to separate using YES/NO questions and the images can all be found in the clipart bank which can be found in 2Question. Some children will find it easier to use paper

	versions so they can plan their database before they sit at the computer.
Saving your Work	Display **slide 5.** At the end of Lesson 3, the children need to ensure that they have saved their work so they can continue it in Lesson 4.
Sharing your Work	Display **slide 6.** When the children have finished their database, they could share it on a display board, via a class blog or email it to a classmate to try.
Activity 2: Extension - Debugging a Database	Display **slide 7.** Use the prepared branching database containing errors that was set as a 2Do. Children need to test, debug and amend the database so that it works correctly
Review Success Criteria	Display **slide 8.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.



guitar

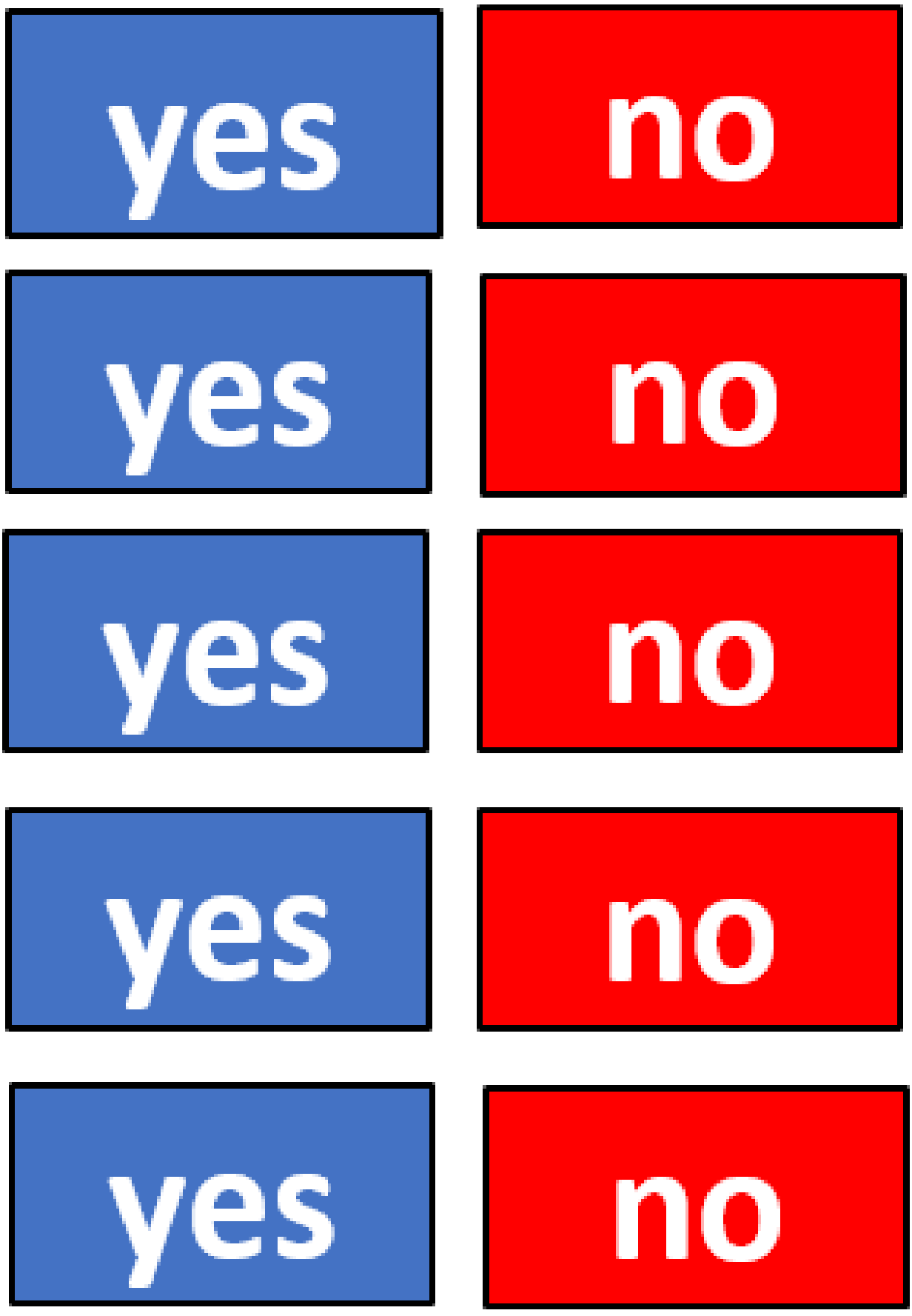
trombone


piano

drum

trumpet

violin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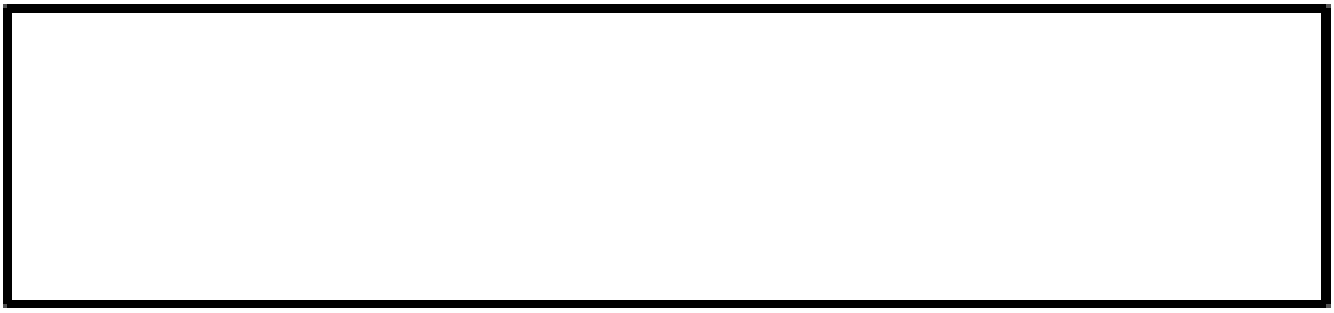

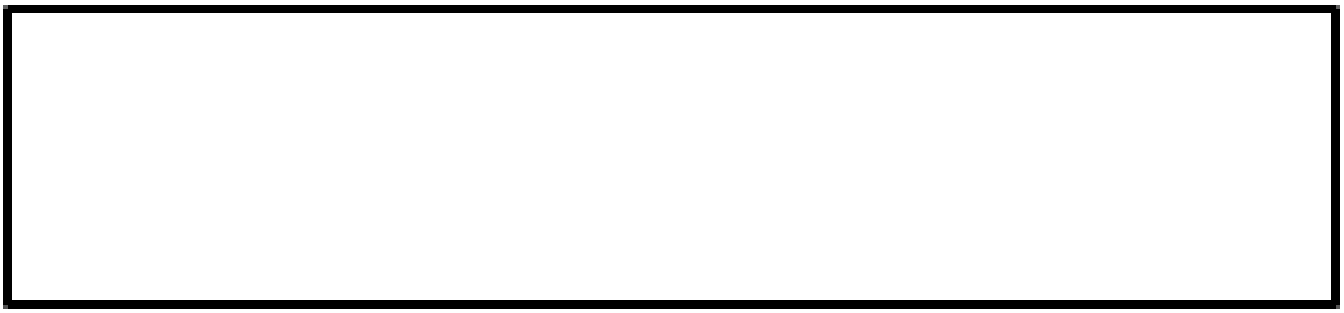

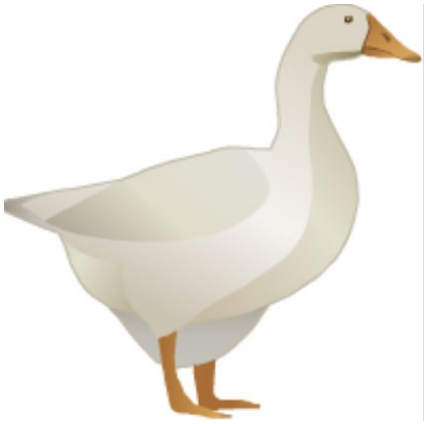

Assessment Guidance

The unit overview for year 3 contains details of national curricula mapped to the Purple Mash Units. The following information is an exemplar of what a child at an expected level would be able to demonstrate when completing this unit with additional exemplars to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment Guidance	
Emerging	With support and using concrete paper resources, children will begin to understand what a branching database is (Unit 3.6 Lesson 1). In a small, supported group, they will collect, sort, and present their information using the paper resources. Children will then turn their paper branching database into a digital version using 2Question (Unit 3.6 Lesson 2, 3 and 4). The resulting branching database will demonstrate a limited number of branches.
Expected	Using 2 Question, children will learn how to create a branching database that accomplishes a given goal. They will understand how to collect, analyse, evaluate, and present their data and information throughout the unit initially as a paper Yes/No game (Unit 3.6 Lesson 1) and then as a digital version of a branching database (Unit 3.6 Lesson 2, 3 and 4). Most children can create a branching database and are able to successfully debug it to improve the quality of their digital content creation. Their branching database would have been carefully planned before utilising 2Question (Unit 3.6. Lessons 3 & 4). Most children will be able to create a branching database which includes suitable text, titles and gathering of appropriate images from online and importing them (Unit 3.6. Lessons 3 &4). Children can make their own branching databases, collating and organising data by sets of questions they have considered appropriate (Unit 3.6 Lesson 1. Children analyse each other's branching databases and can make further suggestions for improvement (Unit 3.6 Lessons 3 & 4).
Exceeding	Children demonstrating greater depth understand the specific characteristics of a branching database and its application in real world situations. Furthermore, they understand the needs of the end user and can adapt their program to reflect this using supporting information (Notes can be added to each layer of the branching database).