

<p>Subject: Computing</p>	<p>Year: 3 – Spring 2 – Data & Information – Branching Databases</p>
<p>National Curriculum objectives</p> <ul style="list-style-type: none"> select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information; use technology safely, respectfully and responsibly. <p>Further national curriculum links</p> <ul style="list-style-type: none"> Various contexts are used to create branching databases throughout the unit. You can change these contexts to fit in with other areas of the curriculum. 	
<p>To begin this unit, the children should have already learnt:</p> <p><u>Year 1</u> Data can be numbers, words or figures. Objects can be labelled using either their names or by describing their properties. Labels can be used to place objects into groups. This helps us to count and compare data easily – computers help us do this.</p> <p><u>Year 2</u> Data can be collected in the form of a tally chart and then progress onto presenting data in the form of pictograms and, finally, block diagrams. The data presented can be used to answer questions.</p>	<p>The learning in this unit will prepare the children to learn these things in the future:</p> <p><u>Year 4</u> Data loggers and logging software can be used to automatically capture data – they have sensors built into them. We can use data collected draw conclusions in answer to our research questions.</p> <p><u>Year 5</u> Flat-file databases organise large amounts of data so that it can be easily added to, amended, stored, and accessed. We can find the data that we need by using the ‘search’, ‘filter’ and ‘sort’ functions.</p> <p><u>Year 6</u> A spreadsheet is a computer application that allows users to organise, analyse and store data in a table and present information in meaningful graphs and charts. Spreadsheets are most used for organising and presenting finances (for example budgets and finance reports) because users can apply formulas and formatting to perform mathematical processes and make data easier to decipher.</p>
<p><u>Key Enquiry Question</u> What makes a ‘good’ yes/no question? What are the most important attributes that could be used to group these objects? How do you know your branching database works? Why is the order of questions important? Why is one branching database more effective than another? Can you suggest any real-world applications for branching databases?</p>	<p><u>The Big Idea:</u> Branching databases can help us to identify objects within sets of data and classify the objects into groups, based on what they are or their different attributes.</p>

To achieve ARE, pupils will need to be secure in the following knowledge:

By the end of this unit, children will know:

- Attributes that you can ask yes/no questions about;
- An attribute to separate objects into two similarly sized groups;
- A branching database is an identification tool;
- A data set can be structured using yes/no questions;
- A well-structured branching database will enable you to ask fewer questions;
- How to relate two levels of a branching database using AND;
- Suggest real-world applications for branching databases.

Vocabulary:

Information, data, search, label, group, program, similar, properties, different (introduced in Y1).

Tally, tally chart, present, problem; attributes (introduced in Y2).

Branching; database; multiple; classify; structure; present.

By the end of this unit, children will be able to do:

- Create questions with yes/no answers;
- Choose questions that will divide objects into evenly sized subgroups;
- Repeatedly create subgroups of objects;
- Identify an object using a branching database;
- Retrieve information from different levels of the branching database.

Useful Resources:

Access [online training courses via the teachcomputing.org website](https://www.teachcomputing.org):

- Get Started Teaching Computing in Primary Schools: Preparing to teach 5- to 11-year-olds;
- Teaching Computing Systems and Networks to 5- to 11-year-olds;
- Teaching Physical Computing to 5- to 11-year-olds;
- Teaching Programming to 5- to 11-year-olds.

Throughout this unit, the children will use the online database tool *j2data* Branch.

Support with navigating j2data Branch can be found at www.j2e.com/help/videos/datags3.



COMPUTING: DATA AND INFORMATION KNOWLEDGE ORGANISER



Overview

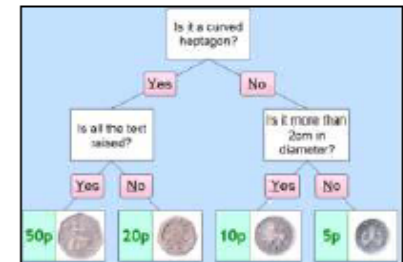
Branching Databases



- Data is raw numbers and figures. Information is what we can understand from looking at data.
- Objects can be organised into groups, based on what they are or their different attributes.
- Branching databases can help us to identify objects within sets of data. They are useful when we want to classify objects (consider objects within a certain group).

Branching Databases

-Branching Databases: A branching database (sometimes known as a binary tree) is a way of classifying a group of objects. If it has been designed correctly, a branching database can be used to help someone identify one of the objects.



-Creating Branching Databases: Programs such as *j2data* can help you to create branching databases. Firstly, you need to select which objects you would like to use in your database. You can then type in 'yes' or 'no' questions to sort your objects. Add as many questions as needed until all of the objects are sorted individually.



Grouping and Separating

-Grouping: Objects can be put into different groups. These groups can be made up of objects that are the same, or objects that have the same attributes (features).



Computers can help us by allowing us to put different objects into groups.

-Yes or No Questions: Questions that require yes and no answers can be useful for helping us to find out the attributes of different objects. For example:

- Is it big? (size)
- Is it red? (colour)
- Is it made of plastic? (material)
- Is it heavy? (weight)



-Multiple Groups: Sometimes, we need to split objects into more than two groups, and so one yes or no question alone is not enough. For example, we may wish to classify animals into the different animal types (mammals, birds, reptiles, amphibians, fish, etc.). We may ask multiple yes or no questions, such as 'does it lay eggs?' 'does it have hair or fur?' etc.

Structuring Branching Databases

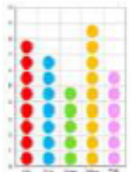
-Remember that for your branching database to be effective, the strength of the questions that you ask is hugely important. Your questions need to separate different objects based on their attributes. E.g. the question 'does it have stripes?' would separate the animals below. You should also carefully consider the order that you ask questions.



Presenting Information

-Both pictograms and branching databases can be used in order to **answer questions and solve problems**.

-You should know which is best to use in different situations. E.g. a pictogram is best to show the favourite colours of children in the class, whilst branching diagrams are best to identify different types of minibeasts.



Important Vocabulary

Information

Data

Attributes

Group

Branching

Database

Multiple

Classify

Structure

Present