

Data handling	What is it made of?	QCA Science 3c
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Objectives

- to use a database to sort and classify information,
- to collect information and enter into a prepared database
- to find out the answers to simple questions
- to present findings

Task

To promote understanding of the properties of materials children enter information they have collected about kitchen objects into a prepared database using key words to identify properties. They then, with support, develop questions and ideas about the objects which are tested by searching the database.

Resources

DataCard is the software tool to use here. The text area allows children to enter up to eight lines of information in a free form while the key words features allows for entry of single keywords identifying the characteristics of an object. Both can be searched

Information can be entered at more than one computer at a time

Adding digital photographs of the objects enhances the value of this activity by making it real and relevant and identifying each card easily.

Use a data projector with wireless mouse and keyboard or an interactive whiteboard to present clearly to the whole group and allow for interaction during the demonstration session. A whiteboard enables annotation of any charts.

As an illustration for teachers only there is a file **Material**

In the classroom

As part of the science topic 'materials', tell the class that they are going to create a database containing information about kitchen objects.

Ask them to think of some questions they would like to ask, e.g. Which is the most common material? Which objects are hard? Which objects are hard and strong?

Provide a wide range of objects, e.g. colander, wooden spoon, metal spoon, sieve, saucepan, mixing bowl, spatula, tea towel, foil, for the children to touch and investigate.

Encourage them to talk about the properties of materials, e.g. hardness, strength, flexibility.

Remind them that the same material may be used to make different objects.

Set up a database and talk about key words to use, e.g. object name, material, hard, strong, flexible, smooth, shiny.

Ask the children to add information to the data file about each object.

Once all the objects have been included, create a class list of questions and discuss how they can be translated into search criteria.

Search and print out bar charts from the database.

As a whole-class activity, decide what, if any, conclusions can be drawn.

Extension

Children who find the work difficult could be given simple questions, e.g. Which is the most common material?

More able children could be asked questions that require them to produce bar charts illustrating, for example, whether the metal objects in the collection are all smooth and shiny, or to provide evidence to support a wider hypothesis that metal objects are always strong, etc.

Preparation

Prepare a database for the class to use

Allow the children take photographs of the objects before this lesson as part of the discussion about properties. Save the pictures under the child's name. Use the photographs when talking about appropriate questions.

Create a folder named **Kitchen** in the KudlianSoft **DataSweet** folder to store the images.

Follow this path to it

On a PC:

Local (Hard) disk: (C) > Program files > Kudlian Soft > DataSweet

On a Mac

Tricia Neal

Comment: need some help here please

NB If this does not match your computer setup consults the technician/network manager

Discuss key words to describe each object e.g. material (metal plastic), hard, strong, flexible, smooth, shiny, soft. Make a key word chart for children to use during this activity.

NB for children who need extra support words from Clicker 4 grids can be sent to DataCard. Instructions will be found in the Clicker 4 help notes

Creating the database

Open **DataSweet**

Select **New Data CardFile**

The **Save Dialogue box** opens, name the file (**Materials**)

The saved file opens

Entering information

Enter the name of the first object into the **Name** box at the top of the card.

Enter a photograph into the box on the right.

Right Mouse Click on the box and select **Load Picture**.

This opens the **DataSweet** folder; select a picture from the folder **Kitchen**

This card is now ready for children to enter text and Key Words.

Use the arrows at the top of the page to move onto the next card and repeat the process until all objects have a card.

After exploring the kitchen objects and agreeing on key words to use give each pair of children an object to write about.

Show how to enter information

First show the class how to look for their card by using the arrows at the top of the page to scroll through all the cards.

Then show how much easier it is to use the **Find Card** option:

Select the **Find Card** icon



Write the name of the object in the box **Text to find**

Click on the **Find Next** button and the card is selected. (ensure correct spelling is used)

Click on **Cancel** to close the **Find Card** box

Show where to enter free text and where to enter Key Words

Use the arrow keys to move straight to the next empty 'card'

NB When using multiple entries click on the **Refresh Database** icon



before any searching activities

Show how to make a graph

Key question - How many different materials are there in our selection and which occurs most?

Open the **Count Window** to show all the key words



Select all the properties (what the objects are made of) by clicking on them.

When all are selected open the **Graph Window** –click on the graph icon



Change the title of the chart and the grid labels pressing Enter after each word

Discuss the number grid and what it shows. Use the chart to ask questions and compare values.

Using an interactive whiteboard comments can be written on the graph to reinforce the numbers of each material and the differences between each column. These can be saved to return to later. Use the whiteboard Help to find further information

NB to view the record card again minimise the graph

Show how to search

Key question - what are shiny objects made of?

To find all the shiny objects select the **Create Query** icon



Follow the instructions at the top of the **Create Query** box to choose the key word 'Shiny' from the drop down list

Click on the **Create** button

The **Record:** box on the data card will show how many cards have shiny things on.

Scroll through using the arrows at the top of the car to look at the objects

To make all the cards available again before starting another search

Click on the **Queries Window**



and deselect the Query by removing the tick.

Extension

Show how to search for more than one condition.

To look for items that are strong and hard go to the **Create Query** icon



Follow the instructions to:

Choose the key word *strong*

Click on the AND

Choose the key word *hard*

Click on the **Create** button

The record box shows how many cards - scroll through to find out more about the objects