

## ***Questioning an object- starting points for scientific investigations.***

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(Adapted from "Learning from Objects" Durbin, G, Morris, S and Wilkinson S. English Heritage 1990)

*How to...*

Work in small groups for this activity. Each group has one pencil and a piece of paper.

Each group is handed the same object – in this case a Big Mac box.

Groups have 5 minutes to discuss and write down as many questions as they can, stimulated by contact with and their observations of the object.

The way to approach this activity most successfully is to look at the object as though you have never seen it before- all sorts of details which you might normally take for granted become apparent.

### **Using this activity in the classroom**

Here are some adaptations for using this game to further develop observational and questioning and research skills, all fundamental to scientific enquiry.

A Big Mac box works well as it is a very familiar object to most people. It also has the advantage that it can be used as a springboard for other topics such as nutrition, design or environmental issues. Experiment with different objects, for example a chair. Try adding a second similar object as an extension- a Burger King container for example, or a different sort of chair and compare the results.

### **Adaptations for younger children**

Take the full list of questions, or a selection of questions, and ask the groups to work through them, answering the questions which can be answered through contact with the box as the primary source of information. Examples of this include smell, feel, colour, mass, shape. They can then discuss how they might tackle some of the questions which cannot be answered through the primary source of information, the box, and will need information through a secondary source.

As small groups or a class sort the questions into 3 groups according to whether they can be answered by contact with the object, whether they can

be answered with a bit of research, or whether they do not have a definite answer. This could utilise an interactive whiteboard.

Make up a table of answers or an investigation data sheet for the physical properties/ primary source data for use with the investigations if required- this helps to organise the information and helps to reinforce the concept that there are different types of question. An example is attached.

You can then proceed with investigating some of the questions, for example regarding design, manufacture process or meanings of symbols which will require secondary information sources. Use books or the internet to help to complete the data sheet.

Use what has been found out to stimulate a creative writing activity: "Imagine that you are a Big Mac box and write the story of your life."

### **Adaptations for older children**

Work through the activity as with this session. Ask for questions to be written down as proper sentences. You could introduce the idea of testing and rejecting hypotheses as part of this activity.

As a class make a list of all of the questions – use an interactive whiteboard or post-its so that questions can be easily moved around. Do any more questions come up once all the questions have been shared? Add these to the list.

Discuss the questions that have been generated and sort the questions into three groups as above.

Ask each child to choose 1 question from each group, and make up an investigation data table to be completed. This introduces the children to the three main sorts of problem that a scientist will encounter and helps them to learn to develop response strategies to them.

Write a scientific report of the findings including the strategy that was used to obtain answers. These can then be presented to the class or to small groups.

**This technique can be applied to an investigation of natural objects such as rocks and fossils. By encouraging the children to use the same questioning technique they will spend more time over the investigation and see and learn more from their own research.**

## Example of a simple data sheet for investigating an object

Draw a picture of your object.  
Add labels to show important details.

How big is your object?

What is your object called?

What other things can we find out about the object?

Fill in the empty boxes as you work through your investigation.

Question	Source of information	What I did	What I found out
<i>What does it smell like?</i>	<i>The box</i>	<i>Sniffed the box inside and outside</i>	<i>The outside doesn't have a smell. The inside smells of cardboard.</i>
<i>What do the symbols mean?</i>	<i>The box The internet</i>	<i>Searched for symbols using google, looked on the Mcdonalds website.</i>	<i>The M is a logo for Mcdonalds. The three white symbols are about throwing away litter and recycling</i>
Etc...			