

## **MYSTERY TOURS – REPORT BACK**

The activities are designed for 60-minute lessons. You may need to adapt the materials for use in longer or shorter lessons.

Brief activity descriptions are provided for the pupils on the right-hand side of the screen. They can read all of this text, or they may prefer to read only the simplified Summary text.

### **INTRODUCTION**

In this activity, pupils are invited to feed back to Brian Mystery on the outcomes of their tour and how it was received by the tour party. Pupils are asked to produce a group report or display based on information such as distances travelled, changes in satisfaction rating, etc.

Pupils receive some basic guidance from Brian but will need to consider which data to include. Pupils are encouraged to analyse their results, selecting the most relevant information and displaying it in a suitable form using appropriate construction techniques.

This activity is mainly paper-based – the use of ICT is optional.

### **LEARNING OBJECTIVES**

Pupils will:

- use mathematical problem solving skills in collaboration with each other
- calculate statistics using their results from previous activities
- decide which charts and statistics best suit their requirements
- construct a range of charts and graphs (use of ICT optional).

### **LEARNING OUTCOMES**

Most pupils will:

- collaborate within their groups to address the problem
- select and produce a range of charts and graphs to represent their data appropriately
- make use of their results to calculate at least some relevant statistics
- evaluate their strategies and report back to the class.

Pupils making slower progress will:

- collaborate within their groups to address the problem
- produce at least some graphs to represent their data
- make at least some reference to their results
- evaluate their strategies and report back to the class.

Pupils making faster progress will:

- collaborate within their groups to address the problem
- critically select and produce a range of charts and graphs to best represent their data
- make use of their results to calculate a range of relevant statistics
- evaluate their strategies and report back to the class.

**NATIONAL CURRICULUM OBJECTIVES****Ma4 Handling data****Using and applying handling data**

- 1) Pupils should be taught to:
- e) interpret, discuss and synthesise information presented in a variety of forms
  - f) communicate mathematically, making use of diagrams and related explanatory text
  - g) examine critically, and justify, their choice of mathematical presentation of problems involving data.

**Processing and representing data**

- 3) Pupils should be taught to:
- a) draw and produce, using paper and ICT, pie charts for categorical data and diagrams for continuous data, including line graphs for time series, scatter graphs, frequency diagrams and stem-and-leaf diagrams.

Links to the revised Programme of Study for introduction in 2008 include:

**1 Key concepts****Competence**

- a) Applying suitable mathematics accurately within the classroom and beyond
- b) Communicating mathematics effectively
- c) Selecting appropriate mathematical tools and methods, including ICT.

**Creativity**

- c) Posing questions and developing convincing arguments.

**2 Key processes****Representing**

Pupils should be able to:

- b) choose between representations
- c) simplify the situation or problem in order to represent it mathematically, using appropriate variables, symbols, diagrams and models
- d) select mathematical information, methods and tools to use.

**Analysing**

Pupils should be able to:

- k) make accurate mathematical diagrams, graphs and constructions on paper and on screen
- l) calculate accurately, selecting mental methods or calculating devices as appropriate.

**Interpreting and evaluating**

Pupils should be able to:

- a) form convincing arguments based on findings and make general statements.

**Communicating and reflecting**

Pupils should be able to:

- a) communicate findings effectively.

**3 Range and content**

**Statistics**

The study of mathematics should include:

- b) presentation and analysis of grouped and ungrouped data, including time series and lines of best fit
- c) measures of central tendency and spread.

**4 Curriculum opportunities**

The curriculum should provide opportunities for pupils to:

- e) work on tasks that bring together different aspects of concepts, processes and mathematical content
- f) work collaboratively as well as independently in a range of contexts
- g) become familiar with a range of resources, including ICT, so that they can select appropriately.

**LESSON PREPARATION**

- Read the teacher notes and familiarise yourself with the other materials.
- Ensure that the activity is available to use on your teacher laptop or desktop computer.
- Print off enough copies of the accompanying activity sheets.
- Ensure that you have an adequate supply of display materials.

**Vocabulary**

Average, statistics, mean, mode, median, range, pie chart, bar chart, composite bar chart, comparative bar chart.

**Materials required**

You will need:

- Teacher laptop or desktop computer (for demonstration only)
- Data projector (for demonstration only)
- A suitable range of display materials
- Printed copies of the accompanying activity sheets
  - Tour Diary Sheet
  - Destination Profile Sheets (optional)

**Prior knowledge and skills**

Pupils should already:

- be familiar with a range of statistical analysis and display techniques.

**Health and Safety**

All standard safety procedures with computers need to be in place.

Information can be found at <http://schools.becta.org.uk>

**LESSON DETAILS****Starter Activity**

Project the starter activity onto a whiteboard.

Ask pupils in their groups to consider the data shown on screen.

Project the first slide based on distance data.

Use the slide to outline the key features of each type of graph.

Ask pupils to identify what has been constructed incorrectly.

Ask pupils to identify examples of meaningless graphs and to explain why.

Repeat the process for the second slide based on satisfaction data.

Lead into the main activity (see below).

### **Main Activity**

The aim of this activity is for each group to create a report or display based on their tour.

Pupils will use their results from the previous activities to create their report or display.

Pupils will need to ensure that:

- the data they include is relevant
- the data they include is presented appropriately.

Opportunities for discussion and group presentations have been incorporated into the activity.

Pupils should be arranged in their small groups.

As before, try to ensure that each group has an appropriate mix of pupils.

This will help to create appropriate conditions for peer support.

Each group will need:

- their tour plan from the first activity
- their results from the second activity.

Each group should also be given:

- a copy of the 'Activity 3 - Tour Diary' sheet
- a copy of each 'Destination Profile' sheet (optional)
- a suitable range of display materials.

Introduce the activity by projecting it onto a whiteboard.

Set the scene using the introductory narrative and the Tour Diary sheet to help.

Ask your pupils to identify the success criteria that they think are relevant to this activity.

Examples of such success criteria are likely to include:

- ability to select the most relevant data
- ability to present such data in an appropriate form.

Make a list of these success criteria on the board for later reference.

Once ready, refer pupils to the 'Getting Started' section on the Tour Diary sheet.

Allow time for pupils to record their thoughts and ideas as directed.

If necessary, refer pupils back to the success criteria identified earlier.

Once ready, refer pupils to the 'Producing Your Report' section on the Tour Diary sheet.

Allow time for pupils to develop their reports or displays as directed.

Ensure that each group has access to a suitable range of display materials.

Try to circulate between groups listening to discussion and asking questions as required.

Encourage each group to self-evaluate their progress.

If necessary, refer pupils back to the success criteria identified earlier.

Take care, however, not to overly direct the pupils.

Once ready, refer pupils to the 'Finishing Off' section on the Tour Diary sheet.

Ask pupils to consider the questions listed.

Allow some time for pupils to discuss their thoughts and reflect on their performance.

Lead into the plenary activity (see below).

### **Plenary**

Draw the class together and ask pupils to reflect on the activity.

Ask each group to present their report or display, specifically:

- the types of data they have included
- the techniques they have used to present their data.

Ask pupils to peer-evaluate each presentation relative to the success criteria identified earlier.

Pupils could be asked to offer suggestions on how each report or display could be improved.

Finally, ask the class to consider the maths that they have used during the activity.

Ask the class to identify real-life contexts where people may use similar maths.

### **Homework Suggestions**

Ask pupils to complete their Tour Diary reflecting on their finished report or display and evaluating their performance the entire Mystery Tours case study.

Additionally, pupils could be asked to use the information from a real travel website to plan a real-life tour around another country of their choice.

### **TECHNICAL SUPPORT**

This activity makes use of Flash and Adobe PDF files. To access all the resources that are provided, you will need the minimum machine and software specifications as listed below.

Adobe Flash Player (previously know as Macromedia Flash Player) is required to launch the activity. The latest version of Flash and guidance on how to use it can be downloaded from:

[http://www.adobe.com/shockwave/download/download.cgi?P1\\_Prod\\_Version=ShockwaveFlash](http://www.adobe.com/shockwave/download/download.cgi?P1_Prod_Version=ShockwaveFlash)

Adobe Reader or Distiller is required to view these notes. The latest version of Reader and guidance on how to use it can be downloaded from:

<http://www.adobe.com/products/reader/>

### **Minimum Machine and Software Specifications**

#### **PC**

P3 800MHz  
128MB RAM  
Windows 2000  
Screen resolution 1024 x 768  
Microsoft Internet Explorer 5.5, Firefox 1, Netscape 7 or Opera 7  
Macromedia Flash Player 7  
Adobe Reader 7

#### **Mac**

G3 500MHz  
128MB RAM  
OS X 10.2  
Screen resolution: 1024 x 768  
Safari 1, Firefox 1, Netscape 7, or Opera 6.2  
Macromedia Flash Player 7  
Adobe Reader 7