

## MYSTERY TOURS – PLAN YOUR TOUR

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 plan a three-day tour of the UK, choosing the destinations, types of transport and accommodation that they think are most appropriate. Pupils are presented with the data they will need to plan their tour via a series of dummy web pages.

Pupils are given a series of requirements to meet and will need to use the data to carry out calculations with both time and money. They will also need to work with percentages to calculate the true cost of accommodation once discounts and surcharges are considered.

This activity is mainly ICT-based.

### LEARNING OBJECTIVES

Most pupils will:

- use mathematical problem solving skills in collaboration with each other
- calculate with fractions and percentages
- synthesise information in a variety of different formats.

### LEARNING OUTCOMES

Most pupils will:

- collaborate within their groups to address the problem
- extract information from a range of charts, graphs and tables
- use mental or pencil and paper methods to solve a range of numerical problems
- emerge with a tour plan that will meet most of the pre-defined criteria
- evaluate their strategies and report back to the class.

Pupils making slower progress will:

- collaborate within their groups to address the problem
- extract at least some information from a range of charts, graphs and tables
- use calculator methods to solve at least some numerical problems
- emerge with a tour plan that will meet at least some of the pre-defined criteria
- evaluate their strategies and report back to the class.

Pupils making faster progress will:

- collaborate within their groups to address the problem
- extract the most relevant information from a range of charts, graphs and tables
- use mental methods to solve a range of numerical problems
- emerge with a tour plan that will meet all of the pre-defined criteria
- evaluate their strategies and report back to the class.

### NATIONAL CURRICULUM OBJECTIVES

#### **Ma2 Number and algebra**

#### **Using and applying number and algebra**

- 1) Pupils should be taught to:
- d) select efficient techniques for numerical calculation and algebraic manipulation
  - e) make mental estimates of the answers to calculations; use checking procedures to monitor the accuracy of their results.

**Calculations**

- 3) Pupils should be taught to:
- c) calculate a given fraction of a given quantity
  - m) solve simple percentage problems, including increase and decrease (for example, simple interest, VAT, discounts, pay rises, annual rate of inflation, income tax, discounts).

**Solving numerical problems**

- 4) Pupils should be taught to:
- b) select appropriate operations, methods and strategies to solve number problems.

**Ma4 Handling data****Interpreting and discussing results**

- 5) Pupils should be taught to:
- b) interpret a wide range of graphs and diagrams and draw conclusions.

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
- c) Selecting appropriate mathematical tools and methods, including ICT.

**Creativity**

- a) Combining understanding, experiences, imagination and reasoning to construct new knowledge
- b) Using existing mathematical knowledge to create solutions to unfamiliar problems.

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

- Pupils should be able to:
- d) select mathematical information, methods and tools to use.

**3 Range and content****Number and algebra**

- The study of mathematics should include:
- a) rational numbers, their properties and their different representations
  - b) rules of arithmetic applied to calculations and manipulations with rational numbers
  - c) applications of ratio and proportion.

**Statistics**

The study of mathematics should include:

b) presentation and analysis of grouped and ungrouped data, including time series and lines of best fit.

#### 4 Curriculum opportunities

The curriculum should provide opportunities for pupils to:

- 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.
- Ensure that the activity is available for pupils to use, e.g. via school network.
- Arrange for access to an ICT suite.
- Print sufficient copies of the accompanying activity sheets.

#### **Vocabulary**

Fraction, percentage, kilometres, hours, minutes, discount, bar chart, dual bar chart, comparative bar chart.

#### **Materials required**

You will need:

- Teacher laptop or desktop computer (for demonstration only)
- Data projector (for demonstration only)
- Access to an ICT suite with enough computers for pupils to work in small groups
- Printed copies of the accompanying activity sheets
  - Tour Rules Sheet
  - Tour Diary Sheet
  - Tour Planner Sheet
- Calculators (optional).

#### **Prior knowledge and skills**

Pupils should already be able to calculate:

- basic fractions and percentages of a quantity
- with money.

#### **Health and Safety**

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

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

#### **LESSON DETAILS**

##### **Starter Activity**

Project the starter activity onto a whiteboard.

Ask pupils to consider the information shown on the slide.

Ask selected groups to match up each question with one of the answers shown.

In each case, ask pupils to explain their methods and reasoning.

Lead into the main activity (see below).

### **Main Activity**

The aim of this activity is to plan a tour of the UK that will meet Brian Mystery's requirements.

Pupils will choose from a range of destinations, transport and accommodation options.

Their decisions will have an impact on the time and budget available and tourist satisfaction.

Pupils will need to:

- explore the data held on the Mystery Tours website
- synthesise the data to prepare their tour plan.

You may need to assist pupils with the pronunciation of new or unfamiliar place names, such as Beddgelert, Salisbury and Coleraine.

This activity is based around an open problem with a complexity of potential interpretations.

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

Pupils should be arranged in small groups at a computer.

With mixed ability classes, try to ensure that each group has an appropriate mix of pupils.

This will help to create appropriate conditions for peer support.

Each group should be given a copy of:

- the 'Mystery Tours - Tour Rules' sheet
- the 'Activity 1 - Tour Diary' sheet
- the 'Activity 1 - Tour Planner' sheet
- each 'Destination Profile' sheet (optional).

Introduce the activity by projecting it onto a whiteboard.

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

Allow time for pupils to absorb the guidance provided.

Refer pupils to the 'Getting Started' section on the Tour Diary sheet.

This fleshes out the narrative a little more and provides an introduction to the activity interface.

Allow time for pupils to experiment with the activity as directed.

Once ready, refer pupils to the 'Discussion Time' section on the Tour Diary sheet.

Ask pupils to consider the questions listed.

Allow time for pupils to discuss their thoughts and define their strategies.

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

Encourage pupils to pursue their strategies and to develop the mathematics involved. Highlight that costs could be estimated rather than making precise calculations for all options.

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

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

Ask pupils to produce their tour plan as directed.

Pupils will need to synthesise the information on each web page to define their tour.

Pupils should record their tour decisions in the table shown on the Tour Planner sheet.

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 the class to reflect on the activity.

Ask each group to report back on their progress, specifically:

- the strategies they have used
- the status of their tour plan
- how they have attempted to meet Brian Mystery's requirements.

If time allows, ask pupils some follow-up questions such as:

- What do you think is going to be the key to success in this activity?

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**

Ensure that all pupils have completed their tour plan ready for the next activity.

Ask pupils to complete their Tour Diary reflecting on their tour plan and evaluating their performance during the activity.

Additionally, pupils could be invited to create a 'What to pack' list for their tour party based on further research into their chosen destinations.

### **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