

**OUTBREAK: STRATEGIC PLANNING**

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

**INTRODUCTION**

In this activity pupils must decide which categories of people in a town should be given a vaccine when there is a limited budget. They are guided in the use of a spreadsheet as a tool for solving this type of problem.

This activity is mainly ICT based. It has been designed for use with pupils in an ICT suite although it could be adapted for use in a maths classroom equipped with a data projector and whiteboard. It is suggested that pupils work together in pairs or small groups to encourage appropriate levels of participation and discussion.

The activity contains 3 options offering varying degrees of challenge. Different pupil pairs or groups within a class can work at different options. Alternatively, you may prefer to ensure each group has a mix of pupils. This will help to create appropriate conditions for peer support.

**This activity differs from those found elsewhere in the Outbreak case study in that the map room codes are not automatically allocated. Instead, you will need to allocate a code to each group based on how well you think they performed (see below).**

Each option has an example spreadsheet demonstrating the formulae that can be used:

**Option 1:** Pupils are given two vaccines to administer. The vaccines have different levels of efficacy and different costs. Pupils are taken stage by stage through the completion of the spreadsheet. This option is for pupils working at **level 4 of the National Curriculum**.

**Option 2:** Here there are three different vaccines that can be given. Pupils have to choose which formulae go where on the spreadsheet. The creation of graphs from the spreadsheet is included. This option is for pupils working at **level 5 of the National Curriculum**.

**Option 3:** Again there are three vaccines but only a few spreadsheet formulae are given. Graph creation is included. Pupils are encouraged to extend the spreadsheet to take account of an additional variable. They are also invited to consider different ways that the formulae can be expressed. This option is for pupils working at **level 6 of the National Curriculum**.

**OBJECTIVES**

- Pupils will use problem-solving skills.
- Pupils will relate pencil-and-paper methods to spreadsheet formulae.
- Pupils will appreciate the effects of any decisions they make.

**RESOURCES**

- Pupils do not need any specific resources for this activity, other than access to a computer. A pencil and paper to jot down calculations would be useful.

**DELIVERING THE CASE STUDY**

- The activity can be used as a tool for revision of the creation of spreadsheets or for introducing their use.

- Pupils should have some understanding of how to calculate a percentage of a quantity. The spreadsheet formulae deliberately mirror standard pencil-and-paper methods.
- It is suggested that the example spreadsheet is used as a whole class activity and opportunity given for discussion on the use of the spreadsheet and, more importantly, on the decisions as to who should get which vaccine.
- Pupils should work on their spreadsheet in pairs or small groups at a computer, if possible. Again, discussion about their decisions should be encouraged. They should be able to access the example spreadsheet if necessary.
- Different pairs or small groups of pupils could work at different options.
- The activity highlights that there is no one correct answer to complex problems such as this. Pupils should be made aware of the dilemmas faced by politicians and others in similar situations.

### **MAP ROOM FEEDBACK**

- For this activity you will need to manually give your pupils the codes to use within the map room. The code you give on each occasion should be based on how well you think the pupil or pupils completed the task.
- The codes that you should use are as follows:
  - Option 1 - Progress 1: kbfk
  - Option 1 - Progress 2: jbjp
  - Option 1 - Progress 3: jdqz
  - Option 1 - Progress 4: mdth
  
  - Option 2 - Progress 1: jhfr
  - Option 2 - Progress 2: jhmz
  - Option 2 - Progress 3: jgqd
  - Option 2 - Progress 4: mgrj
  
  - Option 3 - Progress 1: mjgy
  - Option 3 - Progress 2: kkjb
  - Option 3 - Progress 3: mkqn
  - Option 3 - Progress 4: jmsh

**Please note that these codes are case sensitive and should be entered by pupils in the lower case form as shown above.**

Progress values are on a sliding-scale from 1: unable to complete the activity and demonstrated poor spreadsheet skills to 4: completed the activity and demonstrated excellent spreadsheet skills and presented their decisions to the class.

### **HOMEWORK SUGGESTION**

Pupils can be asked to write a report for the local Health Authority explaining the decisions they have made. The report should include a printout of their spreadsheet including graphs.