

## OUTBREAK: SUPER ANTIDOTE

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 are asked to cure several patients. For each patient they must create a specific antidote from a selection of 6 ingredients. There are 4 'clues' giving information about the exact amounts of each ingredient that must be used.

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 create appropriate conditions for peer support.

Completing an option unlocks a code which can be used in the map room to reflect the progress individuals or groups have made. **Please note that these codes are not automatically saved if the user logs out.** Remind users to make a note of any codes they receive as they progress.

**Option 1:** the use of simple fractions ( $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{1}{10}$  etc), percentages that are multiples of 10 or 25 and simple ratios presented in words. This option is for pupils working at **level 4 of the National Curriculum**.

**Option 2:** the use of slightly more complex fractions, percentages that are multiples of 5, simple ratios expressed using notation and simple decimals such as 0.1. This option is for pupils working at **level 5 of the National Curriculum**.

**Option 3:** the use of a wider range of fractions and percentages, ratios of 3 ingredients and decimals such as 0.15. This option is for pupils working at **level 6 of the National Curriculum**.

### OBJECTIVES

- Pupils will use problem-solving skills.
- Pupils will practise non-calculator methods for finding fractions, decimals and percentages of quantities in context.

### 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.
- To encourage pupils to practise mental methods of calculating, the use of calculators should be discouraged.

### DELIVERING THE CASE STUDY

- The activity can be used as a tool for revision or for consolidating and extending pupil understanding.
- Pupils should have some understanding of how to calculate a fraction, decimal or percentage of a quantity and, for Option 2 and Option 3, may have encountered ratio notation. However, pupils who have not previously covered ratio are likely to be

naturally inquisitive if they encounter unfamiliar notation. This would provide a context in which to introduce ratio and an immediate opportunity to use it.

- To enable pupils to discuss ideas, it would be preferable for pupils to work with a partner at a computer. If this is not possible, clues can be presented to the whole class for pupils to work on with a partner.
- Different pairs or small groups within the class could work on different options.
- It is suggested that pupils work with either just one option or across two consecutive options depending on the time available. If time permits, pupils should work on Option 1 (or Option 2 for more able pupils) initially in order for pupils to understand how the activity works and then move up to Option 2 (or Option 3 for more able pupils) in order to increase the challenge and extend their understanding of the topics.
- There are a number of patients within each option which are randomly presented to pupils ensuring that answers cannot easily be 'shared' amongst pupils.

### **HOMEWORK SUGGESTIONS**

- Three sheets (one for each option) are provided for pupils that can either be used in class or can be set as a homework task.
- On each sheet, the first task is identical to the on-screen task.
- Subsequent tasks are similar to the on-screen task, but require pupils to write the clues which have only one solution. They should be asked to write clues that they think will challenge the class.
- Pupils could be asked to ensure that they write clues using several different representations or could focus on using whichever notation pupils have struggled with during the lesson.
- Pupils' responses to the second part of the homework task could be used in subsequent lessons, possibly as a starter activity.