

POINTZERO: LOST

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 required to decipher two or three codes which will describe loci that they are asked to draw on a map. The loci will enable them to find a particular station on the map provided. A starter activity introduces pupils to loci with practical activities.

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.

Completing an option unlocks a code which can be used when the user enters the PointZero building to reflect their progress. **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.

Each option is represented within the case study by the name of a tube line:

- **Option 1 (Penny Line):** Pupils need to solve two clues based on the same type of code. This option is for pupils working at **levels 5 and 6 of the National Curriculum.**
- **Option 2 (Bank Line):** Pupils need to solve three clues based on different types of code. This option is for pupils working at **levels 6 and 7 of the National Curriculum.**
- **Option 3 (Pound Line):** Pupils need to solve three clues based on different types of code. This option is for pupils working at **levels 7 and 8 of the National Curriculum.**

OBJECTIVES

- Pupils will:
 - use reasoning to decipher codes;
 - find simple loci to produce paths;
 - find the locus of a point that moves according to a simple rule;
 - construct the perpendicular bisector of a line;
 - construct an angle bisector.

RESOURCES

- It is recommended that pupils work in pairs or small groups at a computer although the activity could be delivered via a single computer projected on to a white board.
- Copies of the Codes Information sheet – this will help pupils to decipher the different types of codes that are present within Option 2 and Option 3.
- Printed copies of the tube map. Note that when printing the map sheet you will need to ensure that it is printed to scale. In the print menu select 'none' where it says 'page scaling' – this will ensure that the dimensions of the maps you print are correct.
- Copies of the appropriate homework sheet (optional for Option 2 and Option 3)
- Rulers
- Compasses
- Protractors
- Sharp pencils

DELIVERING THE CASE STUDY

- The activity can be used to introduce loci or for consolidation and practice.
- Pupils attempting Option 2 and Option 3 should already have some understanding of simple constructions.
- Pupils will be able to demonstrate their reasoning ability when deciphering the coded clues.
- 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, the activity can be presented to the whole class for pupils to work on individually or with a partner.
- A teacher answer sheet accompanies this activity.
- Pupils should be discouraged from using trial and error to complete the activity. You should remind them that they are penalised for having a high number of attempts. This penalty is specified in the code that is awarded to them at the end of the activity.

HOMEWORK SUGGESTIONS**Option 1 (Penny Line)**

- The homework sheet asks pupils to choose a station from the tube map. They are then asked to write down 2 clues to help someone to find their station and to put the clues into code. They are asked to write the codes on to a sheet of paper which will be displayed in the classroom.
- If part of a lesson is given for other pupils to decipher the codes and find the requisite station then the homework is self-marking.

Option 2 (Bank Line) and Option 3 (Pound Line)

- As for Option 1 but with 3 clues being asked for. Although a homework sheet is provided, the task could be given verbally to these pupils.