

POINTZERO: TRAPPED

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 presented with a tiling pattern to copy.

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 activity by different named floors:

- **Option 1 (Modern Floor):** A simple two-coloured tile is used to create the design. Reflection is used. This option is for pupils working at **level 4 of the National Curriculum**.
- **Option 2 (Renaissance Floor):** A more complicated, three-coloured tile is used to create the design. Vertical and horizontal reflection are used. This option is for pupils working at **levels 4 and 5 of the National Curriculum**.
- **Option 3 (Medieval Floor):** A three-coloured tile is used to create the design. Reflection and rotation are used. This option is for pupils working at **level 5 and above of the National Curriculum**.

OBJECTIVES

- Pupils will use problem solving skills.
- Pupils will recognise and visualise the transformation of a 2d shape.

RESOURCES

- Access to computer and projector or overhead projector and transparencies
- Pupils could have either mini-whiteboards, pens and erasers OR individual cards with A, B, C & D on them.

DELIVERING THE CASE STUDY

- The activity can be used as a tool for revision or for consolidating and extending pupil understanding of reflections and rotations.
- Pupils should have some understanding of transformations.
- Pupils have to reflect (and rotate) a tile to build a copy of the given design.
- Different pupils within the class could work on different options.
- It is suggested that pupils work on either one or two consecutive options depending on the time available. It is recommended that pupils begin on either Option 1 (Modern Floor) or Option 2 (Renaissance Floor) to familiarise themselves with the task and

then move on to Option 3 (Medieval Floor) to challenge their mathematics and problem-solving skills.

- 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

- A homework sheet is provided for pupils to design their own tiling pattern which can be used either in class or set as a homework task.