

Stage 8: Visualising and constructing

Pedagogical notes

Describing enlargement as a 'scaling' will help prevent confusion when dealing with fractional scale factors.

All pupils should experience using dynamic software (e.g. Autograph) to visualise the effect of moving the centre of enlargement, and the effect of varying the scale factor.

Possible misconceptions

- Some pupils may think that the centre of enlargement always has to be (0,0), or that the centre of enlargement will be in the centre of the object shape.
- If the bearing of A from B is 'x', then some pupils may think that the bearing of B from A is '180 – x'.
- The north elevation is the view of a shape from the north (the north face of the shape), not the view of the shape while facing north

Lesson 7

KLP: Understand and use bearings

- Introduce the idea of a bearing by using either (magnetic) compasses or phone app. All students to stand facing north, turn clockwise and observe the effect. Ensure that students know the three key facts about bearings (slide 1)
- Carry out the activities detailed on 'Outdoor Leisure 13', using the set of laminated maps. Answers are on slide 2, but allow sizeable errors as using whiteboard pens will not be accurate.
- Finish the lesson by choosing two students to stand up. Ask the class to measure (using a compass) or estimate the bearing of 'Kate' from 'Emma'. Repeat for the bearing of 'Emma' from 'Kate'. Emphasise the importance of precise language.

Lesson 8

KLP: Construct scale diagrams involving bearings

- Use slides 4 and 5 to remind students of the toposcope on the summit of the Worcestershire Beacon (Malvern Hills). This points out places, and their distance from the hill summit. It also shows points of the compass, and possibly some bearings – but you might need to pretend this is the case!
- Carry out the activities detailed on 'Hilltops'. Students may need to extend the line in order to help measure the bearings. Ensure that all students are given chance to try task 2.
- Worksheet (bearings.docx page 1)
- Conclude the lesson with the 'what it is not' activity (bearings.docx page 1 last question)

Lesson 9

KLP: Solve geometrical problems using bearings

- Introduce task 1 from 'Airports and Hilltops' using Google maps
- Carry out task 1. Answers are provided on slide 6.
- Worksheet (bearings.docx page 2)
- Conclude by asking students to read and mark the mocked up solution in 'Bearings and Scale Drawing'. Students should then carry out the similar problem provided.

Stage 8 Unit 3 VC: Quest (assessment)