CENTRES FOR EXCELLENCE IN MATHS

FE centre resource

Pearson

Lesson plan

Exchange rates

1. Lesson objectives

- Use graphs to convert currency
- Understand how to use double number lines to provide insight into solving currency conversion problems
- Use approximation to check currency conversion calculations

2. GCSE curriculum

Ratio, proportion and rates of change
R10 solve problems involving direct and inverse proportion, including graphical representations

3. Lesson plan

This is an overview of the lesson. More notes can be found in the notes in the lesson slides.

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Introduction	To introduce the concept of currency exchange and to assess prior knowledge.	5	Introduce the context of the lesson and the objectives. Alex has saved some spending money to go travelling. Show learners this image and ask, ‘What do you see?’ Note: This activity is based on a simplified exchange rate, which fluctuates. Discuss this briefly with learners.	Slides 1–2
Explore 1	To carry out a collaborative exploration and the use of graph to develop the construction/use of double number line.	20	In pairs, using the graph provided, learners calculate how much £500 is worth in Euros and are asked to construct tables or to use a double number line to explain their thinking. A link to ratio notation is made: £1 : €1.20. This graph activity is an important building block for the construction and use of double number lines. Blank or partially filled tables can be used for differentiation – as scaffolding – if required.	Slide 3 Exchange rate graph handout Mini whiteboards
Discuss 1	To explore problem-solving approaches using a double number line.	10	Groups give feedback on how they calculated the conversion of £500 to Euros. You can demonstrate this for learners using the table and double number line, either on the whiteboard or by using an app (for example, GeoGebra).	Slides 4–8 GeoGebra (optional)

Activity	Purpose of this activity	Time (min)	Guidance	Materials
Explore 2	To reiterate the concept of currency conversion and to highlight common misconceptions when working with currency conversion.	5	This is a ‘spot the mistake’ activity, to highlight misconceptions. Learners work independently at first, then share their work and ideas. They discuss and explain. Note: This activity is based on a simplified exchange rate, which fluctuates. Discuss this briefly with learners.	Slide 9
Review	To deepen learners’ understanding using a double number line to illustrate efficient approaches.	5	Using the double number line, explore learners’ thinking and reasoning. Learners use the double number line to explain their thinking.	Slide 10
Practice	To further develop and secure an understanding of currency conversion, using a collaborative/ dialogic learning approach. An extension activity to use for differentiation.	20	Learners work out how much Alex has spent in total in pounds. They then share their thinking and discuss. Learners complete this task in pairs. Depending on confidence and competence, you can ask learners to convert all or choose a given number of souvenirs. While learners are working, pay particular attention to any thinking that will be helpful to share in the review section of the lesson. Note that an extension question can be projected or given as a handout to individual learners who work at a faster pace. This activity is optional depending on individual groups/learners and can be used as and when required for more able learners.	Slides 11–13 Cost of trip handout Mini whiteboards Extension activity handout (optional)

Review	To summarise learning, to capture ways of thinking and to clarify the concept of proportional reasoning.	10	Once all groups have attempted the questions, draw them together to summarise the learning. • Clarify the concept of these kinds of proportional reasoning problems. • Capture the ways of thinking pairs of learners have used for each of the problems (you may use the double number lines in the slides or draw one on the main whiteboard). It is important to make sense of, and capture, learners' ways of thinking – not to prescribe a best method.	Slides 14–16
Practice	To apply the learning to an exam question.	10	Learners work independently. Depending on time and ability of learners in the group, you may choose to do only one or two of questions with the class. When they have completed the questions, ask learners whether they have used a different approach when solving exchange rate problems to that used prior to the lesson. How has their thinking changed? What have they learned about multiplicative structure? Discuss where else this approach may work. Where have they used it before? Where would they use it in future?	Slides 17–25 Exam questions handout
Review	To review the lesson and recap what has been covered.	5	Ask learners to identify what has been discussed during the lesson.	Slide 26