Mathematical modelling to solve practical problems involving ratios and rates...

use mathematical modelling to solve practical problems involving ratios and rates, including financial contexts; formulate problems; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model

Learning intention

- use mathematical modelling to solve practical problems involving ratios and rates, including financial contexts; formulate problems; interpret and communicate...

Teach and model

- modelling and solving problems related to situations such as scales on maps and plans, the mixing of chemicals or ingredients, or calculating magnification factors applying...
- modelling problems involving converting money amounts using different exchange rates and applying them when planning and budgeting for overseas travel
- modelling situations involving financial contexts; for example, income tax, using taxation rates on annual income, comparing different taxation brackets and rates of pay...

Check understanding

- Explain the main idea in mathematical modelling to solve practical problems involving ratios and rates... using an example.
- Show the idea in a second way: with words, a model, a diagram or symbols.
- Apply the idea to a short unfamiliar situation and justify the result.

Teaching cautions

- Ask the student to explain their choice, not only state an answer.
- Check that key vocabulary is understood in a new example.
- Mix representations so the skill is transferred rather than copied.

Quick lesson sequence

- Connect to prior knowledge and introduce the key vocabulary.
- Model one clear example, then solve a second example together.
- Finish with an independent check and a short student explanation.