

NE712 Linking STEM curriculum learning to careers

Small changes: example lesson plans

MWB: Mini white boards

Original lesson plan for Maths (age 14-16)

The BIG Picture

Students have done basic percentage increase in Year 10 but no reverse percentages or more complex problems. Upcoming mocks mean use of calculator is real focus.

Learning Objectives

- To be able to use multipliers to solve a range of percentage problems
- To recognise the multipliers that represent given percentages
- To use multipliers for compound interest
- To solve problems when the reduced/increased value is known

Assessment for Learning

- Use of MWB for assessment of confidence with multipliers
- Test your understanding questions to be assessed using MWB
- Teacher check of independent work – live marking
- Students green pen assess quickfire questions

Differentiation

- Percentage challenge questions available and given to students who need more challenge
- Directed questioning
- Plenary answer the most challenging question

Engagement

- Use of MWB throughout
- Link to income tax and calculations

Key words

- Multiplier, compound, simple, reverse, percentage, income tax, depreciation

Learning episodes

1. Starter: students given several percentage calculations to do on MWB to assess how many use multipliers. Directly question several students to show how to use a multiplier. Quickfire exercise done in books then assessed using green pens.
2. Ask students about simple vs compound interest – where would we use compound interest? Why do you need to understand it? Model working for compound interest on board. Students complete exercise B in books – circulate and live mark work.
3. Introduce reverse percentages – show a question and ask students to try on MWB. Feedback verbally then model two methods on the board, explain how to determine if a question require quickfire reverse or note on MWB. Students model some examples in their books. Answer the most challenging question on MWB.
4. Ask students to discuss in pairs how income tax is calculated – take feedback from some pairs. Students given several incomes and asked to calculate tax payable.

Adaptations to lesson plan: small changes to link to careers

Context and Careers (new box)

Links to financial sector, HMRC or Mortgage Advisors. Job profile for financial advisor to give real life applications of percentages – house value, loans, mortgages, income tax, reductions in sales and savings.

Learning Objectives (addition)

To understand how income tax works and calculate salaries or show use of mortgage calculators and savings calculators (use online tool).

Engagement (addition)

- Discussion of real life applications and job roles of people using percentage calculations.

Assessment for Learning (addition)

- Contextualised exam question

Learning episode (addition to 4)

- Show the criteria and explain how tax is calculated.