

**East Renfrewshire Council: Education Department
Practitioner Moderation Template**



Prior to the moderation exercise, please complete the following information and submit it to your facilitator with assessment evidence from one learner that you judge to have successfully attained the Es' and Os'.

Eastwood High School

Experiences and Outcomes:

Fractions, decimal fractions and percentages including ratio and proportion

I can choose the most appropriate form of fractions, decimal fractions and percentages to use when making calculations mentally, in written form or using technology, then use my solutions to make comparisons, decisions and choices.

MNU 4-07a

Learning Intentions:

To choose the most appropriate method of fraction, decimal fraction or percentage when making a calculation both mentally and in written form.

To choose the most appropriate method of fraction, decimal fraction or percentage when using a calculator.

To compare, make decisions and choices based on my calculations.

Calculate the increase or decrease of a quantity and state the new value.

Calculate the percentage increase or decrease of a value.

Calculate the original amount of a quantity.

Success Criteria:

1. I can calculate mentally the percentage of a quantity using my knowledge of the links between fractions, decimals and percentages when necessary.
2. I can calculate the percentage of a quantity without the aid of a calculator.
I can use my knowledge of the links between fractions, decimals and percentages when necessary.
3. I can use a calculator to find the percentage of a quantity.
4. I can find the new value of a quantity given its percentage increase or decrease.
5. I can find the amount a quantity has increased or decreased and use this to calculate the percentage increase or decrease.
6. I can find the original amount given a percentage of a number.
7. I can make comparisons, decisions and choices based on my answers to calculations which include real-life examples.

Briefly outline the context and range of quality learning experiences that have been provided making reference to the chosen design principles.

Lesson 1

The topic of Percentages was introduced. Pupils were asked to discuss in groups where in real-life percentages are used and why they are important. A group member feed back to the rest of the class. Previous knowledge was then assessed using 'show me' boards. Pupils were asked to write down facts they remembered about percentages. Most pupils wrote down the links between common fractions and percentages. After this we recapped on previous knowledge by pupils coming out to the interactive white board and filling in a table which showed the link between a fraction, decimal and percentage. Pupils then used 'show me' boards to answer questions mentally where they had to choose the most appropriate method to answer the question. e.g. using a third when asked to find $33\frac{1}{3}\%$.

Lesson 2

Starter question based on mental calculations involving percentages.

Main lesson was again recapping on previous knowledge. Firstly finding a percentage without the use of a calculator where working is necessary. 'Show me' boards were used. Secondly finding a percentage using a calculator. Pupils worked through textbook exercise and checked their answers.

Lesson 3

Starter question based on finding a percentage which required working then used a calculator to check answer.

This lesson was on finding the new value after a percentage increase or decrease. The pupils were introduced to the words appreciate and depreciate. Using their note jotters real-life examples questions were worked through. Then pupils worked through textbook questions and checked their answers.

Lesson 4

Starter question based on finding the new value of a house after a percentage increase.

Today's lesson was on expressing a quantity as a percentage of another, progressing on to finding percentage increase and percentage decrease. Using their note jotters real-life examples questions were worked through. Vocabulary included percentage profit and loss. Pupils answered real-life questions in their jotter and marked each other's work. Pupils then worked in pairs to complete a worksheet on Percentage Increase.

Lesson 5

Starter question "What number am I?" using show me boards. This lead to a discussion on the methods used to get back to the original number. Once again pupils did worked examples in their note jotters. Pupils worked through textbook questions and checked their answers.

Record the range of assessment evidence that was gathered to meet the success criteria (Say, Write, Make, and Do) considering breadth, challenge and application.

1. I can calculate mentally the percentage of a quantity using my knowledge of the links between fractions, decimals and percentages when necessary.
Say/Write Answered questions orally and used 'show me' boards (Pupil Evidence Sheet 1)
2. I can calculate the percentage of a quantity without the aid of a calculator.
Do/Write Used 'show me' boards (Pupil Evidence Sheet 1)
3. I can use a calculator to find the percentage of a quantity.
Write (Pupil Evidence Sheet 1)
4. I can find the new value of a quantity given its percentage increase or decrease.
Write (Pupil Evidence Sheet 2)
5. I can find the amount a quantity has increased or decreased and use this to calculate the percentage increase or decrease.
Write/Do (Pupil Evidence Sheet 3)
6. Given a percentage of a number I can find the original amount.
Say/Write Answered questions both orally and written. (Pupil Evidence Sheet 2)
7. I can make comparisons, decisions and choices based on my answers to calculations which can include real-life situations.
Say/Write Answered questions both orally and written. (Pupil Evidence Sheet 2 & 3)

Briefly outline the oral/written feedback given to the pupil on progress and next steps, referring to the learning intention and success criteria.

Pupil correctly answered both oral and written questions, demonstrating a very high level of understanding of percentages and their link to fractions and decimal fractions. Positive feedback was given throughout the topic so that the pupil was aware that they were making very good progress. Pupil was reminded that though they were able to do quite complicated calculations mentally, it was good practice to show working also.

Pupil Voice:

What have you learned? How did you learn? What skills have you developed?

See Pupil Evidence Sheet 4.

Pupils completed an evaluation sheet using 'traffic lights' at the end of the topic.

Did the learner successfully attain the outcomes? Yes.

Pupil Evidence Sheet 1

Pupils doing both mental and written calculations.



SC 1



SC 1



SC 2



SC 1

SC 2

| | |
|---|--|
| $\begin{array}{r} \text{ka } 4\% \text{ of } \pounds 2280 \\ 1\% = \pounds 22.80 \\ 4\% = \pounds 91.20 \end{array}$ | $\begin{array}{r} \text{L } 12.0\% \text{ of } \pounds 3000 \\ 10.0\% = \pounds 300 \\ 10\% = \pounds 300 \\ 120\% = \pounds 3600 \end{array}$ |
| $\begin{array}{r} \text{m. } 6.5\% \text{ of } \pounds 4800 \text{ kg} \\ 1\% = 48 \text{ kg} \\ 0.5\% = 24 \text{ kg} \end{array}$ | $\begin{array}{r} \text{no } 1.5\% \text{ of } \pounds 900 \\ 1\% = \pounds 9 \\ 0.5\% = \pounds 4.50 \\ 1.5\% = \pounds 13.50 \end{array}$ |

SC 2

| | |
|---|---|
| $\begin{array}{r} \text{o. } 2.5\% \text{ of } \pounds 20,000 \\ 1\% = \pounds 200 \\ 0.5\% = \pounds 100 \\ 2.5\% = \pounds 500 \end{array}$ | $\begin{array}{r} \text{pa } 37\frac{1}{2}\% \text{ of } \pounds 2 \\ 25\% = \pounds 3 \\ 12\frac{1}{2}\% = \pounds 1.50 \\ 37\frac{1}{2}\% = \pounds 4.50 \end{array}$ |
|---|---|

Very good.

| | | | |
|---|---|---|------|
| $\text{g. } \frac{48}{100} \times 90 = \pounds 43.20 \checkmark$ | $\text{h. } \frac{8.5}{100} \times 3500 = 297.5 \text{ km} \checkmark$ | $\text{i. } \frac{64}{100} \times 4400 = 2816 \text{ m} \checkmark$ | SC 3 |
| $\text{j. } \frac{16}{100} \times 8 = 1.28 \text{ mm} \checkmark$ | $\text{k. } \frac{65\frac{1}{2}}{100} \times 8500 = \pounds 557 \checkmark$ | $\text{l. } \frac{29}{100} \times 4,500,000 = \pounds 1,305,000 \checkmark$ | VC |

Starter



SC2
SC7 Arrange the following in order smallest first:

$$\frac{3}{7} \text{ of } \pounds 196, \quad 33\frac{1}{3}\% \text{ of } \pounds 261, \quad 0.3 \times \pounds 250$$

$$\begin{array}{r} \uparrow \\ 028 \\ \overline{)196} \\ 196 \\ \hline 000 \end{array}$$

$$\begin{array}{r} \uparrow \\ 087 \\ \overline{)261} \\ 261 \\ \hline 000 \end{array}$$

$$\begin{array}{r} 0.3 \times 250 \\ 0.1 = 25 \\ 0.3 = 75 \end{array}$$

$$\begin{array}{r} 28 \\ \times 23 \\ \hline 84 \end{array}$$

$$0.3 \times \pounds 250, \quad \frac{3}{7} \text{ of } \pounds 196, \quad 33\frac{1}{3}\% \text{ of } \pounds 261$$

| | |
|---|------|
| 2. Increase = 8% of $\pounds 150$ | SC 4 |
| $8\% = \pounds 150 \div 100 = 0.015 \times 8 = 0.12$ | |
| $150 + 0.12 = \pounds 1.62$ | ✓ |
| 3. decrease = $33\frac{1}{3}\%$ of $\pounds 12.30$ | |
| $33\frac{1}{3}\% = \pounds 12.30 \div 3 = \pounds 4.10$ | |
| $\pounds 12.30 - 4.10 = \pounds 8.20$ | ✓ |

| | |
|----------------------------------|------------|
| 5. $100\% + 18\% = 118\%$ | SC 6 |
| $118\% = \pounds 590$ | |
| $1\% = 590 \div 118 = \pounds 5$ | |
| $100\% = \pounds 500$ | ✓ |
| 6. $100\% - 23\% = 77\%$ | |
| $77\% = \pounds 61.60$ | |
| $1\% = 61.60 \div 77 = 0.80p$ | Good work. |
| $100\% = \pounds 80$ | ✓ |

Percentage Increase

SC5

Working in pairs, calculate the hidden percentage on each cereal packet:



675g for the price of 450g

50% extra
 increase = 225
 $\% \text{ increase} = \frac{225}{450} \times 100\%$
 $\% = 50\%$



720g for the price of 600g

20% extra
 increase = 120
 $\% \text{ increase} = \frac{120}{600} \times 100\%$
 $= 20\%$



72 for the price of 48

50% extra
 increase = 24
 $\% = \frac{24}{48} \times 100$
 $\% = 50\%$



1kg for the price of 750g

33 1/3% extra
 increase = 250
 $\% = \frac{250}{750} \times 100\%$
 $\% = 33 \frac{1}{3}\%$



750g for the price of 500g

50% extra
 increase = 250
 $\% = \frac{250}{500} \times 100\%$
 $\% = 50\%$



550g for the price of 375g

46% extra
 increase = 175
 $\% = \frac{175}{375} \times 100\%$
 $= 46\%$

SCT

Which packets of cereal offer the best deal?

Crunchy nut, Weetabix, monster puffs

Which packet of cereal would you choose and why?

Coco pops because their nice.

Are there any other factors that could be considered when working out the best deal?

The price

Percentages

I have learned how to

- Convert percentages into fractions and decimals
- ~~Work~~ calculate percentages with and without a calculator
- find percentages
- Increase and decrease numbers by percentages
- Express one quantity as a percentage of another
- find original values

I learned this by

- Revising in class
- Revising at home
- Completing homework related to the subject
- Completing textbook work related to the subject
- Taking notes in my note book

Some skills I have developed,

- Working with percentages
- Working with fractions
- Working with ~~per~~ decimals
- Calculating with different units of measurement e.g. Money, time, weight