

East Renfrewshire Council: Education Department
Practitioner Moderation Template



Practitioner Code	T17
Curriculum Area(s)	Maths
Level	Third Level
Stage(s)	S2

Experiences and Outcomes:

By applying my knowledge of equivalent fractions and common multiples, I can add and subtract commonly used fractions.

MTH 3-07b

Having used practical, pictorial and written methods to develop my understanding, I can convert between whole or mixed numbers and fractions.

MTH 3-07c

Learning Intentions:

- To add and subtract commonly used fractions.
- To convert between whole or mixed numbers and fractions.

Success Criteria:

- I can find a common denominator. [1]
- I can multiply the numerator and the denominator of each fraction to get an equivalent fraction [2]
- I can add or subtract fractions (as applicable). [3]
- I can simplify fractions where necessary. [4]
- I can convert improper fractions to mixed numbers. [5]

Through class discussion, learners were involved in the creation of the above success criteria.

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

Prior to this particular lesson, the learners had covered the work on fractions from our S1 course. Therefore, all learners were able to add, subtract, multiply and divide fractions including problems involving mixed numbers. Having developed their understanding and skills in tackling problems involving fractions in each of the four

operations, the learners had begun to apply this knowledge to more challenging questions in context.

As part of the lesson starter, one of the questions involved fractions in context. The pupils had to interpret the question, decide whether to add or subtract, and then complete the calculation. This was completed individually in their jotters.

For the main body of the lesson, the pupils were asked to create their own questions. They were given time to think up their own scenario whereby their peers would be able to interpret this information, decide which type of calculation to carry out based on the information given, and then solve the problem to obtain the answer. When creating their questions, the pupils had to ensure that the information provided did in fact successfully generate a solvable problem involving fractions and that they themselves knew what the correct answer was. After completing this initial task, the pupils wrote their problems on the show-me boards and then exchanged these with their peers. The pupils tackled several of their peers' questions during this lesson, and were engaged in peer assessment throughout.

At the end of this lesson, the pupils were given their Formal Homework exercise for that week. This consisted of a mixture of topics covered to date, including adding and subtracting fractions. Question 3 from this exercise illustrates this.

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

Write

- Pupils wrote their own questions for their peers to answer.
- Pupils wrote out their solutions to each of the questions they answered.
(See show-me boards for evidence of the above).

Make

- Pupils created or made their own questions using their knowledge and skills of working with fractions.
- In answering the questions, pupils had to make a decision based on the information provided. The calculation chosen illustrated the information given in the question using mathematical language.
(See show-me boards for evidence).

Do

- Pupils tackled different questions from their peers and completed this work on the show-me boards.
- All pupils participated fully in all aspects of the lesson.

Say

- Pupils had the opportunity to take part in peer assessment as they completed each others questions.
(See pupil voice section).

The learner was challenged to apply what she had learned from her work with fractions to produce her own problem to be answered, as well as tackling the problems produced by her peers.

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

The learner received oral and written feedback in the form of self, peer and teacher assessment. The learner correctly answered both oral and written questions, demonstrating a very high level of understanding of fractions. She was given positive feedback throughout the topic informing her that she was making very good progress. She was told that her work not only showed understanding of the learning but also demonstrated her mathematical knowledge of adding and subtracting fractions, converting from improper fractions to mixed numbers, and simplifying fractions. Due to this high level of understanding, she was able to create her own question for her peers to answer.

Furthermore, the pupil was able to discuss her knowledge and understanding coherently amongst her peers as she successfully answered the questions they had created. Further evidence of this can be seen in the homework exercise where this pupil has successfully applied her learning to answer similar questions correctly.

Next Steps

Pupils will continue to apply their learning in this topic to more challenging questions, including BODMAS questions involving fractions and equations with fractions.

Pupil Voice:

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

"I enjoyed inventing my own question. It was fun and challenging and had to use the skills I had previously learned. I used skills I had learned from my work with fractions to work out other people's questions."

"I applied the skills I had learned when doing fractions to help me create my own question. I also used these skills to check that my question could be made into a problem that could be solved and made sense."

"By making up my own question, I developed my fraction skills further and it helped

me gain a deeper understanding of fractions."

Did the learner successfully attain the outcomes? YES

Starter

10th December 2018

1. Mary runs for $1\frac{7}{8}$ km, jogs for $1\frac{2}{3}$ km and walks for $\frac{3}{4}$ km.



How far has she travelled?

2. Calculate: $4\frac{3}{4} \times 1\frac{1}{3}$

3. Factorise: $27a^6b^2 - 42a^4b^5 + 33a^2b^3$

10/12/18 Starter

1) $1\frac{7}{8} + 1\frac{2}{3} + \frac{3}{4}$
 $= 2\frac{7}{8} + \frac{2}{3} + \frac{3}{4}$
 $= 2\frac{21}{24} + \frac{16}{24} + \frac{18}{24}$
 $= 2\frac{55}{24}$
 $= 4\frac{7}{24}$ km ✓

2) $4\frac{3}{4} \times 1\frac{1}{3}$
 $= \frac{19}{4} \times \frac{4}{3}$
 $= \frac{19}{3}$
 $= 6\frac{1}{3}$ ✓

3) $27a^6b^2 - 42a^4b^5 + 33a^2b^3$
 $= 3a^2b^2(9a^4 - 14a^2b^3 + 11b)$ ✓

[5] → $4\frac{7}{24}$ km ✓

[3] → $6\frac{1}{3}$ ✓

[1] & [2] → $2\frac{55}{24}$

I spent $2\frac{3}{4}$ hours on my laptop. I spent $1\frac{1}{6}$ hours on youtube and the rest of the time playing games.
 How long was I playing games for in hours and minutes?

$2\frac{3}{4} - 1\frac{1}{6}$
 $= 1\frac{3}{4} - \frac{1}{6}$
 $= 1\frac{9}{12} - \frac{2}{12}$
 $= 1\frac{7}{12}$

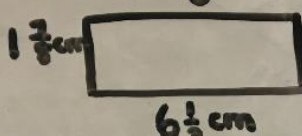
$\frac{7}{12}$ of 60
 $= 35$ minutes

1 hour 35 minutes

[1] & [2]

[3]

A rectangular piece of metal measures $1\frac{7}{8}$ cm wide by $6\frac{1}{3}$ cm long. Calculate its perimeter.



$1\frac{7}{8} + 1\frac{7}{8} + 6\frac{1}{3} + 6\frac{1}{3}$
 $= 2\frac{14}{8} + 12\frac{2}{3}$
 $= 2 + 1\frac{7}{4} + 12\frac{2}{3}$
 $= 15\frac{3}{4} + \frac{2}{3}$
 $= 15\frac{9}{12} + \frac{2}{12}$
 $= 15\frac{11}{12} = 16\frac{1}{12}$ cm

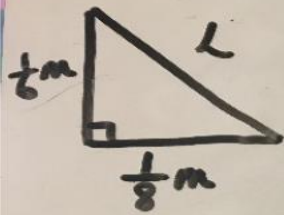
$\frac{14}{8} = 1\frac{7}{4}$
 $= 1\frac{7}{4}$

[4] & [5]

[3]

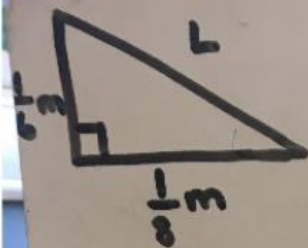
[5]

[1] & [2]



Calculate the length of Jim's ladder if the height of the ladder is $\frac{1}{6}m$ and the length of the floor is $\frac{1}{8}m$.

Find the length of Jim's ladder.



$$L^2 = \left(\frac{1}{6}\right)^2 + \left(\frac{1}{8}\right)^2$$

$$L^2 = \frac{1}{36} + \frac{1}{64}$$

$$L^2 = \frac{16}{576} + \frac{9}{576}$$

$$L^2 = \frac{25}{576}$$

$$L = \sqrt{\frac{25}{576}}$$

$$L = \frac{5}{24} \text{ metres}$$

[1] & [2]

[3]

Question 3 from Formal Homework Exercise

3. In a jumbo bag of Maltesers Paul ate $\frac{3}{5}$ of the bag at the cinema and Michelle ate $\frac{2}{7}$ of the bag. How much of the bag of Maltesers was left?

5a Formal Homework 5

(1) $2y^4 - 4y^2$
 (a) $= 2y^2(y^2 - 2)$ ✓

(b) $32k^4m^3 - 24k^3m^3 + 56k^2m^5$
 $= 8k^2m^3(4k^2 - 3k + 7m^2)$ ✓ (4/2)

(2) $6(i-3) - 2(i-5) + 9$
 $= 6i - 18 - 2i - 10 + 9$
 $= 4i - 19$ ✓ +10 (2/2)

(3) $7h(2h-2) + 3(h^2-5)$
 $= 14h^2 - 14h + 3h^2 - 15$
 $= 17h^2 - 14h - 15$ ✓

(3) $\frac{3}{5} + \frac{2}{7}$ $\frac{1}{2} - \frac{31}{35}$
 $= \frac{21}{35} + \frac{10}{35}$ $\frac{35}{35} - \frac{31}{35}$
 $= \frac{31}{35}$ ✓ $= \frac{4}{35}$ ✓ (2/2)

[1] & [2] [5] [3]

(4) (a) 25 pupils ✓
 (b) 8 ✓

(c)

x	f
20	
48	
140	
30	
90	
Total	368

$= 14.72$ ✓ (6/6)

Mean = $368 \div 25$ ✓

(d) $\frac{14}{5}$ ✓