Ratio and Proportion Prior Learning Assessment Q7,8 & 9:

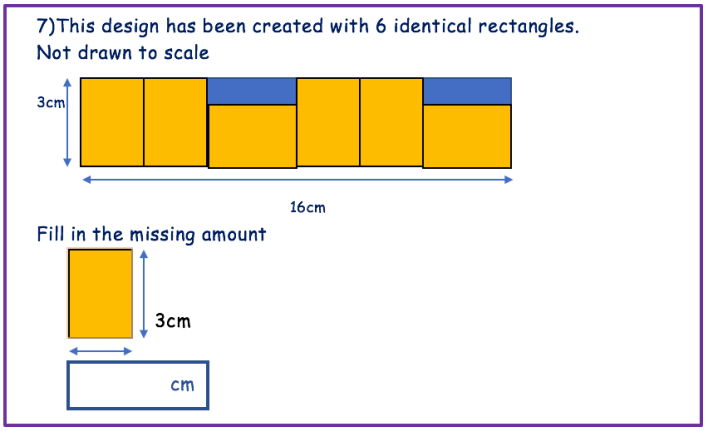
Objective: I can solve problems with unequal values

NC RP4: solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Teacher Input Ideas:

Questions 7, 8 and 9 in the prior assessment all include elements of unequal sharing. You may want to split the tasks and teaching over a few lessons to include unequal sharing in different contexts and to develop a variety of strategies to tackle these types of problems.

Q7 – Looks at unequal sharing through using images.



The children are given some measurements and should use this information and knowledge to work out other information they need to solve the problem The purple tasks provide further opportunity to look at this.

For the input, you may want to create a larger model of the question and discuss with the children the different approaches they suggest to take. The children can walk through the problem and explain any starting points or ideas they have.

Look at how the image has 6 equal rectangles.

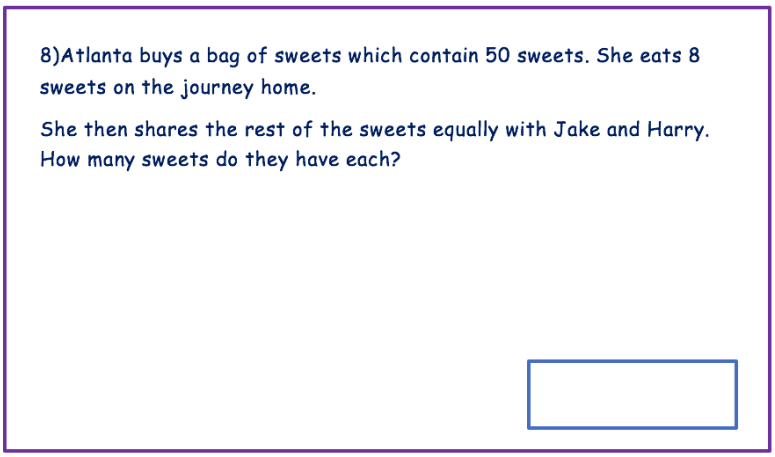
Key questions

- The word equal is used in the question, does that mean we need to perform equal sharing?
- What information do we have? Which measurement may need to be shared? How has this measurement been shared?

- Why can't we divide the length of 16 cm by 6? There are 6 rectangles but why is this not equal sharing? What do we notice about the rectangles? What can we do with this information? How does this help us?
- Model that we know the longest side of a rectangle is 3cm. We have 2 rectangles that use 3cm of the length. So 16 – 6 = 10cm. If we placed the 4 rectangles together that are remaining, what length would they make? How do you know this? So, 4 rectangles = 10cm. Can I share equally now? What is 10 divided by 4. How do you know this?

Green input- The focus of 8 was unequal sharing using word problems.

The green task will focus on identifying what the question is asking and how to tackle unequal sharing represented in word problems, using practical objects or drawings to help. Use objects to model to the children how we may tackle unequal sharing. Using question 8 as a starting point, identify what the question is asking? When does it present us with difficulty? What do we need to do first? Why? How does this help us? Why can't the amount be equally shared from the start? What makes this a tricky problem? Why? Is there a point when the amount can be shared equally? When will this be? How do you know this?



Establish with the children that the 8 needs taking away first and then the remainder of the sweets can be shared between 3. (You may want to demonstrate this practically with sweets and an image/diagram to show how the problem can be tackled)

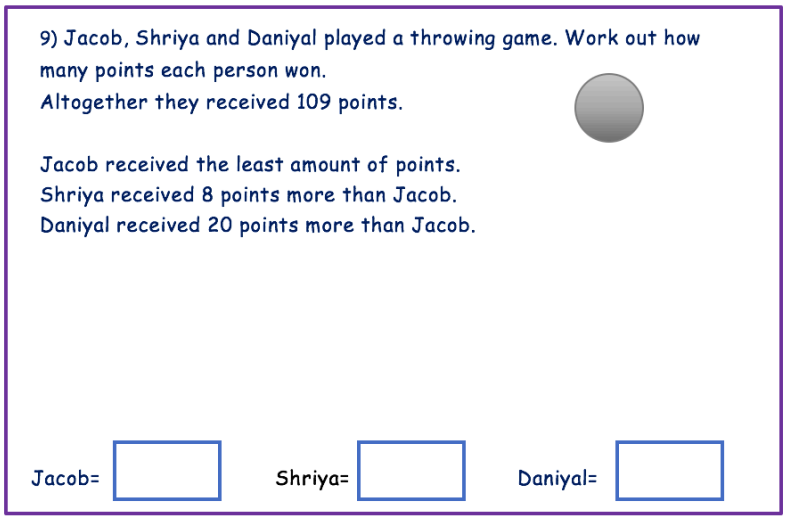
Present a trickier problem for the children to solve:

There are 84 sweets in a large bag. Sophie, Jake and Tom share the sweets. Tom and Jake both have 3 more sweets than Sophie. How many sweets does Sophie have?

Ask the children where would they start here? What type of calculation are they being asked to do? Can the amount be shared equally? Why not? What will they have to work out first? Why? How will they approach this? You could use 84 sweets to start with and see how the children work this out. Give the children 84 sweets to see if they can work out the answer practically. Can children explain what calculations they have performed to get the answer? How will they record this? Model using practical resources, images or jottings to help to get the answer.

Input for question 9- The focus of question 9 is unequal sharing when the content is abstract, such as comparisons between age or scores.

Once the children show understanding with unequal sharing using practical objects or images, the children will then be ready to try unequal sharing with more abstract content. The questions in the yellow task provide opportunity for this and the children will need modelling strategies such as using jottings or diagrams to help the children to understanding how to tackle the questions and pick out the unequal parts as it may be harder for the children to identify this.

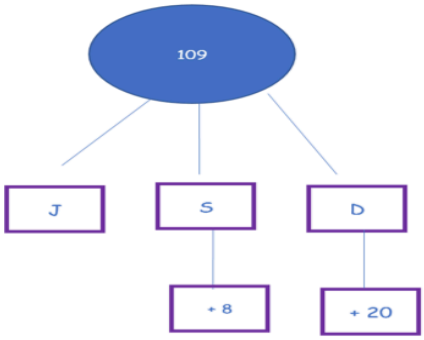


Discuss if the children can equally share the 109 between 3? Why not? What makes this more challenging? Which information will the children need to use first? Why? How will they use this? Some children may be able to see this and the calculation needed to be performed first. Such as, subtract 28 from the total first and then the amount can be shared equally. Why?

Some children may need to see this visually:

35 9) Jacob, Shriya and Daniyal played a throwing game. Work out how many points each person won.
Altogether they received 109 points.

Jacob received the least amount of points.
Shriya received 8 points more than Jacob.
Daniyal received 20 points more than Jacob.



109- 20 – 8 = 81
81 ÷3 = 27

J = 27
S = 27 + 8
D = 27 + 20

Children to have shown calculations or jottings to show that they needed to take away the differences in the child's scores first so that this could be shared equally first and then the differences to be added back on.

Jacob= 27 Shriya= 35 Daniyal= 47

You may also want to model other questions (suggestions on yellow task). Provide opportunities for discussions and modelling of different approaches and strategies that the children have.

Practice Activities

Purple Practice: Most suited for children who made errors in Question 7 of the prior learning assessment and demonstrate little understanding.

The children are presented with 2 images that are constructed with rectangles and squares where they are required to pick out the key information to help them to work out the answer to the visual problems which contain unequal sharing. Encourage the children to talk through the steps they take and explain why. Use key questioning prompts, like modelled in the input section, to encourage the children to explain their strategy and answers.

Green Practice: Most suited for children who made errors in Q8 of the prior learning assessment or need to further develop strategies for tackling unequal sharing word problems.

The children are provided with word problems that contain unequal sharing. These problems however can be support and solved with the use of images and resources to help the children understand and explain how the problem can be approached.

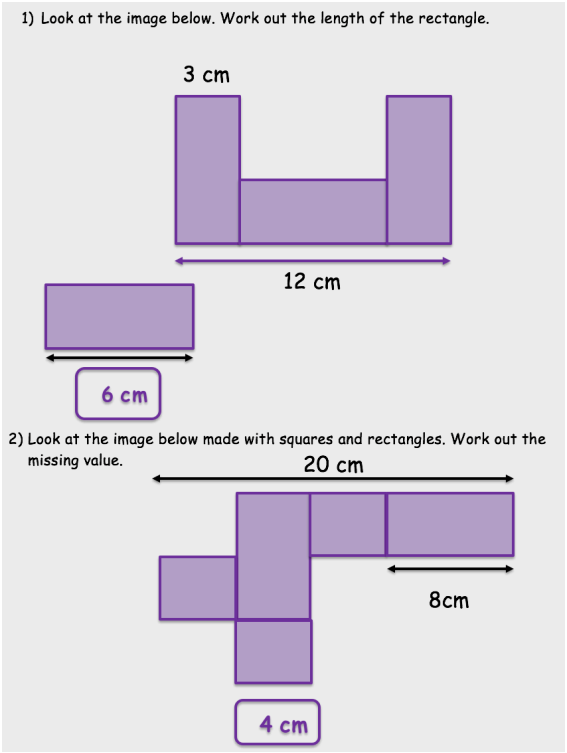
Encourage the children to suggest starting points and the resources they may use to tackle the problems. You may want to provide the children with sweets or counters or images. The children may then move away from the use of materials and begin to use jottings or drawings to help as they gain confidence.

Yellow: Most suited for children who made errors in Q9 of the prior learning assessment and are ready to solve abstract unequal sharing word problems.

The children are provided with word problems that contain more abstract unequal sharing (such as differences in age and scores). Encourage the children to talk through their approaches and what the question is asking as the equal sharing is more challenging to identify. Such as the children may not be able to identify which parts need subtracting or adding and which information can be shared equally. The children may benefit from drawing bar models or diagrams to help to problem solve.

Answers:

Purple:



Green:

1) 7 yellow counters
2) 7 sweets

Yellow:

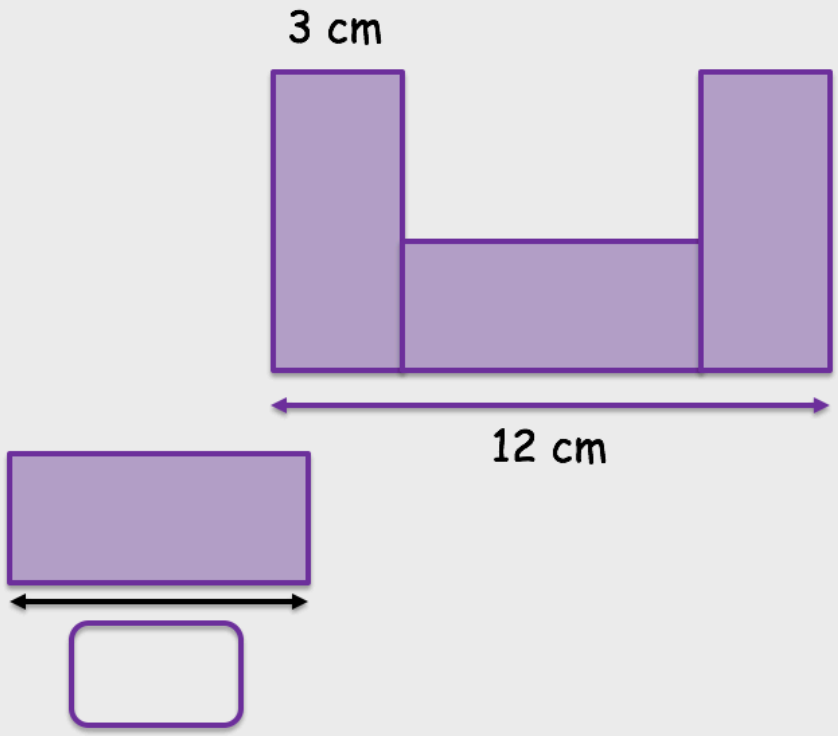
1) 33 years old
2)30 points

BRICKWORK Mathematics

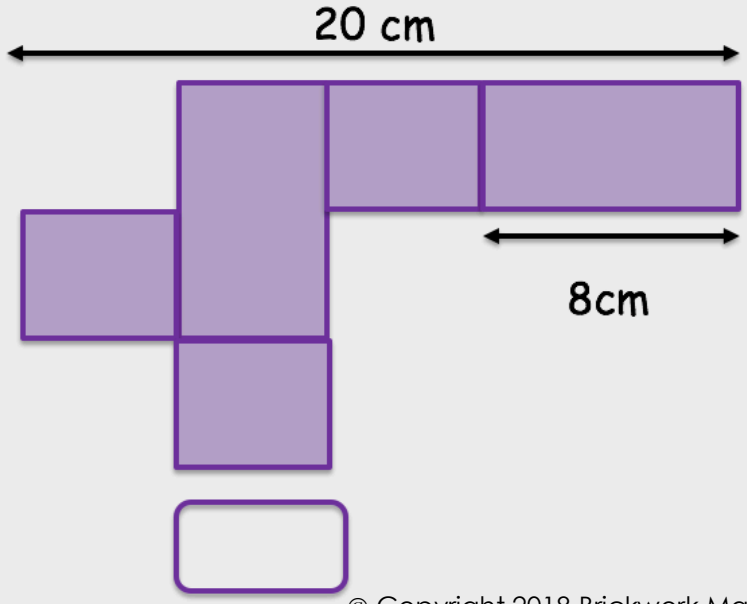
Purple Activity

LO : I can work out missing values for unequal sharing in images.

1) Look at the image below. Work out the length of the rectangle.



2) Look at the image below made with squares and rectangles. Work out the missing value.

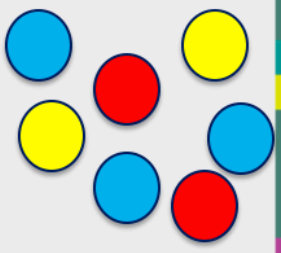


BRICKWORK Mathematics

Green Activity

LO: I can solve unequal word problems using resources.

1) In a tray there are 3 different coloured counters. There are 34 counters altogether . There are 3 times more red counters than yellow. There are 6 blue counters. How many yellow counters are there?



yellow counters

2) There are 52 sweets in a bag. Harry and Sunil eat half of the sweets on the way home from school on Wednesday. On Thursday, Harry eats 5 more sweets . He then shares the remaining sweets with Tom and Alisha.

How many sweets does Alisha eat?

sweets

BRICKWORK Mathematics

Yellow Activity

Lo: I can solve word problems that use unequal sharing.

1. Darcey is Andrea and Nathan's daughter. When all of their ages are added together the total is 74 years . Nathan is 3 years older than Andrea and Darcey is 5 years old. How old is Andrea?

years old

2. Jamil, Joshua and Betsy all play a game and have a combined score of 123 . Betsy scores double the amount that Joshua scores. Jamil scores 3 more points than Joshua. What is Joshua's score?

Joshua scores