Fraction, Decimals and Percentages Prior Assessment Question 1:

Objective: I can order fractions with different denominators and numerators, including fractions greater than 1 whole

NC: NFDP2 compare and order fractions, including fractions > 1

Teacher Input Ideas:

This lesson is to ensure that children understand what a fraction is and that the larger the denominator, the smaller the fraction when sharing a whole object. Most year 6 children should have understanding here. However, before teaching concepts such as calculating with fractions you want to ensure that children understand what fractions are.

Show cakes/ pizzas and talk about the whole being the same size. Large circles could be placed on to tables to represent the pizza or cake. Children to make different fractions. Talk about the purpose of the denominator and numerator. Children with more understanding could be targeted to find 1/7 or 1/5 making 5 or 7 equal sections in the circle, whereas children finding it trickier could have fractions like ¼ 1/6 and 1/12. Many children start with splitting the circle in half. Discuss why we wouldn't have 5 equal sections if we did this. Encourage children to talk about the size of the fractions and compare.

Practice Activities

Purple Practice: Most suited for children that made errors in **Question 1** and demonstrate little understanding of fractions.

Practical: Use pizzas or cakes that are all the same size already pre-cut into different fractions such as 1/6 1/3 1/12 1/8 ½

Encourage children to explore that the whole is the same size. When comparing fractions of a whole the whole is always the same size. Children to explore what each pizza is showing as a fraction and children to write and record these down.

Key Questions: What does the denominator show? What does the numerator show?

- Which slice of pizza would you like and why?
- Which size fraction is the largest. How do you know? How can you prove this to me?

Encourage children to explain their understanding using the examples and to show that although the number 12 is larger than 3, when looking at fractions the denominator

informs you as to have many to share/ divide by.

Green Practice: Most suited for children that demonstrate understanding of fractions but have difficulty in explaining fully and would benefit from applying knowledge of measure and division.

Practical Each child to have around 5 to 8 strips of paper each that are 20cm long. Children to work out fractions such as 1/3, 1/5 1/8 ¼ and 1/6. They could even think of their own fractions using the fraction strips.

For example, to find an 1/8 you would half 20 cm, half again and again.

Key questions

- How many centimetres would each section be?
- How would you measure this equally? Why is this important?
- What other fractions can you work out?
- What do you notice about each size of the sections /fractions you have made?
- Can you compare any?
- How can these models be used to help you to explain what fractions are and how the denominator informs you how to share the whole?

Yellow Practice Most suited for children who demonstrate a **good understanding** in **Question 1** in the Prior Assessment and can explain how fractions are created.

This activity provides the children with the opportunity to link fractions to division and use their knowledge of multiples and factors to investigate how many different fractions can be made from one whole. Encourage the children to use vocabulary to explain their point of view and prove this such as: they could make a model, complete calculations or use illustrations to show their understanding.

Mastery This activity provides the children with the opportunity to discuss different points of view as many children will have different answers. Encourage the children to prove that their answer is correct by using vocabulary and models to prove this.

The children need to show understanding that this time we don't know the size of the whole. The pieces in bar A and B are the same size. Encourage the children to explain that 10 of those pieces would make a shorter bar than 12 of the same sized pieces. Children could make models out of squared paper to help show this. They may need prompting to find a relationship between the pieces in bar C and the pieces in bars A and B. Approximately 1 piece of bar C is the same as 1.5 pieces of bar A and B.

Answers:

Yellow:

Q1) They are both correct: both can share six ways

Sophie could share hers: 1,2,3,4,6,12

Timothy: 1,2,3,6,9,18

Q2)

24 pieces or 30 pieces

24: 1,2,3,4,6,8,12,24, (8 ways)

30: 1,2,3,5,6,10,15,30 (8 ways)

Encourage the children to write fractions using their knowledge of factors and explain using this vocabulary. Encourage children to have demonstrated this through modelling or illustrations to prove to others they are correct.

Mastery

A: 1/12

Children need to show that they have understanding that in this case the pieces of chocolate are being shown as the fraction and not the whole chocolate bar. So, the children need to prove that there would be 12 pieces of that size compared to 10 pieces of the same size, therefore that would be longer and more chocolate. Children could be encouraged to recreate these chocolate pieces to make the whole of the chocolate bar. When looking at the 1/3 encourage the children to think about how much larger the 1/3 pieces are than the 1/12 and 1/10. There are approx. 1.5 pieces of the 1/10 chocolate bar to one piece of the 1/3 chocolate bar. Encourage children to draw pictures using squared paper or make these chocolate bars to help them to prove they are right. Some children may be able to say that there would be 3 pieces of the 1/10 chocolate bar to every 2 pieces of the 1/3 chocolate bar so roughly that would be 4 and half pieces of the 1/10 chocolate bar.

BRICKWORK Mathematics

Yellow Practice

Lo: I can use mathematical vocabulary and illustrations to express my point of view.

Sophie and Timothy make their own chocolate bar for a school project. They need to decide how many pieces to mark out before they package it.

Sophie says:

I think that the chocolate bar should be cut in to 12 equal pieces. Each piece would be 1/12. This means it can be shared equally in a variety of ways. For example: 2 children could have 6/12 each or 6 children could have 2/12 each.

Timothy disagrees:

If we split the chocolate bar in to 18 equal pieces then there are more possibilities for sharing.

1) Explain and prove who is right. How many different possibilities are there to share the chocolate bars for both points of view?

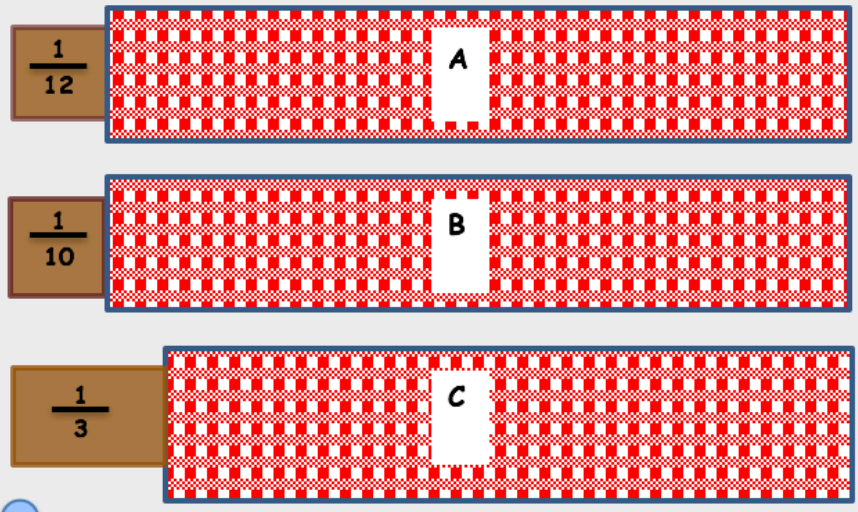
2) Extension: investigate the best number of pieces to cut the chocolate bar in to. The chocolate bar cannot have more than 30 pieces marked out. Prepare a presentation to Sophie and Timothy to convince them that your suggestion is better than theirs.

BRICKWORK Mathematics

Mastery

Lo: I reason my decision using vocabulary and evidence to help explain.

3 chocolate bars are hidden. A fraction of the chocolate bar is shown. Which one would you choose? Why? Which chocolate bar would give you the most chocolate?



TIPS:

- How can you prove that you are right?
- What relationships can you see between the pieces?
- How do these help you to work out which would be the longest chocolate bar?