Maths Learning Activities – Fractions

Monday:

What is a Fraction?

Reasoning and Problem Solving

R

Always, Sometimes, Never?

Alex says,

> If I split a shape into 4 parts, I have split it into quarters.

Explain your answer.

Sometimes

If the shape is not split equally, it will not be in quarters.

Which representations of $\frac{4}{5}$ are incorrect?
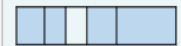
$$\frac{4}{5}$$

Explain how you know.

The image of the dogs could represent $\frac{2}{5}$ or $\frac{3}{5}$

The bar model is not divided into equal parts so this does not represent $\frac{4}{5}$

Tuesday:

How many equivalent fractions can you see in this picture?

Children can give a variety of possibilities. Examples:

$$\frac{1}{2} = \frac{6}{12} = \frac{3}{6}$$

$$\frac{1}{4} = \frac{3}{12}$$

Ron has two strips of the same sized paper.
He folds the strips into different sized fractions.
He shades in three equal parts on one strip and six equal parts on the other strip.
The shaded areas are equal.

What fractions could he have folded his strips into?

Ron could have folded his strips into sixths and twelfths, quarters and eighths or any other fractions where one of the denominators is double the other.

Eva says,

I know that $\frac{3}{4}$ is equivalent to $\frac{3}{8}$ because the numerators are the same.

Is Eva correct?
Explain why.

Eva is not correct.
$\frac{3}{4}$ is equivalent to $\frac{6}{8}$
When the numerators are the same, the larger the denominator, the smaller the fraction.

Rosie says,

> To find equivalent fractions, whatever you do to the numerator, you do to the denominator.

Using her method, here are the equivalent fractions Rosie has found for $\frac{4}{8}$

$$\frac{4}{8} = \frac{8}{16} \qquad \frac{4}{8} = \frac{6}{10}$$

$$\frac{4}{8} = \frac{2}{4} \qquad \frac{4}{8} = \frac{1}{5}$$

Are all Rosie's fractions equivalent?
Does Rosie's method work?
Explain your reasons.

$\frac{4}{8} = \frac{1}{5}$ and $\frac{4}{8} = \frac{6}{10}$ are incorrect.

Rosie's method doesn't always work. It works when multiplying or dividing both the numerator or denominator but not when adding or subtracting the same thing to both.

Ron thinks you can only simplify even numbered fractions because you keep on halving the numerator and denominator until you get an odd number.

Do you agree?
Explain your answer.

Ron is wrong. For example $\frac{3}{9}$ can be simplified to $\frac{1}{3}$ and these are all odd numbers.

Here are some fraction cards.
All of the fractions are equivalent.

$$\boxed{\frac{4}{A}} \qquad \boxed{\frac{B}{C}} \qquad \boxed{\frac{20}{50}}$$

$A + B = 16$
Calculate the value of C.

$A = 10$
$B = 6$
$C = 15$

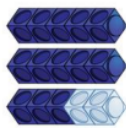Wednesday:

3 friends share some pizzas.
Each pizza is cut into 8 equal slices.
Altogether, they eat 25 slices.
How many whole pizzas do they eat?

They eat 3 whole pizzas and 1 more slice.

Spot the mistake.

$\frac{13}{5}$ = 10 wholes and 3 fifths

There are 2 wholes not 10
$\frac{10}{5}$ = 2 wholes

$\frac{13}{5}$ = 2 wholes and 3 fifths

Rosie says,

$\frac{16}{4}$ is greater than $\frac{8}{2}$ because 16 is greater than 8

Do you agree?
Explain why.

I disagree with Rosie because both fractions are equivalent to 4

Children may choose to build both fractions using cubes, or draw bar models.

Thursday:

Amir says,

$\frac{28}{3}$ is less than $\frac{37}{5}$ because 28 is less than 37

Do you agree?
Explain why.

Possible answer

I disagree because $\frac{28}{3}$ is equal to $9\frac{1}{3}$ and $\frac{37}{5}$ is equal to $7\frac{2}{5}$

$\frac{37}{5} < \frac{28}{3}$

Spot the mistake

- $\frac{27}{5} = 5\frac{1}{5}$

- $\frac{27}{3} = 8$

- $\frac{27}{4} = 5\frac{7}{4}$

- $\frac{27}{10} = 20\frac{7}{10}$

What mistakes have been made?

Can you find the correct answers?

Correct answers

- $5\frac{2}{5}$ (incorrect number of fifths)

- 9 (incorrect whole)

- $6\frac{3}{4}$ (still have an improper fraction)

- $2\frac{7}{10}$ (incorrect number of wholes)

Friday:

Three children have incorrectly converted $3\frac{2}{5}$ into an improper fraction.

Annie:

$$3\frac{2}{5} = \frac{6}{15}$$

Mo:

$$3\frac{2}{5} = \frac{15}{5}$$

Dexter:

$$3\frac{2}{5} = \frac{32}{5}$$

What mistake has each child made?

Annie has multiplied the numerator and denominator by 3

Mo has multiplied the correctly but then forgotten to add on the extra 2 parts.

Dexter has just placed 3 in front of the numerator.

Fill in the missing numbers.

How many different possibilities can you find for each equation?

$$2\frac{\square}{8} = \frac{\square}{8}$$

$$2\frac{\square}{5} = \frac{\square}{5}$$

Compare the number of possibilities you found.

$2\frac{1}{8} = \frac{17}{8}$ $2\frac{2}{8} = \frac{18}{8}$

$2\frac{3}{8} = \frac{19}{8}$ $2\frac{4}{8} = \frac{20}{8}$

$2\frac{5}{8} = \frac{21}{8}$ $2\frac{6}{8} = \frac{22}{8}$

$2\frac{7}{8} = \frac{23}{8}$

There will be 4 solutions for fifths.

Teacher notes: Encourage children to make generalisations that the number of solutions is one less than the denominator.