Reasoning and Problem Solving
Step 5: Compare and Order Less than 1

National Curriculum Objectives:

Mathematics Year 5: (5F3) Compare and order fractions whose denominators are all multiples of the same number

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain whether a statement is correct when comparing two fractions less than 1 where the denominator is double or half of the starting fraction. Draw a diagram to check.
Expected Explain whether a statement is correct when comparing two fractions less than 1 whose denominators are all multiples of the same number or have common numerators. Draw a diagram to check.
Greater Depth Explain whether a statement is correct when comparing two fractions less than 1 whose denominators are not direct multiples but have a common factor or have common numerators. Draw a diagram to check.

Questions 2, 5 and 8 (Problem Solving)
Developing Use digit cards to complete a more/less than statement comparing fractions less than 1 where the missing denominator is the same, double or half of the starting fractions.
Expected Use digit cards to complete a more/less than statement comparing fractions less than 1 where the missing denominators are all multiples of the denominator of the starting fraction.
Greater Depth Use digit cards to complete a more/less than statement comparing fractions less than 1 where the missing denominators are not direct multiples but have a common factor with the denominator of the starting fraction.

Questions 3, 6 and 9 (Reasoning)
Developing Find the mistake when ordering fractions less than 1 where the denominator is double or half of the starting fraction.
Expected Find the mistake when ordering fractions less than 1 whose denominators are all multiples of the same number.
Greater Depth Find the mistake when ordering fractions less than 1 whose denominators are not direct multiples but have a common factor.

More Year 5 and Year 6 Fractions resources.

Did you like this resource? Don't forget to review it on our website.

1a. Wynter is comparing $\frac{17}{22}$ and $\frac{9}{11}$.

I know that is $\frac{17}{22}$ bigger than $\frac{9}{11}$ because 17 is bigger than 9.

Is she correct? Show how she could use a diagram to check her answer.

D

5 R

1b. Xin is comparing the fractions $\frac{6}{8}$ and $\frac{1}{4}$.

I know that $\frac{6}{8}$ is larger than $\frac{1}{4}$ because it is equivalent to $\frac{3}{4}$.

Is he correct? Show how he could use a diagram to check his answer.

D

5 R

2a. Use two number cards to complete the equation.

$$\frac{1}{6} < \frac{\square}{\square} < \frac{3}{6}$$

| 2 | 5 | 6 | 12 |

Find two possibilities.

D

5 PS

2b. Use two number cards to complete the equation.

$$\frac{2}{9} < \frac{\square}{\square} < \frac{4}{9}$$

| 3 | 7 | 9 | 18 |

Find two possibilities.

D

5 PS

3a. Kyle has put these fractions in ascending order.

$$\frac{7}{8} \,,\, \frac{5}{8} \,,\, \frac{7}{16} \,,\, \frac{1}{16}$$

Explain his mistake.

Rewrite the fractions in the correct order as equivalent fractions.

D

5 R

3b. Holly has put these fractions in ascending order.

$$\frac{1}{5} \,,\, \frac{3}{10} \,,\, \frac{4}{5} \,,\, \frac{7}{10}$$

Explain her mistake.

Rewrite the fractions in the correct order as equivalent fractions.

D

5 R

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4a. Luna is comparing the fractions $\frac{2}{9}$ and $\frac{2}{3}$.

I know that $\frac{2}{9}$ is larger than $\frac{2}{3}$ because a ninth is three times bigger than a third.

Is she correct? Show how she could use a diagram to check her answer.

5 R

4b. Yussuf is comparing the fractions $\frac{6}{7}$ and $\frac{19}{21}$.

I know that $\frac{19}{21}$ is larger than $\frac{6}{7}$ because it is equivalent to $\frac{18}{21}$.

Is he correct? Show how he could use a diagram to check his answer.

5 R

5a. Use two number cards to complete the equation.

$$\frac{2}{5} < \frac{\square}{\square} < \frac{3}{5}$$

| 5 | 8 | 9 | 10 | 15 |

Find two possibilities.

5 PS

5b. Use two number cards to complete the equation.

$$\frac{7}{11} < \frac{\square}{\square} < \frac{8}{11}$$

| 11 | 15 | 22 | 25 | 33 |

Find two possibilities.

5 PS

6a. Callum has put these fractions in ascending order.

$$\frac{1}{8} , \frac{3}{4} , \frac{7}{32} , \frac{11}{16}$$

Explain his mistake.

Rewrite the fractions in the correct order as equivalent fractions.

5 R

6b. Julia has put these fractions in descending order.

$$\frac{19}{28} , \frac{3}{14} , \frac{4}{7} , \frac{1}{2}$$

Explain her mistake.

Rewrite the fractions in the correct order as equivalent fractions.

5 R

7a. Fran is comparing the fractions $\frac{8}{25}$ and $\frac{13}{30}$.

They are both in the 5 times tables so I can divide by 5 to find equivalent fractions.

Is she correct? Show how she could use a diagram to check her answer.

GD

5 R

7b. Mallory is comparing the fractions $\frac{7}{18}$ and $\frac{19}{45}$.

They are both in the 9 times table so I can use this to find equivalent fractions with a common denominator of 90.

Is he correct? Show how he could use a diagram to check his answer.

GD

5 R

8a. Use two number cards to complete the equation.

$$\frac{8}{45} < \frac{\boxed{}}{\boxed{}} < \frac{17}{45}$$

| 9 | 25 | 46 | 80 | 225 |

Find two possibilities.

GD

5 PS

8b. Use two number cards to complete the equation.

$$\frac{10}{32} < \frac{\boxed{}}{\boxed{}} < \frac{17}{32}$$

| 8 | 24 | 31 | 37 | 96 |

Find two possibilities.

GD

5 PS

9a. Mo has put these fractions in ascending order.

$$\frac{7}{20} , \frac{11}{20} , \frac{17}{45} , \frac{83}{90}$$

Explain his mistake.

Rewrite the fractions in the correct order as equivalent fractions.

GD

5 R

9b. Mildred has put these fractions in descending order.

$$\frac{17}{35} , \frac{9}{14} , \frac{1}{7} , \frac{3}{35}$$

Explain her mistake.

Rewrite the fractions in the correct order as equivalent fractions.

GD

5 R

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Reasoning and Problem Solving – Compare and Order Less than 1 – Year 5 Greater Depth

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Developing

1a. Wynter is not correct. Example answer: she could use a bar model which shows that $\frac{9}{11} = \frac{18}{22}$ and $\frac{18}{22} > \frac{17}{22}$.

2a. $\frac{2}{6}$, $\frac{5}{12}$ ($\frac{2}{5}$ is also a possibility but not expected at this stage).

3a. Kyle has put the fractions in descending order. $\frac{1}{16}$, $\frac{7}{16}$, $\frac{10}{16}$, $\frac{14}{16}$

Developing

1b. Xin is correct. Example answer: he could use a bar model which shows that $\frac{6}{8}$ is bigger than $\frac{2}{8}$.

2b. $\frac{3}{9}$, $\frac{7}{18}$

3b. Holly has ordered the fractions by the numerators. $\frac{2}{10}$, $\frac{3}{10}$, $\frac{7}{10}$, $\frac{8}{10}$

Expected

4a. Luna is not correct. Example answer: she could use a bar model which shows that $\frac{2}{3} > \frac{2}{9}$, as each third is larger than each ninth.

5a. $\frac{8}{15}$, $\frac{5}{10}$

6a. Callum has ordered the fractions from the numerators. $\frac{4}{32}$, $\frac{7}{32}$, $\frac{22}{32}$, $\frac{24}{32}$

Expected

4b. Yussuf is correct. Example answer: he could use a bar model which shows that $\frac{6}{7} = \frac{18}{21}$ and therefore $\frac{19}{21} > \frac{18}{21}$.

5b. $\frac{15}{22}$, $\frac{22}{33}$

6b. Julia has put the fractions by denominator in descending order. $\frac{19}{28}$, $\frac{16}{28}$, $\frac{14}{28}$, $\frac{6}{28}$

Greater Depth

7a. Fran is not correct. Example answer: she could use a bar model which shows that $\frac{8}{25}$ and $\frac{13}{30}$ can not be divided by 5 and produce a whole number as a numerator.

8a. $\frac{9}{25}$, $\frac{46}{225}$, $\frac{80}{225}$

9a. Mo has ordered the fractions by their denominator but has not found equivalent fractions. $\frac{63}{180}$, $\frac{68}{180}$, $\frac{99}{180}$, $\frac{166}{180}$

Greater Depth

7b. Mallory is correct. Example answer: he could use a bar model which shows that $\frac{1}{18} = \frac{5}{90}$ and $\frac{19}{45} = \frac{38}{90}$.

8b. $\frac{8}{24}$, $\frac{31}{96}$, $\frac{37}{96}$

9b. Mildred has ordered the fractions by the numerators. $\frac{45}{70}$, $\frac{34}{70}$, $\frac{10}{70}$, $\frac{6}{70}$

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