Reasoning and Problem Solving
Step 2: Fractions on a Number Line

National Curriculum Objectives:

Mathematics Year 6: (6F2) Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Mathematics Year 6: (6F3) Compare and order fractions, including fractions > 1
Mathematics Year 6: (6F11) Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Prove if a statement is correct by placing and comparing fractions less than 1 on a number line. Denominators are direct multiples.
Expected Prove if a statement is correct by placing and comparing fractions on a number line whose denominator are multiples of each other. Some use of improper fractions and mixed numbers less than 2.
Greater Depth Prove if a statement is correct by placing and comparing fractions on a number line whose denominators are not multiples of each other and may require simplifying. Some use of improper fractions and mixed numbers mixed numbers less than 2.

Questions 2, 5 and 8 (Reasoning)
Developing Explain who has correctly placed the fraction less than 1 on a number line. Denominators are direct multiples.
Expected Explain who has correctly placed the fraction on the number line. Some use of improper fractions and mixed numbers less than 2.
Greater Depth Explain who has correctly placed the fraction on the number line. Denominators are not multiples of each other and may require simplifying. Some use of improper fractions and mixed numbers less than 2.

Questions 3, 6 and 9 (Problem Solving)
Developing Use clues to label fractions less than 1 on a number line. Denominators are direct multiples.
Expected Use clues to label fractions on a number line whose denominators are multiples of each other. Some use of improper fractions and mixed numbers less than 2.
Greater Depth Uses clues to label fractions on a number line whose denominators are not multiples of each other and may require simplifying. Some use of improper fractions and mixed numbers less than 2.

More Year 6 Fractions resources.

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Fractions on a Number Line

1a. Tegan is working on a number line.

She says,

All of these fractions can be placed on the number line below.

$\frac{3}{5}$ $\frac{4}{10}$ $\frac{2}{4}$

Is she correct? Prove it.

D

R

Fractions on a Number Line

1b. Lexie is working on a number line.

She says,

All of these fractions can be placed on the number line below.

$\frac{5}{8}$ $\frac{3}{4}$ $\frac{2}{16}$

Is she correct? Prove it.

D

R

2a. Two children have been asked to place $\frac{3}{4}$ on the number line.

Who is correct?

Explain your answer.

D

R

2b. Two children have been asked to place $\frac{2}{5}$ on the number line.

Who is correct?

Explain your answer.

D

R

3a. Label each of the children's fractions on the number line.

Saul

My fraction is $\frac{4}{8}$ larger than Muna's.

Muna

My fraction is $\frac{1}{4}$ smaller than Eli's .

Eli

My fraction is equivalent to a half.

D

PS

3b. Label each of the children's fractions on the number line.

Zac

My fraction is $\frac{6}{10}$ smaller than Sara's.

Sara

My fraction is $\frac{1}{5}$ smaller than 1.

Sue

My fraction is equivalent to $\frac{3}{5}$.

D

PS

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Fractions on a Number Line

4a. Summer is working on a number line.

She says,

All of these fractions can be placed on the number line below.

$\frac{7}{5}$ $\frac{18}{20}$ $1\frac{1}{2}$

Is she correct? Prove it.

E R

Fractions on a Number Line

4b. Alex is working on a number line.

He says,

All of these fractions can be placed on the number line below.

$\frac{10}{8}$ $1\frac{1}{4}$ $\frac{8}{16}$

Is he correct? Prove it.

E R

5a. Two children have been asked to place $1\frac{8}{12}$ on the number line.

Who is correct?

Explain your answer.

E R

5b. Two children have been asked to place $1\frac{8}{10}$ on the number line.

Who is correct?

Explain your answer.

E R

6a. Label each of the children's fractions on the number line.

Jack

My fraction is $\frac{6}{10}$ larger than Max's.

Jess

My fraction is $\frac{1}{5}$ smaller than 2.

Max

My fraction is $1\frac{1}{5}$ smaller than Jess's.

E PS

6b. Label each of the children's fractions on the number line.

Dom

My fraction is $\frac{2}{8}$ less than 1.

Evie

My fraction is $\frac{7}{4}$ smaller than 2.

Liz

My fraction is $1\frac{2}{8}$ bigger than Evie's.

E PS

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Fractions on a Number Line

7a. Emily is working on a number line.

She says,

All of these fractions can be placed on the number line below.

$1\frac{12}{15}$ $\frac{26}{20}$ $1\frac{3}{5}$

Is she correct? Prove it

GD

R

Fractions on a Number Line

7b. Denzel is working on a number line.

He says,

All of these fractions can be placed on the number line below.

$\frac{5}{4}$ $\frac{17}{12}$ $1\frac{8}{24}$

Is he correct? Prove it

GD

R

8a. Two children have been asked to place $1\frac{5}{15}$ on the number line.

Who is correct?

Explain your answer.

GD

R

8b. Two children have been asked to place $\frac{21}{12}$ on the number line.

Who is correct?

Explain your answer.

GD

R

9a. Label each of the children's fractions on the number line.

Karl

My fraction is $\frac{9}{12}$ larger than Luna's.

Isla

My fraction is $\frac{2}{8}$ smaller than 2.

Luna

My fraction is $1\frac{8}{16}$ smaller than Isla's.

GD

PS

9b. Label each of the children's fractions on the number line.

Juno

My fraction is $\frac{8}{6}$ smaller than Lara's.

Lara

My fraction is $\frac{5}{15}$ smaller than 2.

Cain

My fraction is $\frac{9}{9}$ larger than Juno's.

GD

PS

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Reasoning and Problem Solving
Fractions on a Number Line

Developing

1a. Tegan is correct.

$\frac{2}{4} = \frac{5}{10}$; $\frac{3}{5} = \frac{6}{10}$

2a. Scarlet is correct because:

$\frac{3}{4} = \frac{9}{12}$

3a.

Expected

4a. Summer is correct.

$\frac{18}{20} = \frac{9}{10}$; $\frac{7}{5} = \frac{14}{10}$; $1\frac{1}{2} = \frac{15}{10}$

5a. Harry is correct because:

$1\frac{8}{12} = \frac{20}{12} = \frac{10}{6}$

6a.

Greater Depth

7a. Emily is incorrect because $\frac{26}{20} = \frac{13}{10}$ and this will not fit on the number line.

8a. Roxy is correct because:

$1\frac{5}{15} = \frac{20}{15} = \frac{4}{3} = \frac{8}{6}$

9a.

Reasoning and Problem Solving
Fractions on a Number Line

Developing

1b. Lexie is incorrect because $\frac{2}{16} = \frac{1}{8}$ and this will not fit on the number line.

2b. Anya is correct because:

$\frac{2}{5} = \frac{4}{10}$

3b.

Expected

4b. Alex is incorrect because $\frac{8}{16} = \frac{4}{8}$ and this will not fit on the number line.

5b. Georgia is correct because:

$1\frac{8}{10} = \frac{18}{10} = \frac{9}{5}$

6b.

Greater Depth

7b. Denzel is correct because:

$\frac{5}{4} = \frac{15}{12}$; $1\frac{8}{24} = \frac{16}{12}$; $1\frac{8}{16} = \frac{18}{12}$

8b. Dennis is correct because:

$\frac{21}{12} = \frac{7}{4} = \frac{14}{8}$

9b.

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