Reasoning and Problem Solving
Step 1: Simplify Fractions

National Curriculum Objectives:

Mathematics Year 6: (6F2) Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Complete the missing parts of a simplified fraction using denominators which are multiples of the numerator. Visual image provided for support.
Expected Complete the missing parts of a simplified fraction using the highest common factor of the numerator and denominator. A selection of factors provided. Involving multiples of any number up to 12 x 12.
Greater Depth Find two different ways to complete the missing parts of a simplified fraction and identify the highest common factor. Involving multiples of any number up to 12 x 12.

Questions 2, 5 and 8 (Problem Solving)
Developing Solve the word problem using knowledge of how to simplify fractions using denominators which are multiples of the numerator. Pictorial support given.
Expected Solve the word problem using knowledge of how to simplify fractions using highest common factors of the numerator and denominator. Involves multiples of any number up to 12 x 12. Some pictorial support given.
Greater Depth Solve the word problem using knowledge of how to simplify fractions using highest common factors of the numerator and denominator. Involves multiples of any number up to 12 x 12 and introducing multiples of 20 and 25. No pictorial support given.

Questions 3, 6 and 9 (Reasoning)
Developing Identify whether a fraction has been simplified correctly using denominators which are multiples of the numerator. Pictorial support given.
Expected Identify whether a fraction has been simplified correctly using highest common factors of the numerator and denominator. Involving multiples of any number up to 12 x 12. Some pictorial support given.
Greater Depth Identify whether a fraction has been simplified correctly using highest common factors of the numerator and denominator. Involving multiples of any number up to 12 x 12 and introducing multiples of 20 and 25. No pictorial support given.

More Year 6 Fractions resources.

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

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Simplify Fractions

1a. Use the fraction wall to complete these simplified fractions.

A. $\frac{2}{\square} = \frac{\square}{4}$ B. $\frac{6}{\square} = \frac{\square}{2}$

D

PS

Simplify Fractions

1b. Use the fraction wall to complete these simplified fractions.

A. $\frac{2}{\square} = \frac{\square}{3}$ B. $\frac{9}{\square} = \frac{\square}{4}$

D

PS

2a. In a basket of 10 apples, 2 are red.

Represent this as a simplified fraction.

Use the grid below to help you work out the fraction in its simplest form.

D

PS

2b. In a vase of 28 flowers, 4 are pink.

Represent this as a simplified fraction.

Use the grid below to help you work out the fraction in its simplest form.

D

PS

3a. Tara says,

$\frac{3}{9}$ can be simplified to $\frac{3}{3}$ because 3 goes into 9 three times.

Is she correct? Prove it.

D

R

3b. Oscar says,

$\frac{3}{12}$ can be simplified to $\frac{4}{4}$ because 3 goes into 12 four times.

Is he correct? Prove it.

D

R

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Simplify Fractions

4a. Use the highest common factors below to help complete these simplified fractions.

9 8 7 5

A. $\frac{24}{\square} = \frac{\square}{5}$

B. $\frac{\square}{36} = \frac{3}{\square}$

C. $\frac{\square}{35} = \frac{4}{\square}$

D. $\frac{35}{\square} = \frac{\square}{6}$

E

PS

Simplify Fractions

4b. Use the highest common factors below to help complete these simplified fractions.

12 4 6 3

A. $\frac{28}{\square} = \frac{\square}{9}$

B. $\frac{\square}{36} = \frac{5}{\square}$

C. $\frac{\square}{48} = \frac{3}{\square}$

D. $\frac{18}{\square} = \frac{\square}{5}$

E

PS

5a. In a class of 24 children, 16 are girls.

Represent this as a simplified fraction.

What fraction of the class are boys? Give the answer in its simplest form.

Use the grid below to help you work out the fraction in its simplest form.

E

PS

5b. At a meeting of 54 adults, 42 are men.

Represent this as a simplified fraction.

What fraction of the adults are women? Give the answer in its simplest form.

Use the grid below to help you work out the fraction in its simplest form.

E

PS

6a. Sasha says,

This fraction can be simplified to $\frac{8}{14}$ because 2 is the highest common factor.

Is she correct? Prove it.

E

R

6b. Jerome says,

This fraction can be simplified to $\frac{9}{12}$ because 3 is the highest common factor.

Is he correct? Prove it.

E

R

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Simplify Fractions

7a. Find two different ways to complete these simplified fractions and identify the highest common factor used.

A. $\frac{6}{\square} = \frac{\square}{3}$

B. $\frac{6}{\square} = \frac{\square}{5}$

GD PS

Simplify Fractions

7b. Find two different ways to complete these simplified fractions and identify the highest common factor used.

A. $\frac{12}{\square} = \frac{\square}{25}$

C. $\frac{24}{\square} = \frac{\square}{9}$

GD PS

8a. There are 60 red and blue balls in a ball pit. 21 of them are blue.

Represent this as a simplified fraction.

What fraction of the balls are red?

GD PS

8b. There are 75 blue and yellow budgies in a cage. 18 of them are yellow.

Represent this as a simplified fraction.

What fraction of budgies are blue?

GD PS

9a. Martha says,

I can simplify $\frac{48}{100}$ to $\frac{24}{50}$ because 2 is the highest common factor.

Is she correct? Prove it.

GD R

9b. Connor says,

I can simplify $\frac{18}{30}$ to $\frac{6}{10}$ because 3 is the highest common factor.

Is he correct? Prove it.

GD R

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Reasoning and Problem Solving
Simplify Fractions

Developing

1a. A: $\frac{2}{\boxed{8}} = \frac{\boxed{1}}{4}$; B: $\frac{6}{\boxed{12}} = \frac{\boxed{1}}{2}$

2a. $\frac{1}{5}$

3a. Tara is incorrect, $\frac{3}{9}$ simplified is $\frac{1}{3}$

Expected

4a. A: $\frac{24}{\boxed{40}} = \frac{\boxed{3}}{5}$; B: $\frac{\boxed{27}}{36} = \frac{3}{\boxed{4}}$;

C: $\frac{\boxed{20}}{35} = \frac{4}{\boxed{7}}$; D: $\frac{35}{\boxed{42}} = \frac{\boxed{5}}{6}$

5a. $\frac{2}{3}$ are girls and $\frac{1}{3}$ are boys.

6a. Sasha is incorrect, $\frac{16}{28}$ simplified is $\frac{4}{7}$

Greater Depth

7a. Various answers, for example:

A: $\frac{6}{18} = \frac{1}{3}$ HCF 6, $\frac{6}{9} = \frac{2}{3}$ HCF 3

B: $\frac{6}{30} = \frac{1}{5}$ HCF 6, $\frac{6}{10} = \frac{3}{5}$ HCF 2,

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

8a. $\frac{7}{20}$ are blue and $\frac{13}{20}$ are red.

9a. Martha is incorrect, $\frac{48}{100}$ simplified is $\frac{12}{25}$

Reasoning and Problem Solving
Simplify Fractions

Developing

1b. A: $\frac{2}{\boxed{6}} = \frac{\boxed{1}}{3}$; B: $\frac{9}{\boxed{12}} = \frac{\boxed{3}}{4}$

2b. $\frac{1}{7}$

3b. Oscar is incorrect, $\frac{3}{12}$ simplified is $\frac{1}{4}$

Expected

4b. A: $\frac{28}{\boxed{36}} = \frac{\boxed{7}}{9}$; B: $\frac{\boxed{15}}{36} = \frac{5}{\boxed{12}}$

C: $\frac{\boxed{36}}{48} = \frac{3}{\boxed{4}}$; D: $\frac{18}{\boxed{30}} = \frac{\boxed{3}}{5}$

5b. $\frac{7}{9}$ are men and $\frac{2}{9}$ are women.

6b. Jerome is incorrect, $\frac{27}{36}$ simplified is $\frac{3}{4}$

Greater Depth

7b. Various answers, for example:

A: $\frac{12}{50} = \frac{6}{25}$ HCF 2, $\frac{12}{75} = \frac{4}{25}$ HCF 3,

$\frac{12}{150} = \frac{2}{25}$ HCF 6

B: $\frac{24}{27} = \frac{8}{9}$ HCF 3, $\frac{24}{54} = \frac{4}{9}$ HCF 6

8b. $\frac{6}{25}$ are yellow and $\frac{19}{25}$ are blue.

9b. Connor is incorrect, $\frac{18}{30}$ simplified is $\frac{3}{5}$

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