Reasoning and Problem Solving
Step 3: Mixed Numbers to Improper Fractions

National Curriculum Objectives:

Mathematics Year 5: (5F2a) Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Children solve the clues to find the missing digits for the mixed number and improper fraction. Includes halves, thirds, quarters, fifths and tenths.
Expected Children solve the clues to find the missing digits for the mixed number and improper fraction. Includes fractions up to twelfths.
Greater Depth Children solve the clues to find the missing digits for the mixed number and improper fraction. Includes fractions up to twelfths and improper fractions are simplified.

Questions 2, 5 and 8 (Reasoning)
Developing Children explain which mixed number is the odd one out using evidence. Includes halves, thirds, quarters, fifths and tenths.
Expected Children explain which mixed number is the odd one out using evidence. Includes fractions up to twelfths.
Greater Depth Children explain which mixed number is the odd one out using evidence. Includes fractions up to twelfths and answers require simplifying.

Questions 3, 6 and 9 (Reasoning)
Developing Children explain why a statement is correct or incorrect using mathematical terminology and pictorial evidence. Includes halves, thirds, quarters, fifths and tenths.
Expected Children explain why a statement is correct or incorrect using mathematical terminology and pictorial evidence. Includes fractions up to twelfths.
Greater Depth Children explain why a statement is correct or incorrect using mathematical terminology and pictorial evidence. Includes fractions up to twelfths and answers require simplification.
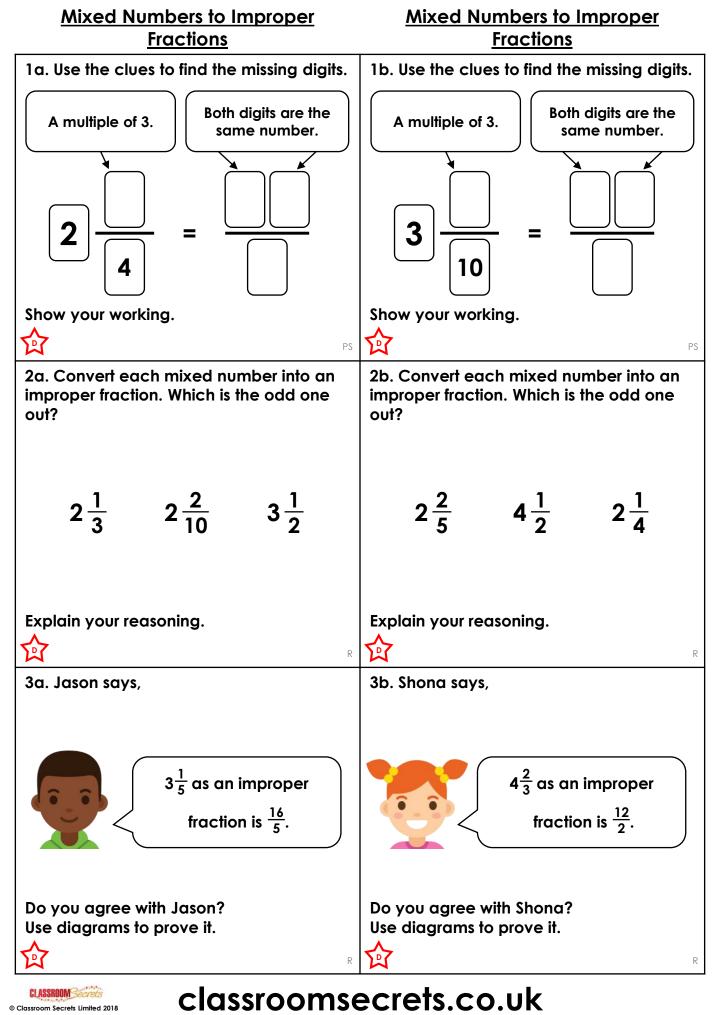
More Year 5 Fractions resources.

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

Mixed Numbers to Improper Fractions

1a. Use the clues to find the missing digits.

| A multiple of 3. | | Both digits are the same number. |

$$2\frac{\boxed{}}{4} = \frac{\boxed{}\boxed{}}{\boxed{}}$$

Show your working.

⭐ D   PS

1b. Use the clues to find the missing digits.

| A multiple of 3. | | Both digits are the same number. |

$$3\frac{\boxed{}}{10} = \frac{\boxed{}\boxed{}}{\boxed{}}$$

Show your working.

⭐ D   PS

2a. Convert each mixed number into an improper fraction. Which is the odd one out?

$$2\frac{1}{3} \qquad 2\frac{2}{10} \qquad 3\frac{1}{2}$$

Explain your reasoning.

⭐ D   R

2b. Convert each mixed number into an improper fraction. Which is the odd one out?

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

Explain your reasoning.

⭐ D   R

3a. Jason says,

> $3\frac{1}{5}$ as an improper fraction is $\frac{16}{5}$.

Do you agree with Jason?
Use diagrams to prove it.

⭐ D   R

3b. Shona says,

> $4\frac{2}{3}$ as an improper fraction is $\frac{12}{2}$.

Do you agree with Shona?
Use diagrams to prove it.

⭐ D   R

classroomsecrets.co.uk

Reasoning and Problem Solving – Mixed Numbers to Improper Fractions – Year 5 Developing

Mixed Numbers to Improper Fractions

4a. Use the clues to find the missing digits.

A factor of 8.

These digits add together to make 5.

$$5\,\frac{\boxed{}}{6} = \frac{\boxed{}\,\boxed{}}{\boxed{}}$$

Show your working.

E   PS

Mixed Numbers to Improper Fractions

4b. Use the clues to find the missing digits.

A square number.

One digit is twice as much as the other digit.

$$4\,\frac{\boxed{}}{5} = \frac{\boxed{}\,\boxed{}}{\boxed{}}$$

Show your working.

E   PS

5a. Convert each mixed number into an improper fraction. Which is the odd one out?

$$2\,\frac{8}{11} \qquad 4\,\frac{2}{7} \qquad 3\,\frac{2}{5}$$

Explain your reasoning.

E   R

5b. Convert each mixed number into an improper fraction. Which is the odd one out?

$$3\,\frac{6}{11} \qquad 3\,\frac{2}{8} \qquad 6\,\frac{3}{6}$$

Explain your reasoning.

E   R

6a. Lucille says,

> $4\frac{4}{12}$ as an improper fraction is $\frac{48}{12}$.

Do you agree with Lucille?
Use diagrams to prove it.

E   R

6b. Ivan says,

> $3\frac{8}{9}$ as an improper fraction is $\frac{35}{9}$.

Do you agree with Ivan?
Use diagrams to prove it.

E   R

---

classroomsecrets.co.uk

Reasoning and Problem Solving – Mixed Numbers to Improper Fractions – Year 5 Expected

Mixed Numbers to Improper Fractions

7a. Use the clues to find the missing digits.

An odd number.	These digits add together to make 9.

$$6\frac{\square}{12} = \frac{\square\square}{4}$$

Show your working.

GD

PS

Mixed Numbers to Improper Fractions

7b. Use the clues to find the missing digits.

The numerator is a factor of the denominator.	These digits have a difference of 7.

$$7\frac{\square}{8} = \frac{\square\square}{4}$$

Show your working.

GD

PS

8a. Convert each mixed number into an improper fraction in its simplest form. Which is the odd one out?

$$3\frac{8}{10} \qquad 5\frac{4}{8} \qquad 4\frac{3}{6}$$

Explain your reasoning.

GD

R

8b. Convert each mixed number into an improper fraction in its simplest form. Which is the odd one out?

$$4\frac{9}{12} \qquad 4\frac{4}{12} \qquad 4\frac{6}{9}$$

Explain your reasoning.

GD

R

9a. Mai says,

> $7\frac{8}{12}$ as a simplified improper fraction is $\frac{23}{4}$.

Do you agree with Mai?
Use diagrams to prove it.

GD

R

9b. Kyle says,

> $6\frac{4}{10}$ as a simplified improper fraction is $\frac{32}{5}$.

Do you agree with Kyle?
Use diagrams to prove it.

GD

R

© Classroom Secrets Limited 2018

classroomsecrets.co.uk

Reasoning and Problem Solving – Mixed Numbers to Improper Fractions – Year 5 Greater Depth

Developing

1a. $2\frac{3}{4} = \frac{11}{4}$

2a. Various possible answers, for example: $2\frac{2}{10}$ because the others both have a numerator of 7 as improper fractions.

3a. Jason is correct. Accept answers which use diagrams to prove this.

Developing

1b. $3\frac{3}{10} = \frac{33}{10}$

2b. Various possible answers, for example: $2\frac{2}{5}$ because the others both have a numerator of 9 as improper fractions.

3b. Shona is incorrect; $4\frac{2}{3} = \frac{14}{3}$. Accept answers which use diagrams to prove this.

Expected

4a. $5\frac{2}{6} = \frac{32}{6}$

5a. Various possible answers, for example: $3\frac{2}{5}$ because the others both have a numerator of 30 as improper fractions.

6a. Lucille is incorrect; $4\frac{4}{12} = \frac{52}{12}$. Accept answers which use diagrams to prove this.

Expected

4b. $4\frac{4}{5} = \frac{24}{5}$

5b. Various possible answers, for example: $3\frac{2}{8}$ because the others both have a numerator of 39 as improper fractions.

6b. Ivan is correct. Accept answers which use diagrams to prove this.

Greater Depth

7a. $6\frac{9}{12} = \frac{27}{4}$

8a. Various possible answers, for example: $3\frac{8}{10}$ because the others both have a denominator of 2 as simplified improper fractions.

9a. Mai is incorrect; $7\frac{8}{12} = \frac{23}{3}$. Accept answers which use diagrams to prove this.

Greater Depth

7b. $7\frac{2}{8} = \frac{29}{4}$

8b. Various possible answers, for example: $4\frac{9}{12}$ because the others both have a denominator of 3 as simplified improper fractions.

9b. Kyle is correct. Accept answers which use diagrams to prove this.