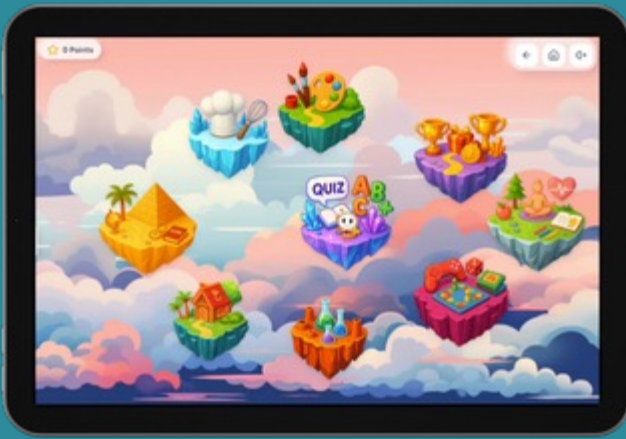


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Fun with Fractions - Year 4

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Fraction Families at a Glance

1

Proper Fraction

Definition:

The numerator is less than the denominator. Its value is less than one.

Example:

$$\frac{3}{5}$$



2

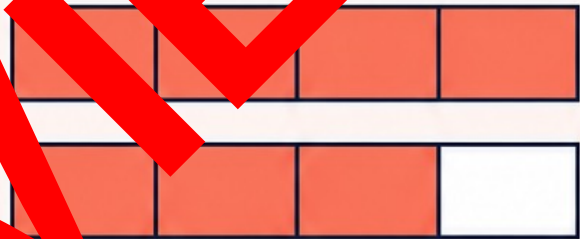
Improper Fraction

Definition:

The numerator is equal to or greater than the denominator. Its value is at least one.

Example:

$$\frac{7}{4}$$



3

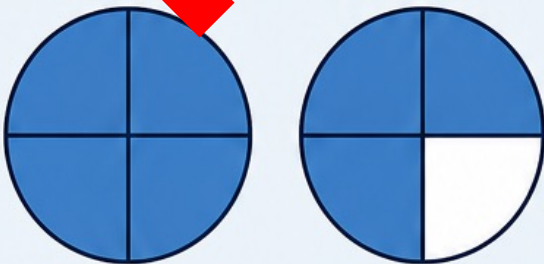
Mixed Number

Definition:

A whole number and a fraction written together.

Example:

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



4

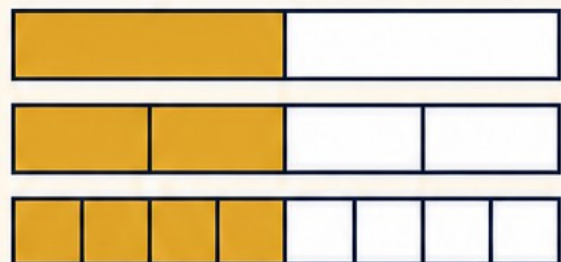
Equivalent Fractions

Definition:

Different fractions that name the same value.

Example:

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



Fractions on Number Lines

Halves: 0 to 3



Quarters: 0 to 2



$$\frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$$

Thirds: 0 to 2



Mixed Numeral Conversion Steps

Improper Fraction → Mixed Numeral

$$\frac{11}{4} = 2 \frac{3}{4}$$

$$11 \div 4 = 2 \text{ remainder } 3$$

- 1 Divide the numerator by the **denominator**.
- 2 The **quotient** is the whole number.
- 3 The **remainder** becomes the **numerator**. Keep the **denominator**.

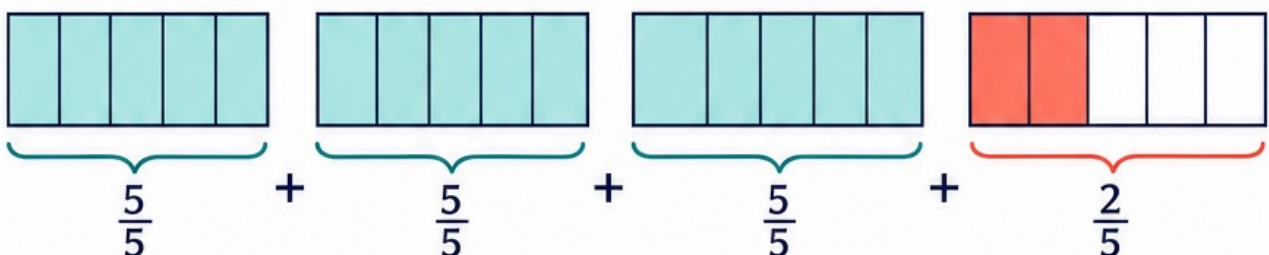


Mixed Numeral → Improper Fraction

$$3 \frac{2}{5} = \frac{17}{5}$$

$$3 \times 5 + 2 = 17$$

- 1 Multiply the **whole number** by the **denominator**.
- 2 Add the **numerator**.
- 3 Write the result over the same **denominator**.





Fraction Representation Match



Players

2–4

You will need

The matching cards, scissors and a recording sheet.

How to play

1. Cut out the cards and shuffle them.
2. Place all cards face up.
3. Find four cards that show the same value: a numeral, words, a model and a number-line point.
4. Explain how you know the four cards match.
5. Record the set, then find another.

Challenge

Order the completed sets from least to greatest. Write each value as both an improper fraction and a mixed numeral when possible.

Worked example — not a game card

$$\frac{1}{2}$$

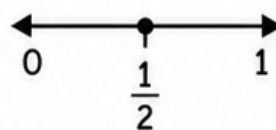
numeral

one-half

words



model



number-line point

Fraction Representation Match — Cards 1

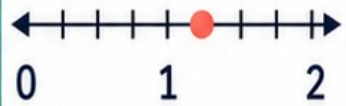
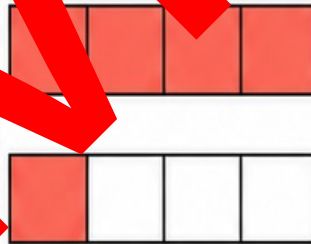
$$\frac{3}{4}$$

three-quarters



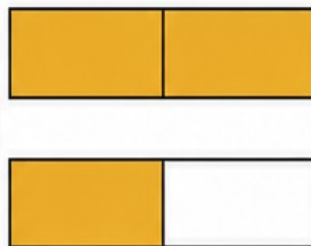
$$\frac{5}{4}$$

one and
one-quarter



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

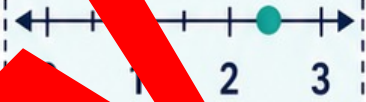
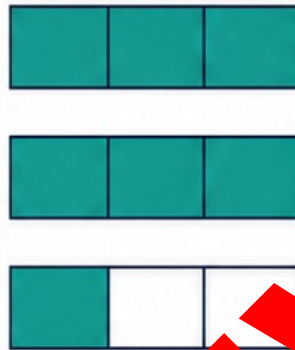
one and
one-half



Fraction Representation Match – Cards 2

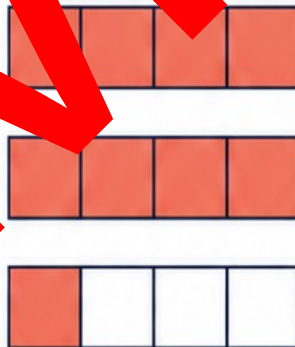
$$2\frac{1}{3}$$

two and
one-third



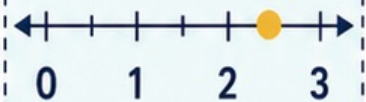
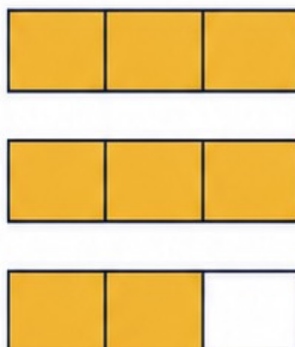
$$2\frac{1}{4}$$

two and
one-quarter



$$2\frac{2}{3}$$

two and
two-thirds



Number Line Bingo



Players

2–6



You will need

One bingo board per player, the calling cards and counters.



Set up

Shuffle the calling cards and place them face down.
Each player takes a board and counters.



How to play

1. The caller turns over one card and reveals the value.
2. Players cover one space that shows the same value as a fraction, mixed numeral, model or number-line point.
3. If no space matches, play continues.
4. The first player to cover three spaces in a row, column or diagonal calls BINGO.
5. Check every covered space before declaring a winner.



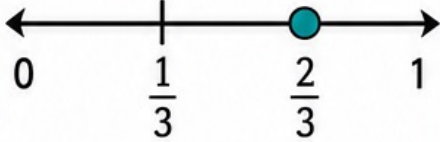
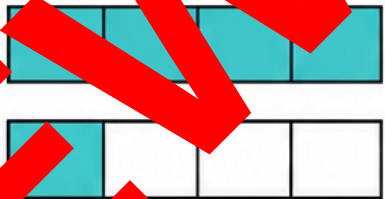
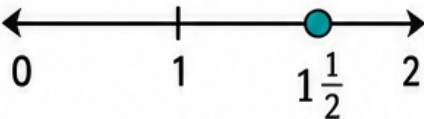
Teacher's helper

1. $1/2$	11. $9/10$
2. $2/3$	12. $11/10 = 1 \frac{1}{10}$
3. $3/4$	13. $13/10 = 1 \frac{3}{10}$
4. $4/3 = 1 \frac{1}{3}$	14. $17/10 = 1 \frac{7}{10}$
5. $5/4 = 1 \frac{1}{4}$	15. $19/10 = 1 \frac{9}{10}$
6. $3/2 = 1 \frac{1}{2}$	16. $5/2 = 2 \frac{1}{2}$
7. $5/3 = 1 \frac{2}{3}$	17. $7/3 = 2 \frac{1}{3}$
8. $7/4 = 1 \frac{3}{4}$	18. $9/4 = 2 \frac{1}{4}$
9. $3/10$	19. $8/3 = 2 \frac{2}{3}$
10. $7/10$	20. $11/4 = 2 \frac{3}{4}$

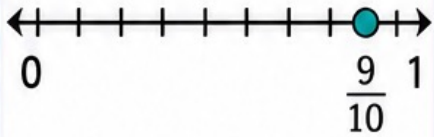
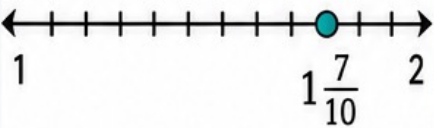
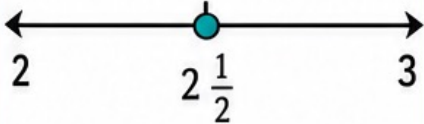


Number Line Bingo — Boards 1 and 2

Board 1

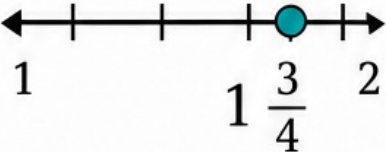
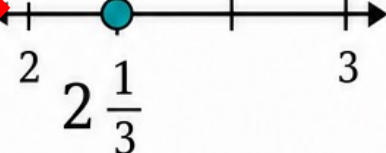
		$\frac{3}{4}$
$1\frac{1}{3}$		
	$\frac{5}{3}$	$1\frac{3}{4}$

Board 2

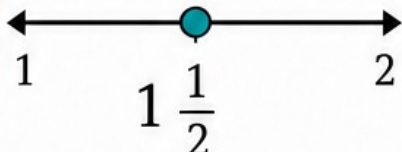
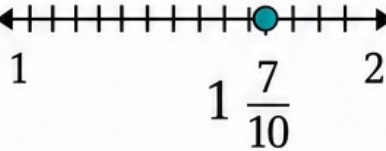
$\frac{3}{10}$		
$1\frac{1}{10}$		$\frac{13}{10}$
	$1\frac{9}{10}$	

Number Line Bingo — Boards 3 and 4

Board 3

$\frac{1}{2}$		$1\frac{1}{4}$
	FREE	$2\frac{2}{10}$
	$1\frac{3}{10}$	

Board 4

	$1\frac{1}{3}$	
$\frac{1}{3}$	FREE	
	$2\frac{1}{4}$	$\frac{8}{3}$

Number Line Bingo – Calling Cards

$$\frac{1}{2}$$

$$\frac{2}{3}$$

$$\frac{3}{4}$$

$$\frac{4}{3}$$

$$\frac{5}{4}$$

$$\frac{3}{2}$$

$$\frac{5}{3}$$

$$\frac{7}{4}$$

$$\frac{3}{10}$$

$$\frac{7}{10}$$

$$\frac{9}{10}$$

$$\frac{11}{10}$$

$$\frac{13}{10}$$

$$\frac{17}{10}$$

$$\frac{19}{10}$$

$$\frac{5}{2}$$

$$\frac{7}{3}$$

$$\frac{9}{4}$$

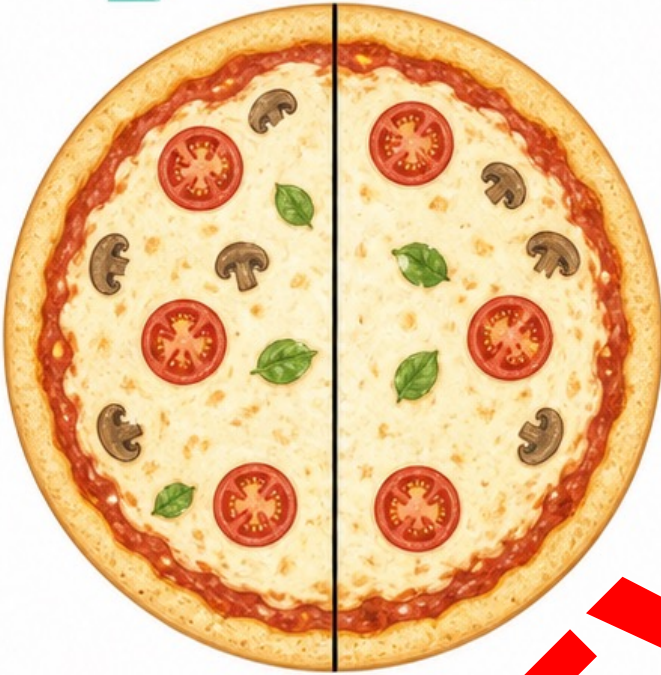
$$\frac{8}{3}$$

$$\frac{11}{4}$$

Pizza Fraction Workshop — Fraction Mats

Use the mats with the challenge cards. Show, compare and combine equal parts.

Halves



Thirds



Quarters



Eighths





Pizza Fraction Challenge Cards

Use the fraction mats. For values greater than one, use a second copy of the matching mat.



1

Show $\frac{1}{2}$
on the halves
mat.



2

Show $\frac{2}{3}$
on the thirds
mat.



3

Show $\frac{3}{4}$
on the quarters
mat.



4

Show $\frac{5}{8}$
on the eighths
mat.



5

Use quarters
to show a fraction
equivalent to $\frac{1}{2}$.
Name it.



6

Use eighths
to show a fraction
equivalent to $\frac{1}{2}$.
Name it.



7

Compare $\frac{1}{3}$
and $\frac{1}{4}$.
Which is greater?
Explain.



8

Combine $\frac{1}{4}$
and $\frac{2}{4}$.
Name the total.



9

Build $\frac{5}{4}$.
Write the
matching mixed
numeral.



10

Build $\frac{7}{3}$.
Write the
matching mixed
numeral.



11

Show $1\frac{1}{2}$
in two
different ways.



12

Create a fraction
greater than one.
Give it two names.



Mixed and Improper Fraction Dominoes – Set 1

Match each improper fraction to its equivalent mixed numeral. Build one continuous chain.

$1\frac{1}{2}$ $\frac{5}{3}$	$1\frac{2}{3}$ $\frac{7}{4}$	$1\frac{3}{5}$ $\frac{6}{5}$
$1\frac{1}{5}$ $\frac{13}{10}$	$1\frac{3}{10}$ $\frac{5}{2}$	$2\frac{1}{2}$ $\frac{7}{3}$
$2\frac{1}{3}$ $\frac{5}{4}$	$2\frac{1}{4}$ $\frac{12}{5}$	$2\frac{2}{5}$ $\frac{27}{10}$
$2\frac{7}{10}$ $\frac{7}{2}$	$3\frac{1}{2}$ $\frac{10}{3}$	$3\frac{1}{3}$ $\frac{13}{4}$

Mixed and Improper Fraction Dominoes — Set 2

$$3\frac{1}{4} \quad \frac{16}{5}$$

$$3\frac{1}{5} \quad \frac{37}{10}$$

$$3\frac{7}{10} \quad \frac{4}{3}$$

$$1\frac{1}{3} \quad \frac{5}{4}$$

$$1\frac{1}{4} \quad \frac{7}{5}$$

$$1\frac{2}{5} \quad \frac{19}{10}$$

$$1\frac{9}{10} \quad \frac{8}{5}$$

$$2\frac{2}{3} \quad \frac{11}{4}$$

$$2\frac{3}{4} \quad \frac{14}{5}$$

$$2\frac{4}{5} \quad \frac{33}{10}$$

$$3\frac{3}{10} \quad \frac{15}{4}$$

$$3\frac{3}{4} \quad \frac{3}{2}$$

Number Line Foundations — Page 1

Name: _____ Date: _____

Use equal intervals and fraction size to complete each task.

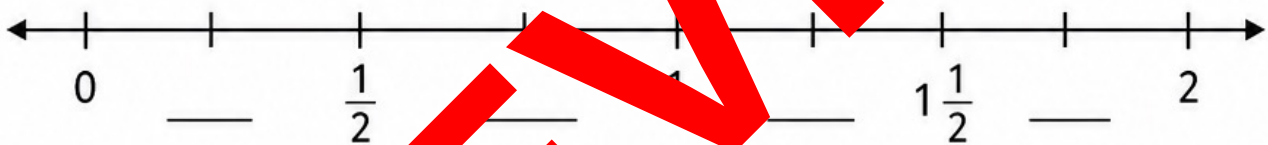
1. A number line from 0 to 1 is divided into four equal intervals.
What fraction does each interval represent?

Each interval is _____.

2. Write the missing halves.

0, _____, 1, _____, 2, _____, 3

3. Write the missing quarters.



4. Continue counting by halves.

1, 1 1/2, _____, _____, 3

5. Order these fractions from least to greatest.

$1\frac{1}{4}$, $\frac{3}{4}$, $\frac{3}{2}$, $\frac{1}{2}$

_____ < _____ < _____ < _____

6. Complete the equivalent fraction.



$\frac{1}{2}$



$\frac{\quad}{4}$

$$\frac{1}{2} = \frac{\quad}{4}$$

Number Line Foundations — Page 1

Name: ANSWERS Date: _____

Use equal intervals and fraction size to complete each task.

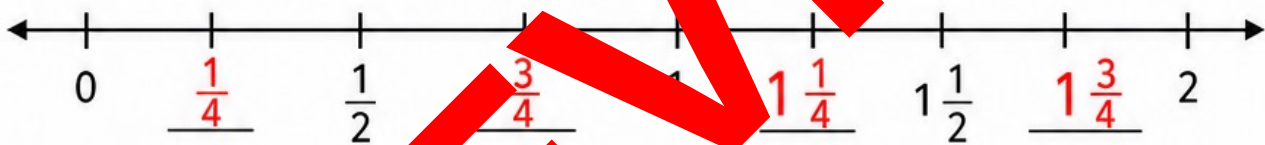
1. A number line from 0 to 1 is divided into four equal intervals.
What fraction does each interval represent?

Each interval is $\frac{1}{4}$.

2. Write the missing halves.

0, $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3

3. Write the missing quarters.



4. Continue counting by halves.

1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3

5. Order these values from least to greatest.

$1\frac{1}{4}$, $\frac{3}{4}$, $\frac{3}{2}$, $\frac{1}{2}$

$\frac{1}{2}$ < $\frac{3}{4}$ < $1\frac{1}{4}$ < $\frac{3}{2}$

6. Complete the equivalent fraction.



$$\frac{1}{2} = \frac{2}{4}$$

Number Line Foundations — Page 2

Name: _____

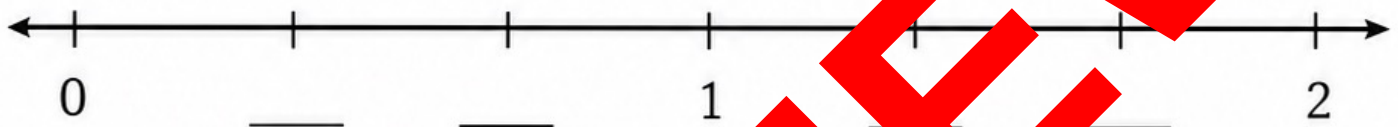
Date: _____

Use thirds and tenths to count across whole numbers.

1. Continue counting by thirds.

0, $\frac{1}{3}$, $\frac{2}{3}$, 1, _____, _____, 2

2. Write the missing thirds.



3. Continue counting by tenths.

$\frac{8}{10}$, $\frac{9}{10}$, 1, _____, $1\frac{3}{10}$

4. Write each improper fraction as a mixed numeral.

$\frac{7}{3} =$ _____ $\frac{13}{10} =$ _____

5. Write each mixed numeral as an improper fraction.

$1\frac{2}{3} =$ _____ $1\frac{7}{10} =$ _____

6. Why must the intervals on a number line be equal?

Number Line Foundations — Page 2

Name: ANSWERS

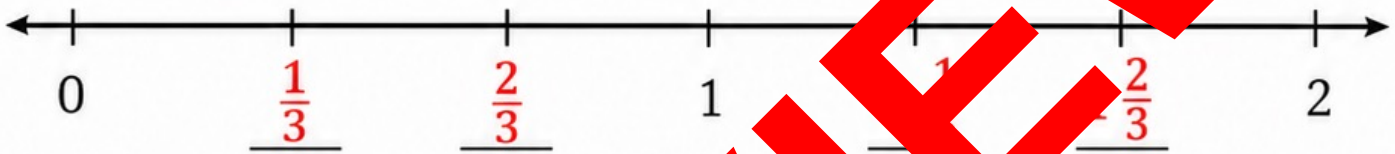
Date: _____

Use thirds and tenths to count across whole numbers.

1. Continue counting by thirds.

0, $\frac{1}{3}$, $\frac{2}{3}$, 1, $1\frac{1}{3}$, $1\frac{2}{3}$, 2

2. Write the missing thirds.



3. Continue counting by tenths.

$\frac{8}{10}$, $\frac{9}{10}$, 1, $1\frac{1}{10}$, $1\frac{2}{10}$, $1\frac{3}{10}$

4. Write each improper fraction as a mixed numeral.

$\frac{7}{3} =$ $2\frac{1}{3}$ $\frac{13}{10} =$ $1\frac{3}{10}$

5. Write each mixed numeral as an improper fraction.

$1\frac{2}{3} =$ $\frac{5}{3}$ $1\frac{7}{10} =$ $\frac{17}{10}$

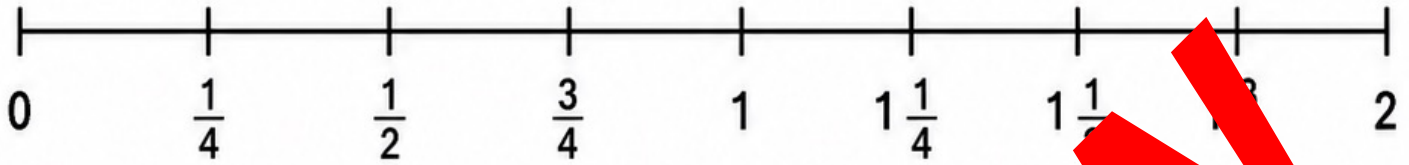
6. Why must the intervals on a number line be equal?

Equal intervals make every step the same size, so each
position shows the fraction accurately.

Fraction Line Reasoning

Name: _____ Date: _____

Use the labelled number line and equivalent forms to justify your thinking.



1. Write the value one tick before 1 and one tick after 1.

Before 1: _____ After 1: _____

2. Which is greater: $\frac{5}{4}$ or $\frac{3}{2}$? Explain using the number line.

3. Complete the equivalent fractions.

$$\frac{\quad}{4} = \frac{\quad}{4} \qquad \frac{6}{4} = \frac{\quad}{4}$$

4. Sam says $\frac{6}{4}$ is $1\frac{1}{4}$. Sam correct? Explain and give the correct mixed numeral.

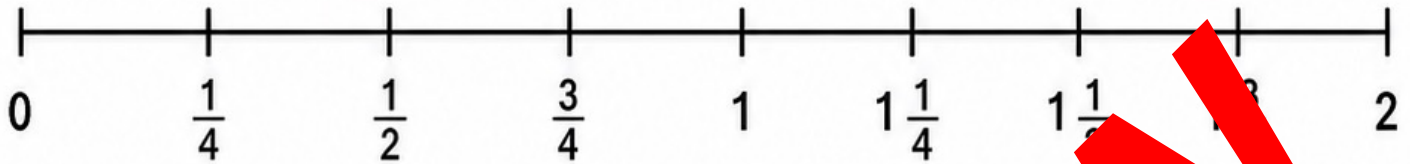
5. Explain why $\frac{6}{4}$ and $1\frac{2}{4}$ name the same value.

Fraction Line Reasoning

Name: ANSWERS

Date: _____

Use the labelled number line and equivalent forms to justify your thinking.



1. Write the value one tick before 1 and one tick after 1.

Before 1: $\frac{3}{4}$ After 1: $1 \frac{1}{4}$

2. Which is greater: $\frac{5}{4}$ or $\frac{3}{2}$? Explain using the number line.

$\frac{3}{2}$ is greater because it is farther to the right than $\frac{5}{4}$.

3. Complete the equivalent fractions.

$$\frac{7}{4} = \frac{\quad}{4}$$

$$\frac{6}{4} = \frac{1}{1} \frac{2}{4}$$

4. Sam says $\frac{5}{4} = 1 \frac{1}{4}$. Sam correct? Explain and give the correct mixed numeral.

No. $\frac{5}{4} = 1 \frac{1}{4}$. The value $1 \frac{2}{4}$ is $\frac{6}{4}$.

5. Explain why $\frac{6}{4}$ and $1 \frac{2}{4}$ name the same value.

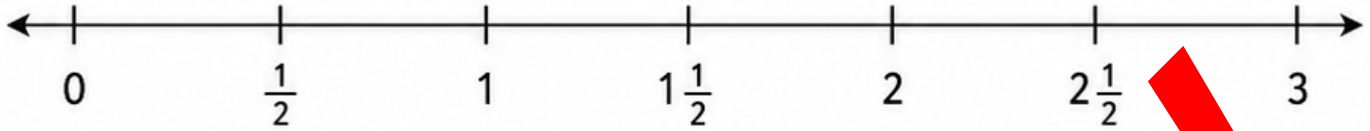
Four quarters make one whole. Two quarters remain, so $\frac{6}{4} = 1 \frac{2}{4}$.

Mixed Numeral Number Lines

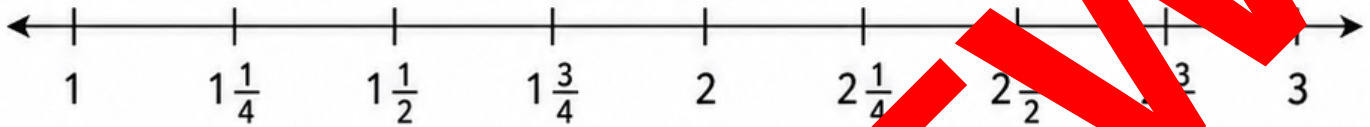
Name: _____ Date: _____

Read mixed numerals as positions beyond one whole.

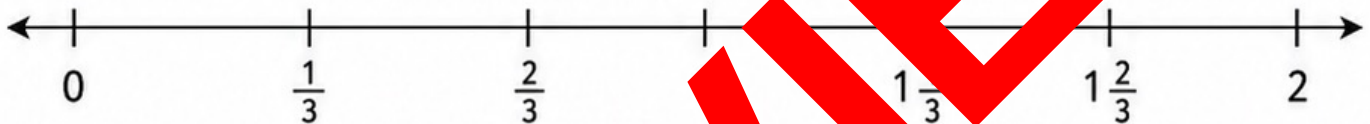
HALVES



QUARTERS



THIRDS



1. What value is halfway between 1 and 2? _____
2. What value is one quarter step after 2? _____
3. Write $1\frac{2}{3}$ as an improper fraction. _____
4. Write both forms for the value $2\frac{1}{4}$.

Mixed numeral: $2\frac{1}{4}$ Improper fraction: _____

5. Convert each value.

$$\frac{5}{3} = \underline{\hspace{2cm}}$$

$$\frac{17}{10} = \underline{\hspace{2cm}}$$

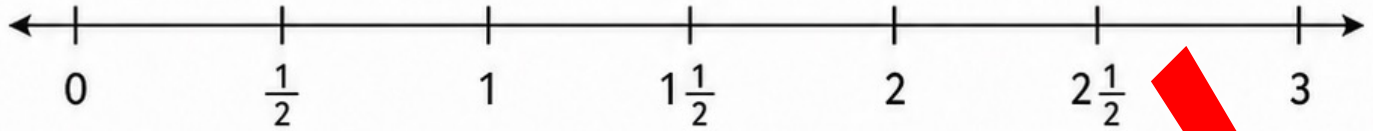
6. Draw a number line from 2 to 3 and mark $2\frac{3}{4}$.

Mixed Numeral Number Lines

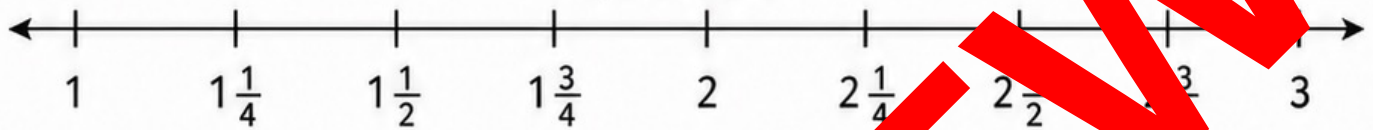
Name: **ANSWERS** Date: _____

Read mixed numerals as positions beyond one whole.

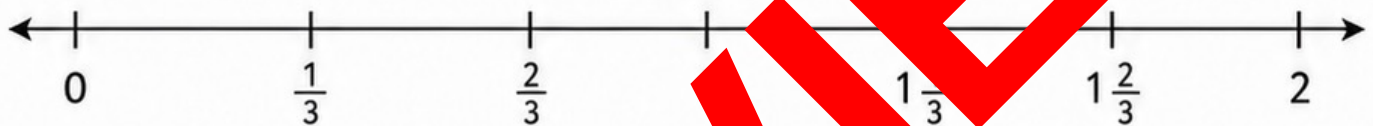
HALVES



QUARTERS



THIRDS



- What value is halfway between 1 and 2? $1 \frac{1}{2}$
- What value is one quarter step after 2? $2 \frac{1}{4}$
- Write $1 \frac{2}{3}$ as an improper fraction. $\frac{5}{3}$
- Write both forms of the value $2 \frac{1}{4}$.

Mixed numeral: $2 \frac{1}{4}$ Improper fraction: $\frac{9}{4}$

- Convert each value.

$$\frac{5}{3} = 1 \frac{2}{3}$$

$$\frac{17}{10} = 1 \frac{7}{10}$$

- Draw a number line from 2 to 3 and mark $2 \frac{3}{4}$.



Mixed Numerals to Improper Fractions

Name: _____ Date: _____

Multiply the whole number by the denominator, then add the numerator.

$$2 \frac{1}{3} = \frac{2 \times 3 + 1}{3} = \frac{7}{3}$$

1. $1 \frac{1}{2} =$ _____

2. $2 \frac{3}{4} =$ _____

3. $3 \frac{2}{5} =$ _____

4. $1 \frac{1}{10} =$ _____

5. $4 \frac{1}{3} =$ _____

6. $2 \frac{5}{6} =$ _____

7. $5 \frac{3}{8} =$ _____

8. $3 \frac{9}{10} =$ _____

9. Draw a model that proves $2 \frac{3}{4} = \frac{11}{4}$.

10. Explain how you can check an improper-fraction answer.

Mixed Numerals to Improper Fractions

Name: ANSWERS Date: _____

Multiply the whole number by the denominator, then add the numerator.

$$2 \frac{1}{3} = \frac{2 \times 3 + 1}{3} = \frac{7}{3}$$

1. $1 \frac{1}{2} = \frac{3}{2}$

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

3. $3 \frac{2}{5} = \frac{17}{5}$

4. $1 \frac{7}{10} = \frac{17}{10}$

5. $4 \frac{1}{3} = \frac{13}{3}$

6. $2 \frac{5}{6} = \frac{17}{6}$

7. $5 \frac{3}{8} = \frac{43}{8}$

8. $3 \frac{9}{10} = \frac{39}{10}$

9. Draw a model that proves $2 \frac{3}{4} = \frac{11}{4}$.

2 wholes = $\frac{8}{4}$. Then $\frac{8}{4} + \frac{3}{4} = \frac{11}{4}$, so $2 \frac{3}{4} = \frac{11}{4}$.

10. Explain how you can check an improper-fraction answer.

— Divide the numerator by the denominator. The quotient and _____

— remainder should rebuild the original mixed numeral. _____

Improper Fractions to Mixed Numerals

Name: _____

Date: _____

Divide the numerator by the denominator. Use the quotient and remainder.

$$\frac{11}{4} = 2 \text{ remainder } 3 = 2\frac{3}{4}$$

1. $\frac{5}{2} =$ _____

2. $\frac{7}{3} =$ _____

3. $\frac{13}{4} =$ _____

4. $\frac{17}{5} =$ _____

5. $\frac{19}{6} =$ _____

6. $\frac{25}{8} =$ _____

7. $\frac{31}{10} =$ _____

8. $\frac{22}{7} =$ _____

9. Use multiplication to check that $\frac{17}{5} = 3\frac{2}{5}$.

10. What does the remainder tell you when converting an improper fraction?

Improper Fractions to Mixed Numerals

Name: **ANSWERS**

Date: _____

Divide the numerator by the denominator. Use the quotient and remainder.

$$\frac{11}{4} = 2 \text{ remainder } 3 = 2\frac{3}{4}$$

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

2. $\frac{7}{3} = 2\frac{1}{3}$

3. $\frac{13}{4} = 3\frac{1}{4}$

4. $\frac{17}{5} = 3\frac{2}{5}$

5. $\frac{19}{6} = 3\frac{1}{6}$

6. $\frac{25}{8} = 3\frac{1}{8}$

7. $\frac{31}{10} = 3\frac{1}{10}$

8. $\frac{22}{7} = 3\frac{1}{7}$

9. Use multiplication to check that $\frac{17}{5} = 3\frac{2}{5}$.

$$3 \times 5 + 2 = 17, \text{ so } 3\frac{2}{5} = \frac{17}{5}.$$

10. What does the remainder tell you when converting an improper fraction?

— The remainder becomes the numerator
— of the fractional part. The denominator
— stays the same.

Models and Symbols Challenge

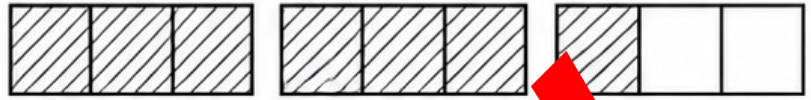
Name: _____

Date: _____

Connect fraction models, mixed numerals and improper fractions.

1. Shade the model to show $\frac{7}{4}$.

2. The model shows a mixed numeral. Write both forms.

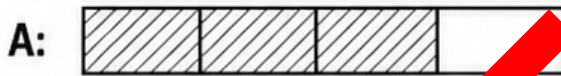


Mixed numeral: _____ Improper fraction: _____

3. Draw a model to show $\frac{13}{5}$.

--	--	--	--	--	--	--	--	--	--

4. Match each model to its symbol.



$\frac{5}{3}$
 $\frac{3}{4}$
 $\frac{1}{2}$

A = _____ B = _____ C = _____

5. Find the two equivalent pairs. Explain how you know.

$\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{6}{8}$

6. Create a representation for a mixed numeral greater than 2. Give it both names.

Mixed numeral: _____

Improper fraction: _____

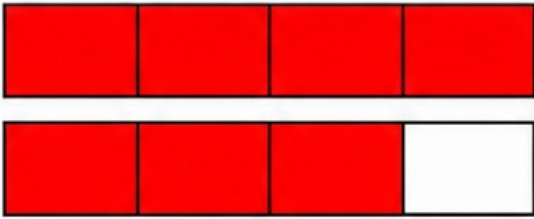
Models and Symbols Challenge

Name: **ANSWERS**

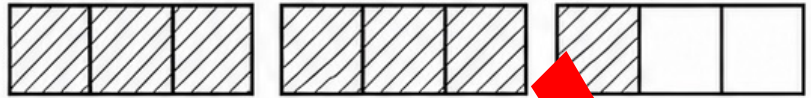
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Connect fraction models, mixed numerals and improper fractions.

1. Shade the model to show $\frac{7}{4}$.



2. The model shows a mixed numeral. Write both forms.

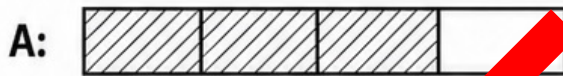


Mixed numeral: $2\frac{1}{3}$ Improper fraction: $\frac{7}{3}$

3. Draw a model to show $\frac{13}{5}$.

Two whole fifth-bars = $\frac{10}{5}$. Shade 3 more. Total: $\frac{13}{5}$.

4. Match each model to its symbol.



$\frac{5}{3}$
 $\frac{3}{4}$
 $\frac{1}{2}$

A = $\frac{3}{4}$ B = $\frac{1}{2}$ C = $\frac{5}{3}$

5. Find the two equivalent pairs. Explain how you know.

$\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{6}{8}$

$\frac{1}{2} = \frac{2}{4}$ and $\frac{3}{4} = \frac{6}{8}$. Multiply numerator and denominator by the same number.

6. Create a representation for a mixed numeral greater than 2. Give it both names.

Example: two whole bars and one half-bar.

$2\frac{1}{2}$

$\frac{5}{2}$

Mixed numeral: $2\frac{1}{2}$

Improper fraction: $\frac{5}{2}$

Name: _____

Date: _____

Fraction Number Line Challenge

Assessment — Page 1 of 2

1. What is a numerator?

[1 mark]

2. What is a denominator?

[1 mark]

3. Name each fraction type.

a) $\frac{3}{5}$ _____

b) $\frac{7}{4}$ _____

c) $1\frac{3}{4}$ _____

[3 marks]

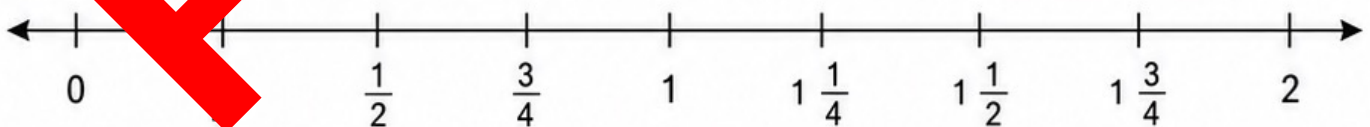
4. Complete each counting sequence.

a) 0, $\frac{1}{2}$, 1, $1\frac{1}{2}$, _____

b) 0, $\frac{1}{3}$, $\frac{2}{3}$, _____, _____

[2 marks]

5. Study the quarter number line.



a) What fraction is one tick before 1? _____

b) What fraction is one tick after 1? _____

[2 marks]

6. Convert $\frac{7}{4}$ to a mixed numeral. _____

[1 mark]

Page total: ____ / 10

Fraction Number Line Challenge

Assessment — Page 1 of 2

1. What is a numerator?

The top number. It counts the selected equal parts.

[1 mark]

2. What is a denominator?

The bottom number. It shows the total equal parts in one whole.

[1 mark]

3. Name each fraction type.

a) $\frac{3}{5}$ proper fractionb) $\frac{7}{4}$ improper fractionc) $1\frac{3}{4}$ mixed numeral

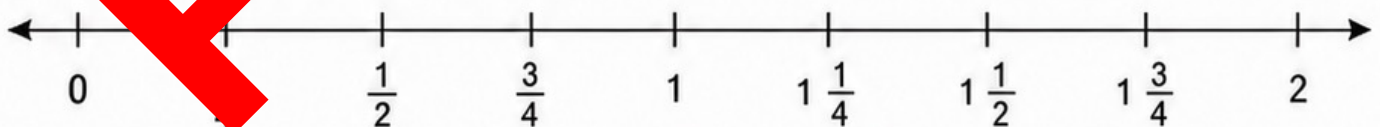
[3 marks]

4. Complete each counting sequence

a) 0, $\frac{1}{2}$, 1, $\frac{1}{2}$, 2, $2\frac{1}{2}$ b) 0, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{3}$, $1\frac{2}{3}$

[2 marks]

5. Study the number line.

a) What fraction is one tick before 1? $\frac{3}{4}$ b) What fraction is one tick after 1? $1\frac{1}{4}$

[2 marks]

6. Convert $\frac{7}{4}$ to a mixed numeral. $1\frac{3}{4}$

[1 mark]

Name: _____

Date: _____

Fraction Number Line Challenge

Assessment — Page 2 of 2

7. Convert each number.

a) Write $2\frac{3}{4}$ as an improper fraction. _____

b) Write $\frac{13}{5}$ as a mixed numeral. _____

[2 marks]

8. Complete each equivalent fraction.

a) $\frac{1}{2} = \frac{\quad}{4}$

b) $\frac{3}{4} = \frac{\quad}{8}$

[2 marks]

9. Write $<$, $>$ or $=$.

a) $\frac{5}{4}$ _____ $\frac{3}{2}$

b) $\frac{7}{4}$ _____ $1\frac{1}{2}$

[2 marks]

10. Order from least to greatest.

$\frac{3}{4}$, $\frac{5}{4}$, $\frac{1}{2}$, $\frac{1}{2}$

[1 mark]

11. Mary says $1 = \frac{3}{3}$. Explain her mistake and write the correct improper fraction.

[2 marks]

12. Write two different fractions between 1 and 2.

_____ and _____

[1 mark]

Page total: _____ / 10

Assessment total: _____ / 20

Name: _____

ANSWERS

Date: _____

Fraction Number Line Challenge

Assessment — Page 2 of 2

7. Convert each number.

a) Write $2\frac{3}{4}$ as an improper fraction.

$$\frac{11}{4}$$

b) Write $\frac{13}{5}$ as a mixed numeral.

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

[2 marks]

8. Complete each equivalent fraction.

a) $\frac{1}{2} = \frac{2}{4}$

b) $\frac{3}{4} = \frac{6}{8}$

[2 marks]

9. Write $<$, $>$ or $=$.

a) $\frac{5}{4} < \frac{3}{2}$

b) $\frac{7}{4} > 1\frac{1}{2}$

[2 marks]

10. Order from least to greatest.

$\frac{3}{4}, \frac{5}{4}, \frac{1}{2}, \frac{3}{2}$

$\frac{1}{2}, \frac{3}{4}, \frac{5}{4}, \frac{3}{2}$

[1 mark]

11. Mia says $1\frac{2}{3} = \frac{3}{3}$. Explain her mistake and write the correct improper fraction.Mia **not combine the whole with the two thirds.**Multiply 1 by 3, then add 2: $1\frac{2}{3} = \frac{5}{3}$.

[2 marks]

12. Write two different fractions between 1 and 2.

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

[1 mark]

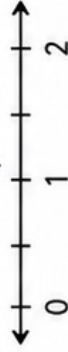
Page total: 10 / 10Assessment total: 20 / 20



$$\frac{2}{4}$$

Fun with Fractions Rubric

$$\frac{3}{4}$$



Student: _____

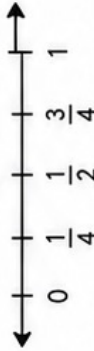
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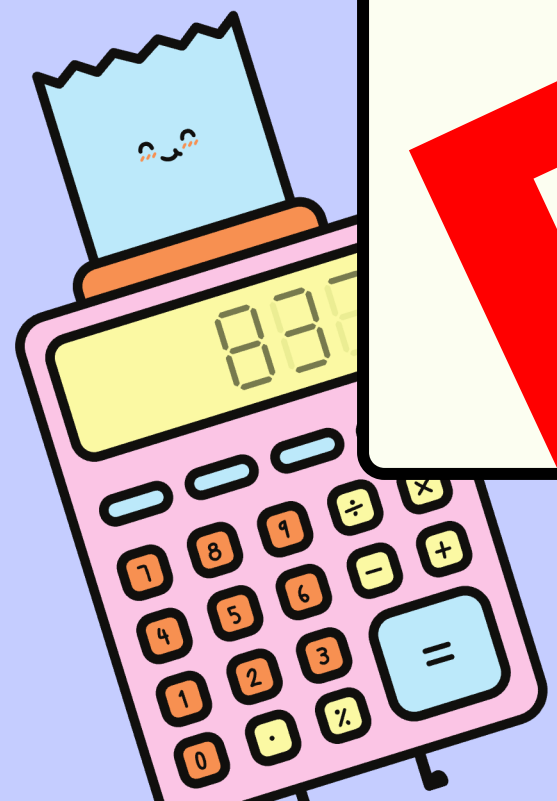
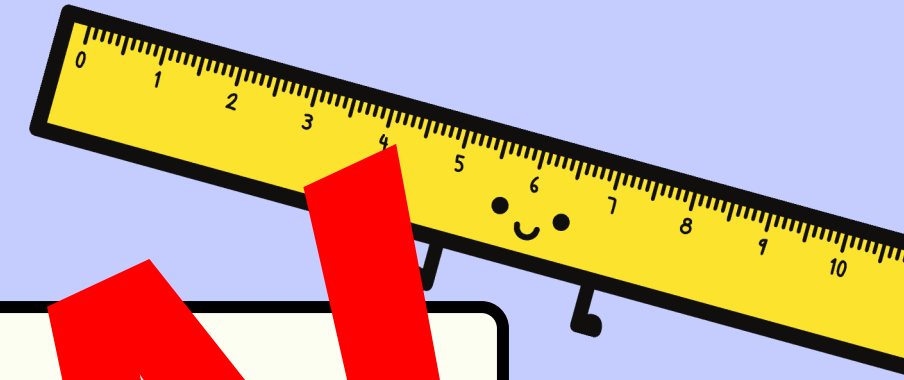
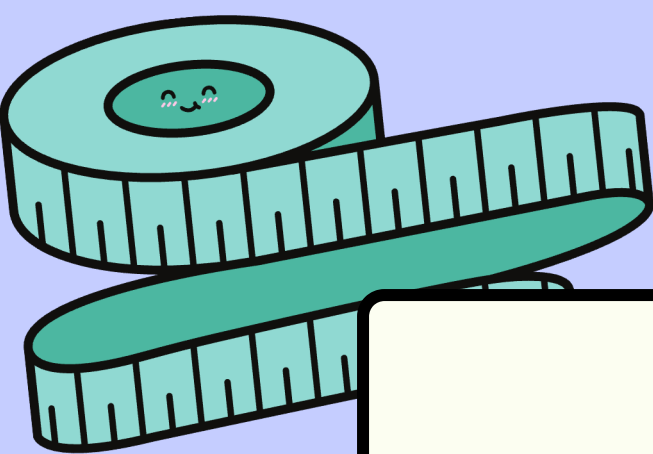
Teacher: _____

CRITERIA	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
1. IDENTIFIES FRACTION TYPES	Needs support to name fraction types.	Names some proper, improper and mixed fractions.	Correctly identifies proper, improper and mixed forms.	Identifies forms accurately and explains key features.	Justifies classifications across varied representations.
2. COUNTS AND LOCATES FRACTIONS	Counts simple intervals with guidance.	Counts and locates familiar fractions to one whole.	Counts and locates fractions beyond one whole.	Locates mixed numerals and improper fractions accurately.	Uses number-line structure flexibly to solve unfamiliar tasks.
3. CONVERTS MIXED AND IMPROPER FORMS	Begins conversions with support.	Completes some conversions using a model.	Converts common mixed numerals and improper fractions.	Converts accurately and checks with multiplication and addition.	Chooses efficient methods and explains why they work.
4. CONNECTS REPRESENTATIONS	Matches a few models and symbols with help.	Connects familiar models, words and symbols.	Connects models and number lines and symbolic forms.	Moves accurately between several representations.	Creates and compares representations to prove equivalence.
5. EXPLAINS FRACTION REASONING	Gives a brief answer with limited reasoning.	Gives a partly clear explanation using an example.	Explains a convincing strategy with a maths language.	Explains clear, logical reasoning and checks the result.	Communicates precise reasoning and evaluates another method.

TEACHER FEEDBACK:

NEXT STEPS:





PREVIEW

Fun with Fractions



Our Learning Intentions

- Recognise proper fractions, improper fractions and mixed numerals.
 - Count fractions across whole-number boundaries.
 - Locate fractions and mixed numerals on number lines.
- Convert between mixed numerals and improper fractions and explain why.



Fraction Parts

The numerator is the top number. It counts the selected equal parts.

The denominator is the bottom number. It shows how many equal parts make one whole.

For example, in $\frac{3}{4}$, the numerator is 3 and 4 is the denominator.



Fraction Families

Proper fraction: numerator is smaller than denominator — $\frac{3}{5}$

Improper fraction: numerator is at least as large as denominator — $\frac{7}{4}$

Mixed number: a whole number and a proper fraction — $1\frac{3}{4}$

Equivalent fractions: different names for the same value — $\frac{1}{2} = \frac{2}{4}$



Mixed Numerals

A mixed numeral combines one or more wholes with a fraction part.

$2\frac{1}{3}$ means 2 whole objects and 1 of 3 equal parts of another whole.

The fractional part must be less than one whole.



Read Mixed Numerals

$1 \frac{1}{2}$ is read as 'one and one half'.

$2 \frac{3}{4}$ is read as 'two and three quarters'.

$3 \frac{2}{5}$ is read as 'three and two fifths'.

Always say the whole number part first, then name the fraction.



Improper Fractions

An improper fraction has a numerator that is equal to or greater than its denominator.

$\frac{5}{4}$ means five equal parts. For quarters make one whole, with one quarter left.

so $\frac{5}{4} = 1 \frac{1}{4}$.



Two Names, One Value

An improper fraction and a mixed numeral can name the same amount.

$$7/3 = 2 \frac{1}{3}$$

Both names describe seven one-third parts: six thirds make two wholes, with one third remaining.



Improper to Mixed

1. Divide the numerator by the denominator.
2. The quotient is the whole-number part.
3. The remainder becomes the new numerator.
4. Keep the original denominator.

Check: $\text{quotient} \times \text{denominator} + \text{numerator} = \text{original numerator}$.



Guided Conversion

Convert $11/4$ to a mixed number.

$11 \div 4 = 2$ remainder 3

2 is the whole-number part.

The numerator is 3 and 4 stays the denominator.

$$11/4 = 2 \frac{3}{4}$$



Your Turn

Convert $\frac{14}{3}$ to a mixed number.

How many groups of 3 fit into 14?

What is the remainder?

Write the denominator as 3.

Explain how you can check your answer.



Check Your Thinking

$$14 \div 3 = 4 \text{ remainder } 2$$

$$14/3 = 4 \frac{2}{3}$$

$$\text{Check: } (4 \frac{2}{3}) \times 3 = 14$$

The quotient is 4 and the remainder is 2 because the parts are still thirds.



Mixed to Improper

1. Multiply the whole number by the denominator.
2. Add the numerator.
3. Write the total over the original denominator.

The denominator stays the same because the size of each equal part does not change.



Guided Conversion

Convert $3 \frac{2}{5}$ to an improper fraction.

$3 \times 5 = 15$ fifths in the three wholes
 $+ 2 = 17$ fifths altogether

$$3 \frac{2}{5} = \frac{17}{5}$$



Your Turn

Convert $2\frac{3}{4}$ to an improper fraction.

Multiply the whole number by the denominator.

Add the numerator.

Keep the denominator.

Write each step so another learner can follow your reasoning.



Check Your Thinking

$$2 \times 4 = 8$$

$$8 + 3 = 11$$

$$2\frac{3}{4} = \frac{11}{4}$$

The given number line shows that $2\frac{3}{4}$ is more than two complete wholes and three quarters more.



Count by Halves

0, $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 ...

Every step adds one half.

Two halves make one whole, so the count crosses a whole number after every second step.



Count by Thirds

0, $\frac{1}{3}$, $\frac{2}{3}$, 1, $1\frac{1}{3}$, $1\frac{2}{3}$, 2 ...

Each step adds one third.

Three thirds make one whole so $\frac{5}{3}$ is the same value as $1\frac{2}{3}$.



Count by Quarters

0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2 ...

Each step adds one quarter.

Four quarter-steps make one whole.



Count by Tenths

0, $\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$... $\frac{9}{10}$ 1 $\frac{1}{10}$...

Every step adds one tenth.

Ten tenths make one whole. Equal intervals are essential even when the count passes 1.



Fractions on Number Lines

A number line is divided into equal intervals.

The denominator shows how many equal intervals make one whole.

The numerator shows how many intervals to count from zero.

Always check the endpoints before labelling a point.



Mixed Numerals on Lines

Values greater than 1 continue beyond the first whole

$1 \frac{1}{2}$ is halfway between 1 and 2.

$2 \frac{1}{4}$ is one quarter-step after 2.

$1 \frac{2}{3}$ is two third-steps after 1 $\frac{1}{3}$, so it equals $1 \frac{2}{3}$.



Guided Placement

On a quarter number line from 0 to 2:
 $\frac{7}{4} = 1 \frac{3}{4}$, so count seven quarter-steps from zero.

On a halves line from 0 to 3:
 $\frac{5}{2}$ lies halfway between 2 and 3.



Check the Intervals

$1 \frac{3}{4}$ is the quarter-step immediately before 2.

$2 \frac{1}{2}$ is the half-step immediately after 2.

A correct outcome depends on equal spacing, not on guessing from the drawing.



Compare Representations

$11/4$ and $2\frac{3}{4}$ are equivalent.

Model: two whole groups of four quarters plus three quarters.

Number line: eleven quarters from zero.

Equation: $11 \div 4 = 2$ remainder 3.

Each representation shows the same value.



Choose and Explain

Choose one value greater than

Show it in two different ways: a model, words, a fraction symbol or a number line.

Explain how your representations prove they have the same value.

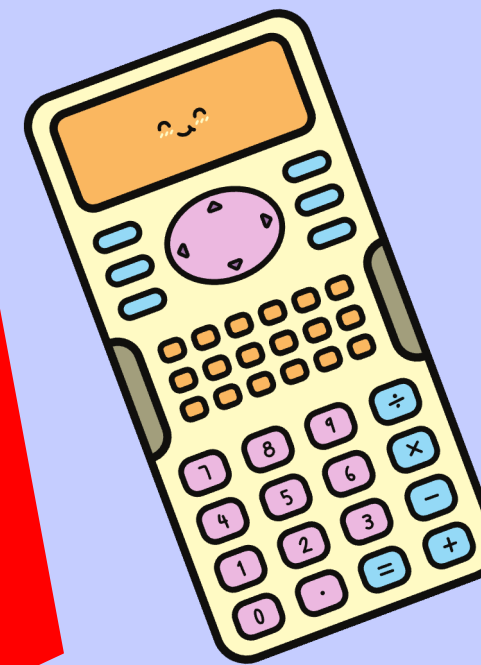
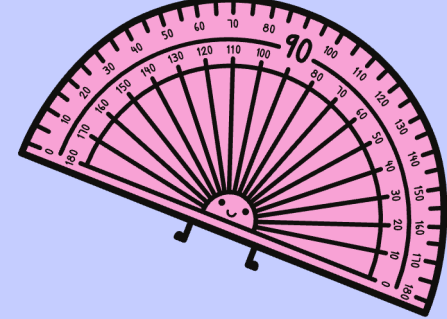
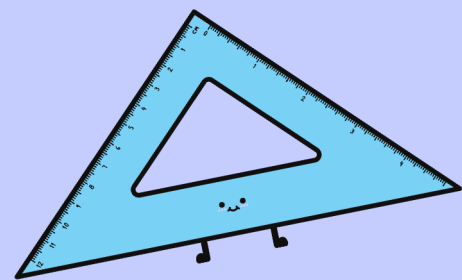
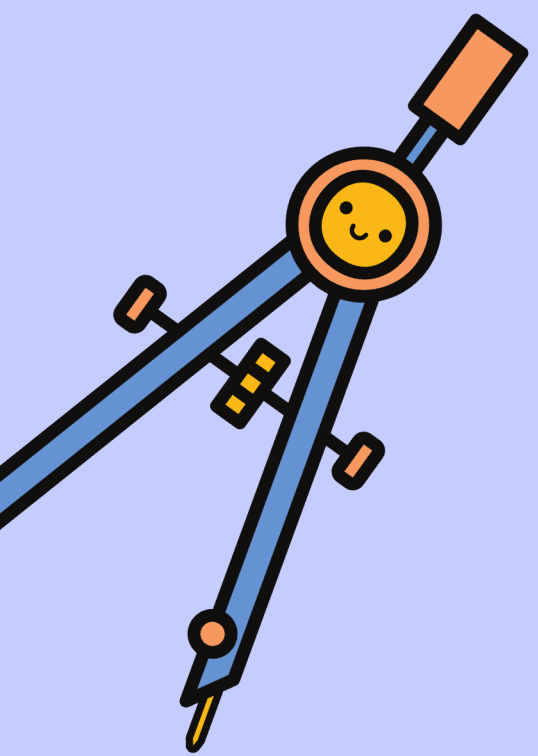


Lesson Summary

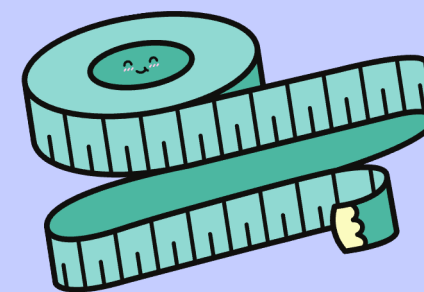
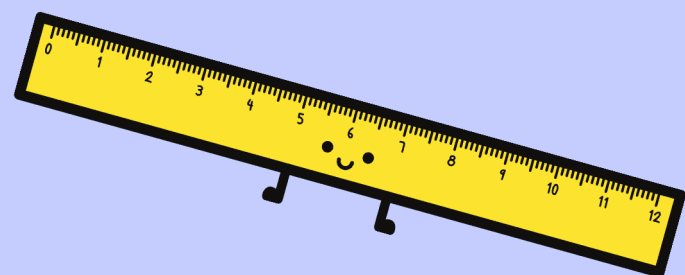
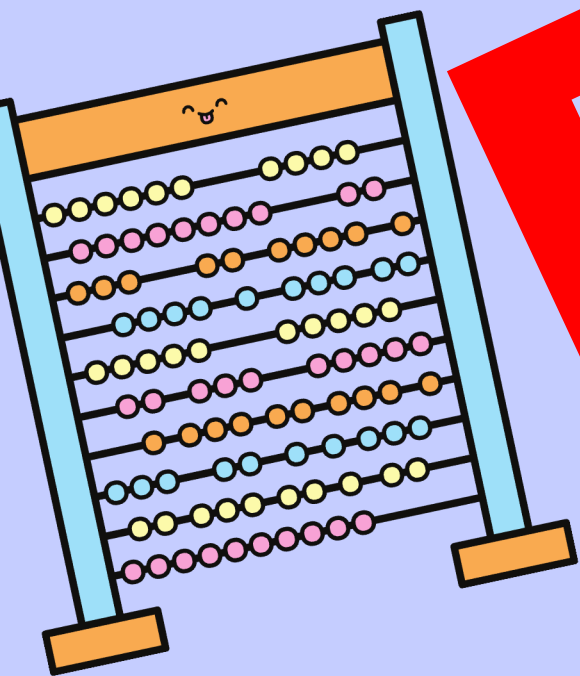
- Fractions name equal parts of a whole.
- Improper fractions and mixed numbers can name the same value.
- Equal intervals make number lines accurate.
- Conversion methods preserve the size of each fractional part.

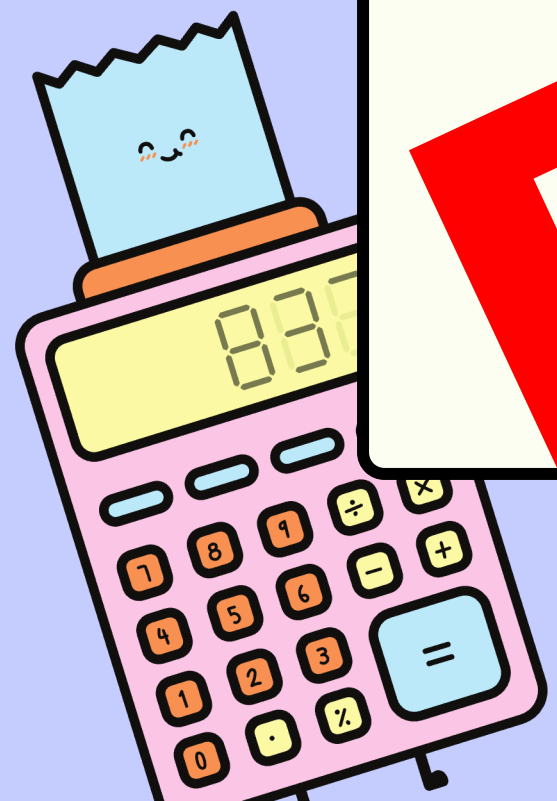
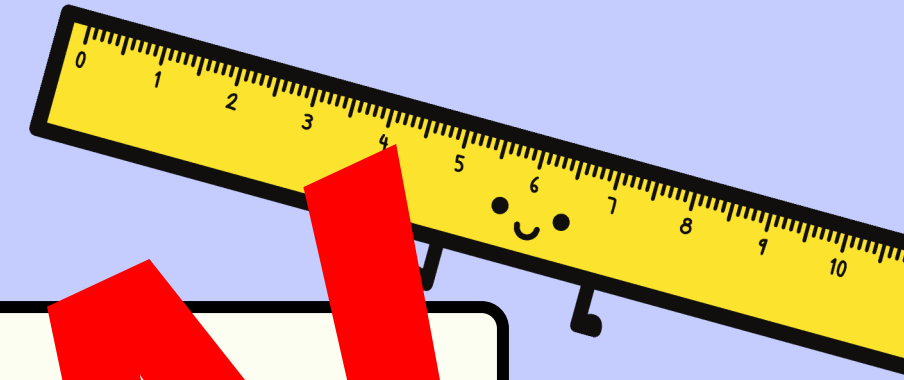
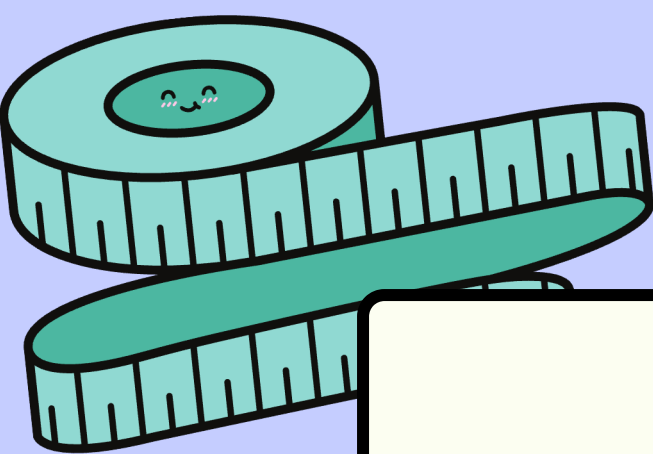
Can you explain each idea using your own example?





Well Done!





PREVIEW

Fun with Fractions Quiz



Question 1

In the fraction $\frac{7}{10}$, which number is the denominator?

A. 10

B. 7

C. 7

D. 3



Answer 1

B.

The numerator is the top number. It counts the selected equal parts.



Question 2

PREVIEW

is a proper fraction.



Answer 2

5 is smaller than 8, $\frac{5}{8}$ is less than one whole and is a proper fraction.



Question 3

Which fraction is improper?

A. $\frac{3}{5}$

B. $\frac{9}{4}$

C. $\frac{6}{7}$

D. $\frac{4}{9}$



Answer 3

$\frac{5}{4}$
The numerator is greater than the denominator, so the value is greater than one whole.



Question 4

Write $1\frac{3}{4}$ as an improper fraction.

Show your calculation.

PREVIEW



Answer 4

PREVIEW

$$(1 \times 4 + 3) / 4 = 7/4$$



Question 5

Write $13/5$ as a mixed number.

A. $2 \frac{3}{5}$

B. $3 \frac{2}{5}$

C. $2 \frac{4}{5}$

D. $3 \frac{3}{5}$



Answer 5

PREVIEW

A. 2

$\div 5 = 2$ remainder 3.



Question 6

When counting by halves, what are the next two values after $1\frac{1}{2}$?

PREVIEW



Answer 6

PREVIEW

..., then $\frac{1}{2}$

Each step adds one half.



Question 7

Which value is halfway between 1 and 2?

A. $1\frac{1}{4}$

B. $1\frac{1}{2}$

C. $\frac{3}{4}$

D. 2



Answer 7

B. 1.5

One half added to one reaches the midpoint between 1 and 2.



Question 8

PREVIEW

True or False?

$\frac{6}{4}$ and $1\frac{2}{4}$ are equivalent.



Answer 8

Six quarters make one whole and two quarters more: $6/4 = 1 \frac{2}{4}$.



Question 9

Between which two consecutive whole numbers does $7/3$ lie?

Write in mixed-numeral form too.



Answer 9

PREVIEW

$$7/3 = 2 \frac{1}{3}$$



Question 10

Which calculation correctly converts $3\frac{1}{4}$ to a fraction?

A. $(3 \times 4 + 1) / 4 = 13/4$

B. $(3 \times 4 + 1) / 4 = 13/4$

C. $(3 \times 1) / 4 = 7/4$

D. $(3 \times 4 + 3) / 4 = 19/4$

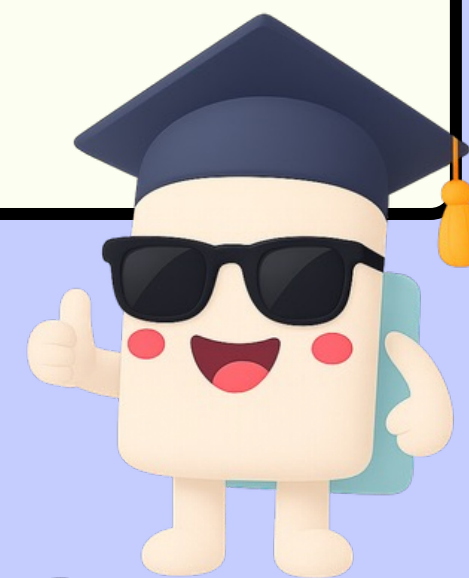
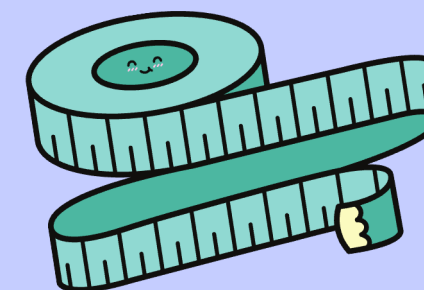
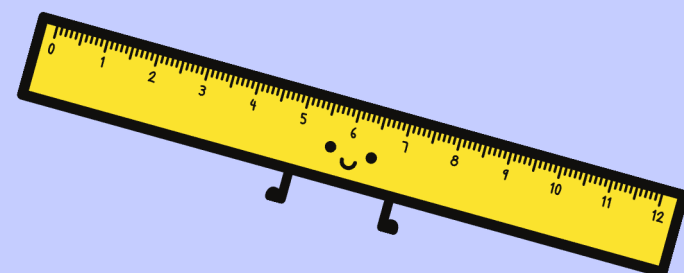
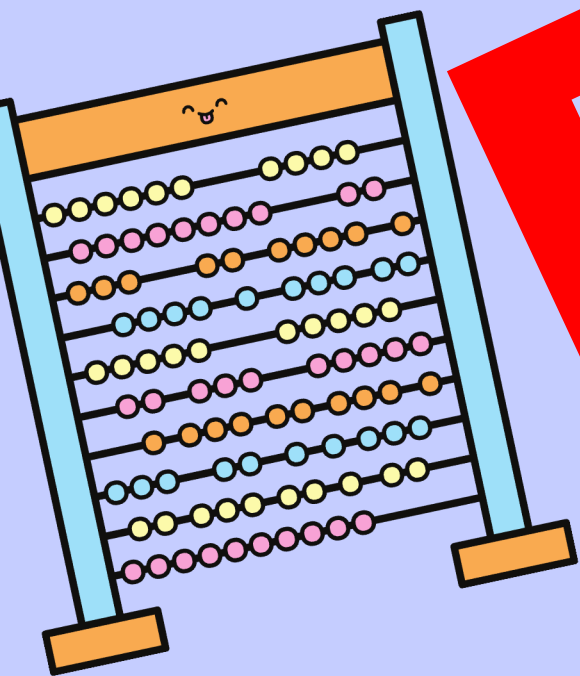
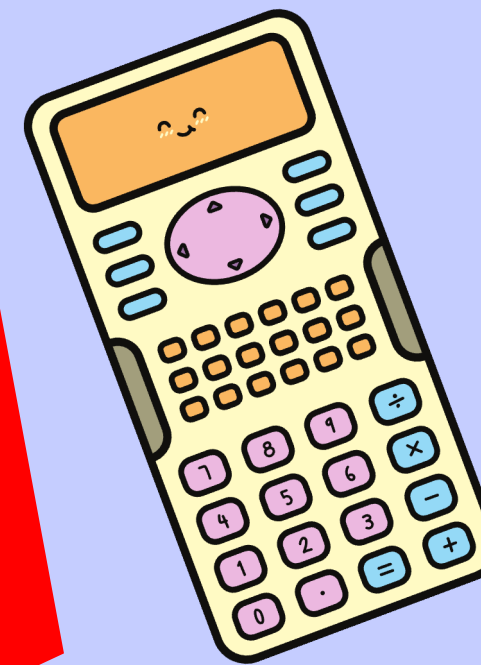
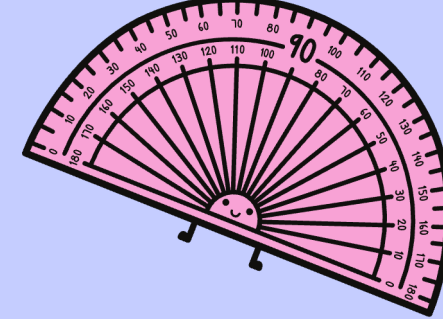
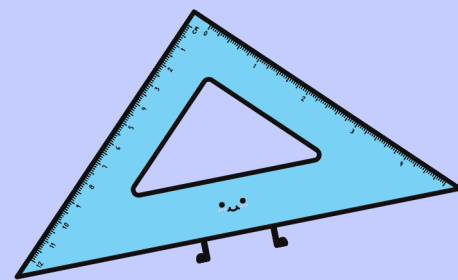
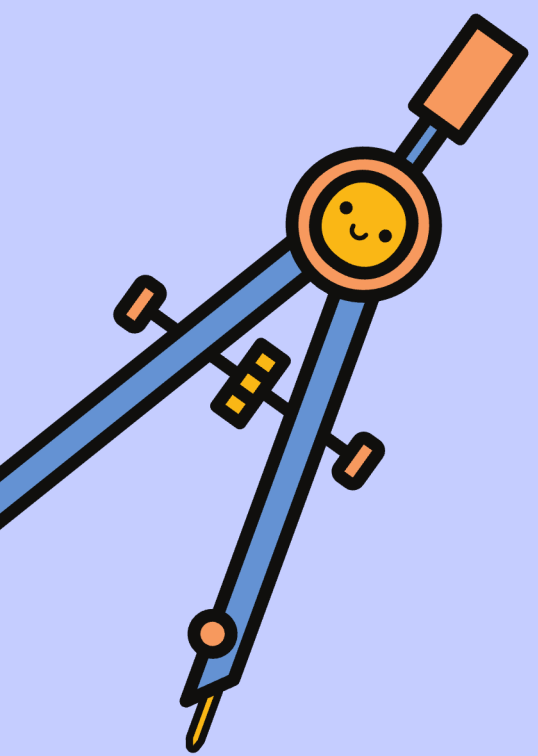


Answer 10

$$A \div 4 + 1, 4 = 1 + 4$$

Multiply the whole number by the denominator, then add the numerator.





Well Done!

PREVIEW