Name _____

Teacher Notes:

- Introduce Hint #31 "Fraction Manipulatives," Hint #32 "Percent," and Hint #33 "Improper Fractions."
- Review Hint #12 "Naming Fractions/ Identifying Fractional Parts."
- Refer students to "Fraction-Decimal-Percent Equivalents" on page 19 in the *Student Reference Guide.*
- For additional practice, students may complete Fraction Activities A and B.

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Focus on

- **Investigating Fractions with Manipulatives**

Math Language

A **fraction** describes parts of a whole with two numbers, a "bottom" or denominator and a "top" or numerator.

- You can use a **fraction** to show how many parts of a whole.
- The number on the bottom of the fraction is the **denominator**. The denominator tells how many equal parts are in the whole.
- The **numerator** is the number on the top of the fraction. The numerator tells how many parts the fraction shows.

Activity 1

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Using Fraction Manipulatives

Use your fraction manipulatives to answer these questions:

1. What percent of a whole is $\frac{1}{2}$?

Start with 100% and then take half of it. What is left?

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

2. What fraction is half of $\frac{1}{2}$?

To find half of $\frac{1}{2}$, we can divide the model into _____ equal parts.

Each part will have _____ fourth.

Half of $\frac{1}{2}$ = _____

3. What fraction is half of $\frac{1}{4}$?

What 2 pieces equal $\frac{1}{4}$?

Half of $\frac{1}{4}$ = _____

4. *Fit three $\frac{1}{4}$ pieces together to make $\frac{3}{4}$ of a whole.*

Three fourths of a whole = _____

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5. *Fit four $\frac{1}{8}$ pieces together to form $\frac{4}{8}$ of a whole.*

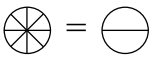
Four eighths of a whole = _____

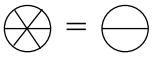
6. *Fit three $\frac{1}{6}$ pieces together to form $\frac{3}{6}$ of a whole.*

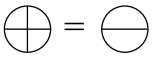
Three sixths of a whole = _____

- The fraction $\frac{4}{8}$ makes one half of a whole.
  The fraction $\frac{4}{8}$ names the same amount as the fraction $\frac{1}{2}$.
  You can say that $\frac{4}{8}$ **reduces** to $\frac{1}{2}$.

7. *Shade $\frac{1}{2}$ of each circle.*

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

 $\frac{3}{6} = \frac{1}{_}$

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

8. The fraction $\frac{2}{8}$ equals which **single** fraction piece?

_____

9. The fraction $\frac{6}{8}$ equals **how many** $\frac{1}{4}$ pieces?

_____

10. The fraction $\frac{2}{6}$ equals which **single** fraction piece?

_____

11. The fraction $\frac{4}{6}$ equals **how many** $\frac{1}{3}$ pieces?

_____

12. Fit three $\frac{1}{8}$ pieces together to form $\frac{3}{8}$ of a whole.

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{3}{8}$

Then add two more $\frac{1}{8}$ pieces. What is the sum?

$\frac{3}{8} + \frac{2}{8} = __$

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13. Make a whole using 6 of the $\frac{1}{6}$ pieces. The six pieces show the **whole number** 1.
Then remove (subtract) $\frac{1}{6}$.
What fraction of the whole is left?

_____

What equation represents your model?

$1 - __ = __$

14. Show how to subtract $\frac{1}{3}$ from 1 by making a whole of $\frac{3}{3}$.
Then remove $\frac{1}{3}$. What fraction is left?

_____

15. Use four $\frac{1}{4}$'s to show the subtraction $1 - \frac{1}{4}$.
Then write the answer.

_____

16. Use eight $\frac{1}{8}$'s to show the subtraction $1 - \frac{3}{8}$.
Then write the answer.

_____

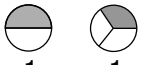
17. What percent of a whole is $\frac{1}{3}$?

_____

18. What percent of a whole is $\frac{1}{6}$?

_____

- To compare fractions using models:
  1. Make a model for each fraction.
  2. Compare the models.
  3. Write one of these comparison symbols: $=$, $>$, $<$.



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

19. Fit two $\frac{1}{3}$ pieces together and fit three $\frac{1}{4}$ pieces together.
Use the models to choose the symbol to write in the circle.

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

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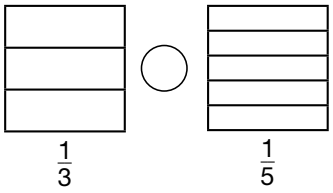
20. Fit two $\frac{1}{3}$ pieces together and fit three $\frac{1}{8}$ pieces together.
Use the models to choose the symbol to write in the circle.

$$\frac{2}{3} \bigcirc \frac{3}{8}$$

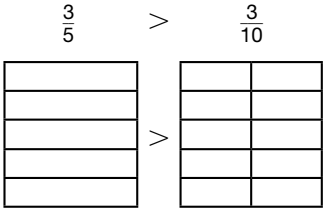
- You can compare fractions by shading parts of a rectangle.
- Count how many equal parts are in the rectangle. This is the denominator.
- Shade some of the parts. This is the numerator.
- Then use the rectangles to help you compare the two fractions.

21. Shade $\frac{1}{3}$ of the rectangle on the left.
Shade $\frac{1}{5}$ of the rectangle on the right.

Which fraction is greater? _____
Write a symbol in the circle to compare.



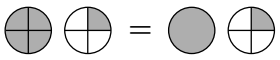
22. Shade the rectangles to illustrate the comparison.



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- An improper (or top-heavy) fraction is equal to or greater than 1.
- The fraction $\frac{4}{3}$ is an improper fraction.
- In an **improper fraction**, the top (numerator) is greater than or equal to the bottom (denominator).
- In a **fraction equal to 1**, the numerator is the same as the denominator.
- A **mixed number** is a whole number plus a fraction.

23. Show that the improper fraction $\frac{5}{4}$ equals the mixed number $1\frac{1}{4}$.
First, fit together five $\frac{1}{4}$ pieces. This models the fraction $\frac{5}{4}$.
Then, replace four of the $\frac{1}{4}$ pieces with a whole.



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

24. The improper fraction $\frac{7}{4}$ equals what mixed number?

If I have 7 fourths, I can make one whole with _____ fourths.

I have _____ fourths left over.

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

25. The improper fraction $\frac{3}{2}$ equals what mixed number?

If I have 3 halves, I can make one whole with _____ halves.

I have _____ left over.

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

26. Use only $\frac{1}{4}$ pieces. Fit them together to make $1\frac{1}{2}$ circles.
How many $\frac{1}{4}$ pieces do you need to make $1\frac{1}{2}$?

_____

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27. How many $\frac{1}{3}$ pieces do you need to make 2 wholes?

I put fraction pieces together to make _____ circles

using _____ $\frac{1}{3}$ pieces.

_____

28. The improper fraction $\frac{4}{3}$ equals what mixed number?

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

29. Write $\frac{11}{6}$ as a mixed number.

$\frac{11}{6} =$ _____

30. How many twelfths equal $\frac{1}{2}$ of a circle? _____

$\frac{1}{2} = \frac{\quad}{12}$

How many twelfths equal $\frac{1}{4}$ of a circle? _____

$\frac{1}{4} = \frac{\quad}{12}$

How many twelfths equal $\frac{1}{3}$ of a circle? _____

$\frac{1}{3} = \frac{\quad}{12}$

How many twelfths equal $\frac{1}{6}$ of a circle? _____

$\frac{1}{6} = \frac{\quad}{12}$

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