Day Two Lesson Plan

Objectives

• Students develop a more formal understanding of equivalent fractions
• Students develop fluency with “benchmark” fractions

Materials Needed

• 4 long strips of paper per student (approximately 2” x 10”)
• Equivalent fractions homework
• Computer lab or projector
• Checklist

Warm Up

Display the following table and ask the questions that follow.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Student Scores</th>
<th>How many?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 90 91 91 93 95 95 97 98 98 99</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>83 87 88</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>71 73 75 77 79 79</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>62 67</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>55</td>
<td></td>
</tr>
</tbody>
</table>

Total ____

1. How many students received each grade?
2. How many students took the quiz?
3. What fractions of the students received As? Bs? Cs? Ds? Fs?

Ask students to name a few fractions equivalent to those listed for each grade.

Yesterday’s Homework

Discuss questions. Collect the papers or correct them together.

Lesson

Fraction Strip Activity

Tell students that today they will be making fractions strips to keep in their “toolboxes”
and that they will be able to use these strips to solve problems throughout the unit. Creating these fraction strips helps strengthen students’ understandings of equivalent fractions.

Provide each student with four long strips of paper.

**Strip 1:** Ask students to imagine this strip as a very long candy bar and that they should show (by folding) how they could share this candy bar between 2 people. Then have students unfold the strip and label the fold to indicate how far along they are on the candy bar at that point \(\frac{1}{2}\).

**Strip 2:** Repeat the process above, only tell students that now the candy bar needs to be divided among 4 people. Students will probably fold the strip in half and then fold in half again. They should then label the fold marks \(\frac{1}{4}, \frac{2}{4}\), and \(\frac{3}{4}\).

**Strip 3:** Repeat the process above for sharing among 8 people. The labeled folds will be \(\frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{5}{8}, \frac{6}{8}, \frac{7}{8}, \frac{8}{8}\), and \(\frac{7}{8}\).

**Strip 4:** Repeat the process above for sharing among 16 people. The labeled folds will be \(\frac{1}{16}, \frac{2}{16}, \frac{3}{16}, \frac{4}{16}, \frac{5}{16}, \frac{6}{16}, \frac{7}{16}, \frac{8}{16}, \frac{9}{16}, \frac{10}{16}, \frac{11}{16}, \frac{12}{16}, \frac{13}{16}, \frac{14}{16}, \frac{15}{16}\), and \(\frac{15}{16}\).

Some students may suggest labeling the ends (0 and 1) as well. If a student does not offer this suggestion, ask how the ends should be labeled. Students may offer different suggestions. For example, one might suggest the right end be labeled 1 while another might suggest it be labeled \(\frac{8}{8}\). Use this opportunity to ask students which one is correct and whether they are the same or different.

Ask students to look at their completed fraction strips and offer any observations about the fractions they wrote down. Ask the following questions if students do not bring up these points themselves:

- Which fraction strip was divided into the most pieces?
- Which fraction strip was divided into the fewest pieces?
- What is the relationship between the size of the denominator and the number of pieces into which the fraction strip is divided?

At this point ask students to recall these terms:

- Denominator—tells how many pieces the whole is broken into
- Numerator—tells how many pieces are considered

- Look at the \(\frac{1}{2}\) mark on your first fraction strip. Is there a fraction on another strip that is equivalent to \(\frac{1}{2}\)? \(\frac{2}{4}, \frac{4}{8}\, \text{and} \, \frac{8}{16}\) are all equivalent to \(\frac{1}{2}\). Students can see this by lining up the strips and noticing these fractions are all in the same place.
- What is another name for \(\frac{1}{4}\)?
• What is another name for \( \frac{3}{8} \)?
• What is another name for \( \frac{14}{16} \)?
• What is another name for 0?
• What is another name for 1?
• If we were to make a fifth fraction strip, into how many pieces would it be divided? What fraction on this strip would be another name for \( \frac{1}{2} \)? For \( \frac{1}{4} \)? For \( \frac{15}{16} \)?

• More challenging question: On our fraction strips, the numerator is always smaller than the denominator. Does it always have to be this way? (Prompt if needed: Could you have a fraction like \( \frac{5}{4} \)? What would this look like?)

**Computer**

Complete Fractions at Work 02 and accompanying Fraction Exercises. *A paper copy of the Fraction Exercises is named “Day 2 Practice Problems” and is included if you want students to write their responses.*

**Homework**

Equivalent fractions worksheet

**Wrap-Up Question**

Ask students for examples of equivalent fractions and have them explain why they are equivalent. This could be done by doing a few of the homework exercises together.

**Checklist**

Complete the Day 2 Checklist
Day 2 Practice Problems

1. Circle all of the fractions that are equivalent to \(\frac{1}{2}\):
   \[
   \frac{3}{6}, \frac{2}{4}, \frac{4}{8}, \frac{8}{16}, \frac{4}{5}, \frac{10}{20}
   \]

2. Which of the following fractions are equivalent to \(\frac{3}{5}\):
   a. \(\frac{9}{15}\)  
   b. \(\frac{7}{9}\)  
   c. \(\frac{5}{3}\)  
   d. \(\frac{6}{8}\)

3. Which of the following fractions is NOT equivalent to \(\frac{1}{4}\):
   a. \(\frac{2}{8}\)  
   b. \(\frac{4}{16}\)  
   c. \(\frac{6}{9}\)  
   d. \(\frac{3}{12}\)

4. Circle all of the fractions that are equivalent to \(\frac{3}{3}\):
   \[
   \frac{3}{6}, \frac{6}{6}, \frac{1}{6}, \frac{12}{12}, \frac{1}{1}
   \]

5. Circle all of the fractions that are equivalent to \(\frac{3}{6}\):
   \[
   \frac{1}{100}, \frac{2}{11}, \frac{10}{100}, \frac{100}{1000}, \frac{10}{10,000}
   \]
6. Circle all of the fractions that are equivalent to $\frac{2}{3}$:

\[
\begin{array}{cccccc}
\frac{3}{4} & \frac{4}{6} & \frac{6}{9} & \frac{8}{12} & \frac{10}{15} & \frac{3}{2}
\end{array}
\]

7. Which of the following fractions is equivalent to $\frac{1}{3}$?

a. $\frac{3}{9}$  
b. $\frac{5}{7}$  
c. $\frac{3}{3}$  
d. $\frac{3}{1}$

8. Which of the following fractions is NOT equivalent to $\frac{1}{3}$?

a. $\frac{5}{30}$  
b. $\frac{2}{12}$  
c. $\frac{3}{18}$  
d. $\frac{2}{7}$

9. Circle all of the fractions that are equivalent to $\frac{5}{5}$:

\[
\begin{array}{cccccc}
\frac{4}{6} & \frac{6}{6} & \frac{1}{5} & \frac{14}{14} & \frac{1}{1}
\end{array}
\]

10. Circle all of the fractions that are equivalent to $\frac{1}{100}$:

\[
\begin{array}{cccccc}
\frac{1}{10} & \frac{1}{1000} & \frac{10}{1000} & \frac{100}{10000} & \frac{5}{105}
\end{array}
\]
Name __________ KEY ___________________________ Date ___________________________

Day 2 Practice Problems

1. Circle all of the fractions that are equivalent to $\frac{1}{2}$:

\[
\frac{3}{6} \quad \frac{2}{1} \quad \frac{4}{8} \quad \frac{8}{16} \quad \frac{4}{5} \quad \frac{10}{20}
\]

2. Which of the following fractions are equivalent to $\frac{3}{5}$?

- a. $\frac{9}{15}$
- b. $\frac{7}{9}$
- c. $\frac{5}{3}$
- d. $\frac{6}{8}$

3. Which of the following fractions is NOT equivalent to $\frac{1}{4}$?

- a. $\frac{2}{8}$
- b. $\frac{4}{16}$
- c. $\frac{6}{9}$
- d. $\frac{3}{12}$

4. Circle all of the fractions that are equivalent to $\frac{3}{3}$:

\[
\frac{3}{6} \quad \frac{6}{6} \quad \frac{1}{6} \quad \frac{12}{12} \quad \frac{1}{1}
\]

5. Circle all of the fractions that are equivalent to $\frac{3}{6}$:

\[
\frac{1}{100} \quad \frac{2}{11} \quad \frac{10}{100} \quad \frac{100}{1000} \quad \frac{10}{10,000}
\]
6. Circle all of the fractions that are equivalent to \( \frac{2}{3} \):

\[
\frac{3}{4} \quad \frac{4}{6} \quad \frac{6}{9} \quad \frac{8}{12} \quad \frac{10}{15} \quad \frac{3}{2}
\]

7. Which of the following fractions is equivalent to \( \frac{1}{3} \)?

a. \( \frac{3}{9} \)  

b. \( \frac{5}{7} \)  

c. \( \frac{3}{3} \)  

d. \( \frac{3}{1} \)

8. Which of the following fractions is NOT equivalent to \( \frac{1}{6} \)?

a. \( \frac{5}{30} \)  

b. \( \frac{2}{12} \)  

c. \( \frac{3}{18} \)  

d. \( \frac{2}{7} \)

9. Circle all of the fractions that are equivalent to \( \frac{5}{5} \):

\[
\frac{4}{6} \quad \frac{6}{6} \quad \frac{1}{5} \quad \frac{14}{14} \quad \frac{1}{1}
\]

10. Circle all of the fractions that are equivalent to \( \frac{1}{100} \):

\[
\frac{1}{100} \quad \frac{1}{1000} \quad \frac{10}{1000} \quad \frac{100}{10000} \quad \frac{5}{105}
\]
Equivalent Fractions

Write a fraction that is equivalent to each of the following fractions.

1. $\frac{6}{12}$
2. $\frac{4}{8}$
3. $\frac{12}{16}$

4. $\frac{2}{3}$
5. $\frac{5}{15}$
6. $\frac{7}{21}$

7. $\frac{3}{12}$
8. $\frac{9}{24}$
9. $\frac{2}{14}$

10. $\frac{5}{25}$
11. $\frac{6}{6}$
12. $\frac{2}{3}$

13. $\frac{9}{15}$
14. $\frac{4}{12}$
15. $\frac{4}{10}$

16. $\frac{1}{2}$
17. $\frac{2}{5}$
18. $\frac{9}{10}$

19. $\frac{6}{8}$
20. $\frac{6}{9}$
21. $\frac{9}{18}$

22. $\frac{10}{12}$
23. $\frac{3}{4}$
24. $\frac{6}{16}$
Equivalent Fractions

Write a fraction that is equivalent to each of the following fractions.

*Answers in blue only represent one of many possible correct answers.*

1. \( \frac{6}{12} = \frac{1}{2} \)
2. \( \frac{4}{8} = \frac{1}{2} \)
3. \( \frac{12}{16} = \frac{3}{4} \)

4. \( \frac{2}{3} = \frac{4}{6} \)
5. \( \frac{5}{15} = \frac{1}{3} \)
6. \( \frac{7}{21} = \frac{1}{3} \)

7. \( \frac{3}{12} = \frac{1}{4} \)
8. \( \frac{9}{24} = \frac{3}{8} \)
9. \( \frac{2}{14} = \frac{1}{7} \)

10. \( \frac{5}{25} = \frac{1}{5} \)
11. \( \frac{6}{6} = \frac{1}{1} \)
12. \( \frac{2}{3} = \frac{4}{6} \)

13. \( \frac{9}{15} = \frac{3}{5} \)
14. \( \frac{4}{12} = \frac{1}{3} \)
15. \( \frac{4}{10} = \frac{2}{5} \)

16. \( \frac{1}{2} = \frac{2}{4} \)
17. \( \frac{2}{5} = \frac{4}{10} \)
18. \( \frac{9}{10} = \frac{18}{20} \)

19. \( \frac{6}{8} = \frac{3}{4} \)
20. \( \frac{6}{9} = \frac{2}{3} \)
21. \( \frac{9}{18} = \frac{1}{2} \)

22. \( \frac{10}{12} = \frac{5}{6} \)
23. \( \frac{3}{4} = \frac{6}{8} \)
24. \( \frac{6}{16} = \frac{3}{8} \)
Day Two Checklist

Teacher Name ___________________________   Date ____________

Please indicate whether each of the following activities was completed (circle yes or no). If an activity was not completed, please explain why. Also feel free to share your comments about the lesson.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm Up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraction Strip Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer “Fraction at Work 02”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer “Day 2 Practice Problems”</td>
<td></td>
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<tr>
<td>Assign Homework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrap-Up Question</td>
<td></td>
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</tr>
</tbody>
</table>

Comments

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________________________________________________________________________
________________________________________________________________________

Thank You!