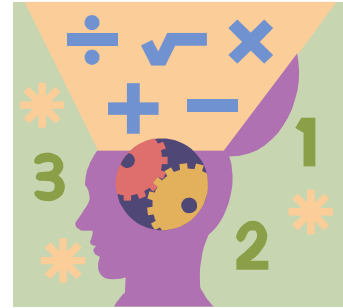


Algebra/Geometry Institute Summer 2009

Faculty Name: Jacqueline Brown - Haynes
School: Solomon Middle School
Greenville, Mississippi
Grade Level: 7th



1 Teaching objective(s)

Mississippi Mathematics Framework: 1c

The student will convert among decimals, fractions and percents with and without the use of a calculator.

2 Instructional Activities

A. INTRODUCTION/GUIDED PRACTICE/ STRATEGIES

1. Ask students to think of some everyday situations in which we use decimals, fractions and percents. Discuss:

Say, "Often times, our use of decimals has come from us converting them from fractions or percents." Provide students with examples. Probe students for additional examples.

Say, "We will learn to convert decimals to percents, percent to decimals and fractions to decimals."

*Remind students that conversion of decimals, fractions and percents can be confusing but we will learn strategies that will help us to remember how to perform the needed operation correctly."

2. Say, "When we convert a **decimal to a percent** we move the decimal point two places to the right."

Strategy: Decimal-----Percent-----Right 2 places → **DPR**²

Inform students another good strategy is to think of the decimals in terms of money, (dollars and cents).

Example 1: 0.2, Say, "two tenths is two out of ten dimes. Two dimes is 20% of a dollar." So the correct answer is 20%. $0.2 = 20\%$

Example 2: 2.12, Say, "\$2.12 is 212 cents." So the correct answer is 212%.

Example 3: 0.6, Say, "six tenths is six out of ten dimes. Six dimes is 60% of a dollar." So the correct answer is 60%. $0.6 = 60\%$.

Students will work problems on mini dry erase boards as we go over answers to the assigned practice problems. (Attachment 1) The teacher will probe the students with questions to clarify any misconceptions. *The teacher will be sure to visually demonstrate the process of moving the decimal two places to the right.*

3. Say, “When we convert a percent to a decimal, we move the decimal to the left 2 places.”
 Strategy: Percent-----Decimal-----Left 2 places → PDL²
 Remind the students to think in terms of money.
 Example 1: 20%. Say, “Twenty percent is 20 pennies which is equivalent to \$0.20.” So, 20% converted to decimals is .20.
 Example 2: 45%. Say, “Forty-five percent is 45 pennies which is equivalent to \$0.45.” So, 45% converted to decimals is .45.
 Example 3: 30% = 0.30
 The teacher will provide the students with additional problems to try and probe the students with questions to check for understanding. (Attachment 1)
The teacher will be sure to visually demonstrate the process of moving the decimal two places to the left.

4. Say, “When we convert decimals to fractions we put the numbers to the right of the decimal over the place value that is farthest to the right. Remind students to think in terms of money, dollars and cents.”
 Example 1: 0.18 changed to a fraction will become 18/100. Say 18 pennies out of 100.
 Example 2: 0.125 changed to a fraction will become 125/1000.
 Example 3: 2.65 changed to a fraction will become 2 and 65/100. (Think dollars and cents)
 The teacher will provide students with additional problems checking for understanding. (Attachment 1) As students work the examples have students explain HOW each of the conversions was made.
 * Tell students to read the decimal including its place value will help.*

5. Say, “When we convert a percent to a fraction we put the number to the left of the percent sign over 100.”
 Example 1: 40% = 40/100. Say, 40% is .40. 40 out of 100 is 40/100.
 Example 2: 15% = 15/100
 Example 3: 33% = 33/100
 Provide students with additional problems checking for understanding. As students work the examples have students explain HOW each of the conversions was made.

6. Say, “When we convert a fraction to a decimal, we divide the denominator of the fraction into the numerator.
 Example 1: 12/25 = .48
 Example 2: 5/8 = .625
 Example 3: 24/100 = .24
 Provide students with additional problems checking for understanding. As students work the examples have students explain HOW each of the conversions was made.

B. INDEPENDENT PRACTICES

1. Students will complete problem numbers 8-22 on page 99. (Attachment 2.)
2. Basketball Blitz (Attachment 3)

Students will work in cooperative groups and compile the needed information by shooting basketball and recording the results. The results will then be placed in the designated area in the chart. Students will follow the directions listed on the worksheet, converting to decimals, fractions and percents where needed.

3 Materials and Resources

Materials

Dry erase board markers	Mini basketballs
Mini dry erase board	Mini basketball goals/hoops
Erasers	
Markers	
Handouts	

Resources

Charles, Randall. *Mississippi Mathematics, Course 2*. Prentice Hall. 2008. Pgs.96-99.

Grober, Keith. *Mississippi MCT2 Gold Edition Coach, Grade 7*. Triumph Learning, 2008, Pgs. 46-49.

4 Assessment

1. Teacher observations.
2. Student participation.
3. Assessment (Attachment 4)
Assessment Key (Attachment 5)

Guided Problems and Key

Decimals to percents

- | | |
|-----------|---------|
| 1. 0.7 | 70% |
| 2. 0.29 | 29% |
| 3. 0.039 | 3.9% |
| 4. 13.047 | 1304.7% |
| 5. 5.65 | 565% |

Percents to decimals

- | | |
|----------|-------|
| 1. 96% | 0.96 |
| 2. 24% | 0.24 |
| 3. 9.9% | 0.099 |
| 4. 61.7% | 0.617 |
| 5. 20.5% | 0.205 |

Decimals to fractions (reduced to lowest terms)

- | | | |
|---------|-------------------|-------------------|
| 1. 0.6 | $\frac{6}{10}$ | $\frac{3}{5}$ |
| 2. 0.72 | $\frac{72}{100}$ | $\frac{18}{25}$ |
| 3. 0.8 | $\frac{8}{10}$ | $\frac{4}{5}$ |
| 4. 0.5 | $\frac{5}{10}$ | $\frac{1}{2}$ |
| 5. 3.85 | $\frac{385}{100}$ | $3 \frac{17}{20}$ |

Percents to fractions

- | | | |
|---------|-------------------|-----------------|
| 1. 590% | $\frac{590}{100}$ | $\frac{59}{10}$ |
| 2. 82% | $\frac{82}{100}$ | $\frac{41}{50}$ |
| 3. 40% | $\frac{40}{100}$ | $\frac{2}{5}$ |
| 4. 38% | $\frac{38}{100}$ | $\frac{19}{50}$ |
| 5. 95% | $\frac{95}{100}$ | $\frac{19}{20}$ |

Assignment

Directions: Write each fraction as a decimal.

8. $\frac{2}{5}$

9. $\frac{4}{5}$

10. $\frac{3}{8}$

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

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

13. $\frac{1}{8}$

14. $\frac{7}{11}$

15. $\frac{3}{16}$

Directions: Write each decimal as a fraction in simplest form.

16. 0.125

17. 0.66

18. 2.5

19. 3.75

20. 0.32

21. 0.19

22. 0.965

Assignment Key

Fractions to decimals

8. $\frac{2}{5}$	0.4
9. $\frac{4}{5}$	0.8
10. $\frac{3}{8}$	0.375
11. $\frac{2}{3}$	0.66
12. $\frac{3}{4}$	0.75
13. $\frac{1}{8}$	0.125
14. $\frac{7}{11}$	0.63
15. $\frac{3}{16}$	0.1875

Decimals to fractions

16. .125	$\frac{125}{1000}$	$\frac{1}{8}$
17. .66	$\frac{66}{100}$	$\frac{33}{50}$
18. 2.5	$\frac{25}{10}$	$2 \frac{1}{2}$
19. 3.75	$\frac{375}{100}$	$3 \frac{3}{4}$
20. .32	$\frac{32}{100}$	$\frac{8}{25}$
21. .19	$\frac{19}{100}$	$\frac{19}{100}$
22. .965	$\frac{965}{1000}$	$\frac{193}{200}$

BASKETBALL

BLITZ

	PLAYER 1	PLAYER 2	PLAYER 3	PLAYER 4	PLAYER 5
NAME					
HITS					
MISSES					
TOTAL					

Assessment

Directions: Fill in the chart below by converting each to a fraction, decimal or percent.

FRACTIONS	DECIMALS	PERCENTS
		2%
	0.08	
1/10		
	0.9	
		125%
3/5		
		75%
	.33	
26/100		
		29%

Attachment 5
Assessment Key

Directions: Fill in the chart below by converting each to a fraction, decimal or percent.

FRACTIONS	DECIMALS	PERCENTS
$\frac{2}{100}$	0.02	2%
$\frac{8}{100}$	0.08	8%
$\frac{1}{10}$	0.1	10%
$\frac{9}{10}$	0.9	90%
$\frac{125}{100}$	1.25	125%
$\frac{3}{5}$	0.6	60%
$\frac{3}{4}$.75	75%
$\frac{33}{100}$.33	33%
$\frac{26}{100}$.26	26%
$\frac{29}{100}$.29	29%