Booragul Public School- Number and Algebra

Fractions and Decimals 2

Stage 3 Outcome

A student: › describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM › selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM › gives a valid reason for supporting one possible solution over another MA3-3WM › compares, orders and calculates with fractions, decimals and percentages MA3-7NA	**Language**: Students should be able to communicate using the following language: whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction, is equal to, **equivalent**, **ascending order**, **descending order**, **simplest form**, decimal, decimal point, digit, round to, decimal places, dollars, cents, **best buy**, **percent**, **percentage**, **discount**, **sale price**.

Teaching and Learning Activities	Notes/ Future Directions/Evaluation	Date
MULTIPLYING BY 10, 100, 1000, AND SO ON <table><tr><td>**10 X 97.34**</td><td>**100 X 97.34**</td><td>**1000 X 97.34**</td><td>**10,000 X 97.34**</td></tr><tr><td>973.4</td><td>9734</td><td>97,340</td><td>973,400</td></tr></table>		
http://illuminations.nctm.org/ActivityDetail.aspx?ID=80 Create equivalent fractions by dividing and shading squares or circles, and match each fraction to its location on the number line. Along the top, choose Square or Circle. Use the sliders to increase or decrease the number of columns and rows (for Squares) or the number of sectors (for Circles). Once the shape is divided as you want it, click on the sections to color them. Make the green and blue fractions equivalent to the red fraction. Then, click on the **Check** buttons to see if your fractions match. (Note that all fractions must use a different denominator. You will get a message that says, "Use a different denominator," if you make an equivalent fraction that does not use a different denominator.) Use the **New Fraction** button to generate a new red fraction. The **Build Your Own** option can be used to create a red fraction of your choosing.		

Decimals, Fractions, and Percentages

$\frac{3}{10}$

Three Tenths

30%

0.3

Percent	Decimal	Fraction
1%	0.01	$^1/_{100}$
5%	0.05	$^1/_{20}$
10%	0.1	$^1/_{10}$
12½%	0.125	$^1/_8$
20%	0.2	$^1/_5$
25%	0.25	$^1/_4$
33 $^1/_3$ %	0.333…	$^1/_3$
50%	0.5	$^1/_2$
75%	0.75	$^3/_4$
80%	0.8	$^4/_5$
90%	0.9	$^9/_{10}$
99%	0.99	$^{99}/_{100}$
100%	**1**	
125%	1.25	$^5/_4$
150%	1.5	$^3/_2$
200%	2	

Converting
From Percentage to Decimal

To convert from percent to decimal: divide by 100, and remove the "%" sign. The easiest way to divide by 100 is to **move the decimal point 2 places to the left**. So:

From Percent	To Decimal	
75% 0.7.5 0.75 *2 Places*		move the decimal point **2 places to the left**, and remove the "%" sign.

From Decimal to Percent

To convert from decimal to percent: multiply by 100, and add a "%" sign. The easiest way to multiply by 100 is to **move the decimal point 2 places to the right**. So:

From Decimal	To Percent	
0.125 0.12.5 12.5% 2 Places		move the decimal point **2 places to the right**, and add the "%" sign.

From Fraction to Decimal

The easiest way to convert a fraction to a decimal is to divide the top number by the bottom number (divide the numerator by the denominator in mathematical language)

Example: Convert $^2/_5$ to a decimal
Divide 2 by 5: $2 \div 5 = 0.4$
Answer: $^2/_5$ = 0.4

From Decimal to Fraction

To convert a decimal to a fraction needs a little more work.

Example: To convert 0.75 to a fraction

Steps	Example
First, write down the decimal "over" the number 1	$^{0.75}/_1$
Then multiply top and bottom by 10 for every number after the decimal point (10 for 1 number, 100 for 2 numbers, etc)	$^{0.75 \times 100}/_{1 \times 100}$
(This makes it a correctly formed fraction)	$= {}^{75}/_{100}$
Then Simplify the fraction	$^3/_4$

From Fraction to Percentage

The easiest way to convert a fraction to a percentage is to divide the top number by the bottom number. then multiply the result by 100, and add the "%" sign.

Example: Convert $^3/_8$ to a percentage
First divide 3 by 8: $3 \div 8 = 0.375$,
Then multiply by 100: $0.375 \times 100 = 37.5$
Add the "%" sign: 37.5%
Answer: $^3/_8$ = 37.5%

From Percentage to Fraction

To convert a percentage to a fraction, first convert to a decimal (divide by 100), then use the steps for converting decimal to fractions (like above).

Example: To convert 80% to a fraction

| Steps	Example
Convert 80% to a decimal (=80/100):	0.8
Write down the decimal "over" the number 1	$\frac{0.8}{1}$
Then multiply top and bottom by 10 for every number after the decimal point (10 for 1 number, 100 for 2 numbers, etc)	$\frac{0.8 \times 10}{1 \times 10}$
(This makes it a correctly formed fraction)	$= \frac{8}{10}$
Then Simplify the fraction	$\frac{4}{5}$

Decention
http://www.mathplayground.com/Decention/Decention.html
A game of fractions, decimals, and percentages.

Equivalence
http://www.ictgames.com/equivalence.html

fractions:

0   1   2

decimals:

0   1   2

percentages:

0%   100%   200%

1.25 1.5 $1\frac{3}{4}$ 75% $1\frac{1}{2}$ $\frac{1}{2}$ 0.25 125% 0.75

50% $\frac{1}{4}$ 175% 0.5 1.75 $1\frac{1}{4}$ 25% 150% $\frac{3}{4}$

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

1   1.25 1.5 1.75   2

100% 125% 150% 175% 200%
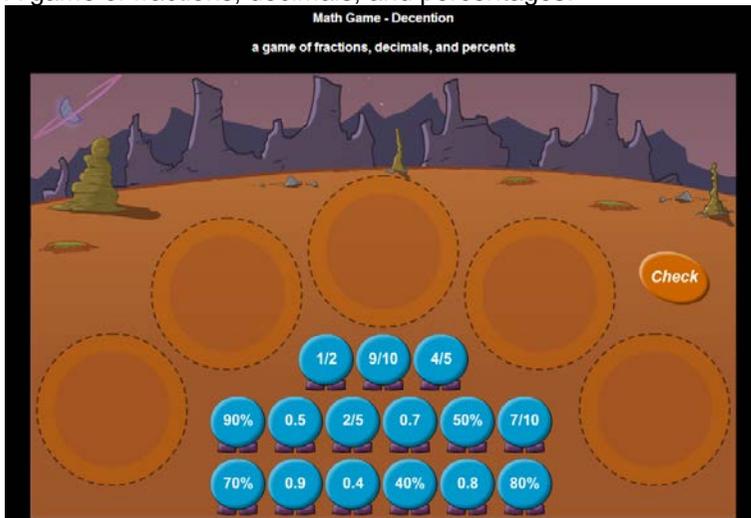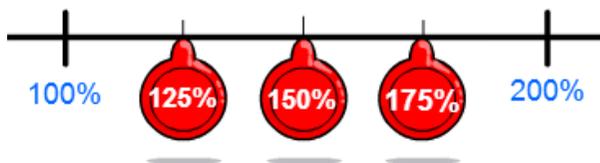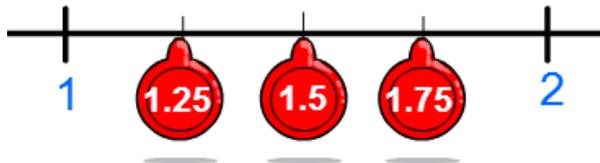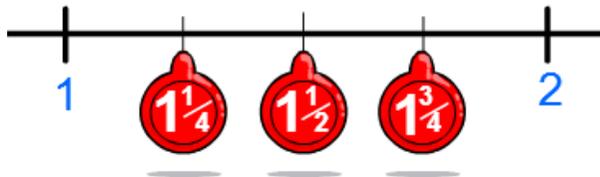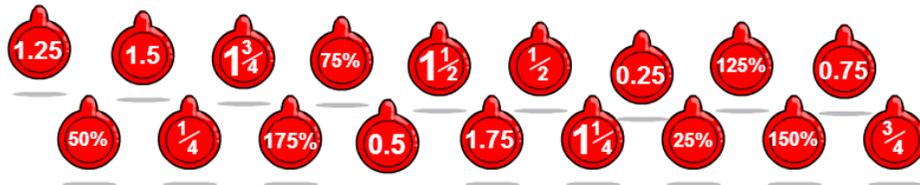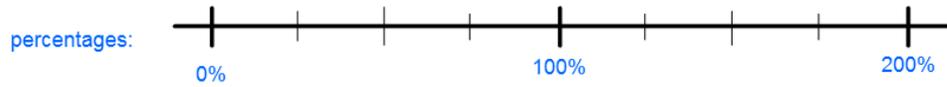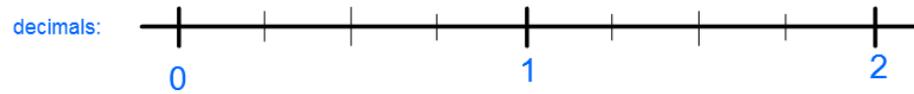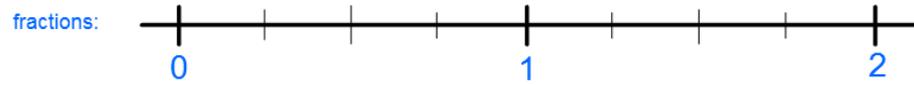
Card Dash Have loads of cards made up of FDP with equivalences e.g. 0.5, 1/2, 50/100/, 50%, half a shaded circle etc. You then get all the children into teams (4 - house colours) and literally throw all the cards in the air (works well in the hall). The children then work together to try and match together equivalents. The other children time the event, and generate excitement. This activity can be used as an exciting launch into FDP, and it really motivated the children....noisy, but fun. The children like to compete for the fastest time.		