*Ch. 17 Developing Concepts of decimals and percents*

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| **Representative TN State Curriculum Standards**  *4th Grade*  GLE:  GLE 0406.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.  GLE 0406.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.  GLE 0406.2.4 Understand and use the connections between fractions and decimals.  State Performance Indicators  SPI 0406.1.2 Compare decimals using correct and pictorial representations.  SPI 0406.2.5 Generate equivalent forms of common fractions and decimals and use them to compare size.  SPI 0406.2.2 Locate and place mixed numbers on the number line.  *5th Grade*  GLE:  GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.  GLE 0509.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.  GLE 0506.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.  State Performance Indicators  SPI 0506.1.2 Estimate fraction and decimal sums or differences.  SPI 0506.2.7 Recognize equivalent representations for the same number.  SPI 0506.2.9 Compare whole numbers, decimals, and fractions using symbols. | |
| Fractions-Decimals-and-Percents-Adler-David-9780823423545.jpg  Time: 10 Minutes | Used to help students make connections between fractions, decimals, and percents.   * Before the book is read have the students write down three places they might see a fraction, decimal, or percent and compare their answers with what is read in the book. * Have the students write a common fraction on their smart pal, and after the book is read ask them to convert their fraction into a decimal or percent. * After reading the book help students make the connection between money and fractions. Example: 51 cents is the same as the fraction 51/100. It is 51 out of 100 cents. |

**Virtual Manipulatives Time:** 7 Minutes

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| *Matching Fractions*  [**http://themathgames.com/our-games/equivalent-fractions-games/fraction-matching-g/league\_-1/country\_-1/countryNumber\_-1y**](http://themathgames.com/our-games/equivalent-fractions-games/fraction-matching-g/league_-1/country_-1/countryNumber_-1y)  **Objective: player is given a fraction to match. They choose fraction models and fractions that represent the same value of the fraction given. They do this in a given amount of time.**  **Time estimation: 3 minutes** |
| *Decentation*  [*http://www.mathplayground.com/Decention/Decention.html*](http://www.mathplayground.com/Decention/Decention.html)  Objective: player is to put the team members together. Each member of the team is listed in different number forms; one is a fraction, one is a decimal, and one is a percentage. Player must sort through and put the team members on the correct team. There is a check button to check their  answer.  Time estimation: 3 minutes |

**Activities from the textbook**

**Materials needed:** plain white paper, pencil, number line provided which shows hundredths place value.

**1. Activity 17.8 on page 336**

1. Best Match
2. Students will best match fractions with decimals arranged randomly on the board
3. Time estimation: 5 minutes

**2. Activity 17.10 on page 337**

a. Close “Nice” Numbers

b. Students will determine whether the decimal given is closer to one whole number than the other, using a number strip representing the hundredths value.

c. time estimation: 5 minutes

**Additional Activity: Fraction, Decimal, and Percent Memory**

**Materials:** Students will be provided 36 index cards that have been made into a memory game. They will also need a pen, pencil, or marker.

On each of 36 cards I will write a different fraction, decimal, or percent. I will pair these values with the corresponding one of a different type. For example, one will have .50 and its match will be written as 50%. I will mix the cards up and have students place them on a flat surface face down and in rows. The students will take turns turning over two cards at a time. If they find a match the student keeps the pair and takes another turn. The games ends when all cards have been matched and collected.

**Additional Activity: Shopping**

**Time estimation- 10 minutes**

**Materials:** Several items each tagged with a price, several strips of paper with a percentage written on each, paper and pen/pencil.

Students will be given the opportunity to draw a piece of paper out of the bowl. When I call out a percent, the student with that percent will get to go choose an item from the store. Once everyone has chosen their item from the store I will ask them to calculate the final price of their item after they figure in the discount. As a follow up, I will ask several students to tell me what they came up with and how they got their answer.

**Lesson Plan: a creative way to use fractions and decimals.**

**Time estimation: 7 minutes**

Percentages

<http://mypages.iit.edu/~smile/ma9414.html>

**Materials Needed**:  
Colored tape, pencils and worksheets.

This lesson will consist of 100 squares that will be measured within one   
classroom. The students will also be broken up into different groups so they   
can measure a section of the classroom independently. The students will   
give the total number of floor tiles counted to a recorder in each group so   
that each group can find the percentage of each area in the classroom.