Algebra/Geometry Summer 2006

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7th grade

Finding Percent of Change/Percent of Increase and Decrease

Teaching Objectives

Students will find the percent of increase and decrease.

Instructional Activities

Before introducing the lesson the teacher will allow students to copy the following notes from the board: (1) *Percent of increase- is the percent of the original amount that something increases by original amount.* (2) *Percent of decrease- is the percent of the original amount that something decreases by the original amount.*

To introduce the lesson, the teacher will present the following information from a recent newspaper article: The price of gasoline rose 19% from 2003. In that same time frame, the price of breakfast cereal rose 118% and college tuition rose 39%. The teacher will ask the students how these percentages were calculated. After listening to the student's responses, the teacher will explain that when measurements or amounts of something increase over time, a percent of increase or decrease can be calculated. This can be done by first calculating the difference in the amount of the item over a particular period of time and dividing it by the original amount of that item or quantity. For example:

$$\frac{\textit{Difference in the amount of the quantity over time}}{\textit{Original amount}} = \frac{\textit{Percent}}{100}$$

Next the students will be given the steps involved in solving percent of increase and decrease.

(1) Find the difference in the two amounts (original amount and new amount).
(2) Set up each problem as a proportion.

$$\frac{\text{Difference}}{\text{Original}} = \frac{\text{Percent}}{100}$$

The teacher will lead a discussion about the following problems: According to the Center for Disease Control, people born in the United States in 1900 had a projected life expectancy of 47 years. However, those in 2001 had a life expectancy rate of 77 years. The teacher will ask the class, what is the percent of increase in life expectancy from 1900 to 2001? The teacher will then work through the problem with the class.

$$\frac{77 - 47}{47} = \frac{x}{100}$$

$$\frac{30}{47} = \frac{x}{100}$$

$$47x = 30 \times 100$$

$$47x = 3{,}000$$

$$x = 64\%$$

The teacher will ask class why they think there was an increase in life expectancy over the past century. The teacher will listen to responses and make comments. The teacher will work through two additional problems with the class:

- 36.4% of high school students in the United States smoked in 1977. In 2002, 28.5% of high school students smoked.

$$\frac{36.4 - 28.5}{36.4} = \frac{x}{100}$$

$$\frac{79}{36.4} = \frac{x}{100}$$

$$36.4x = 79(100)$$

$$x = 21.7\%$$

- 566 students attended O'Bannon High School in 1964. In 2005 825 students attended O'Bannon High School.

$$\frac{825 - 566}{566} = \frac{x}{100}$$

$$\frac{259}{566} = \frac{x}{100}$$

$$566x = 259(100)$$

$$x = 46\%$$

The teacher will check for understanding by allowing students to solve problems on their own. The teacher will utilize peer tutors and small group settings for students having problems understanding key concepts. The students will complete two activities on their own (see attachments # 1 and # 2).

Name _____ Attachment # 1

Directions: Find the current price of the foods listed below by looking at an advertisement or by calling your local grocery store. Then find the percent of change for each item.

Food Item	Price in 1970	Price today
Bread	.24	
Bacon	.95	
Eggs	.61	
½ gallon milk	.66	
1lb. coffee	.91	
5lb. sugar	.65	

Name _____ Attachment # 2

Direction: Visit your local realtor and obtain a listing price of five houses in your neighborhood in the year 1967. Find the percent of change.