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| **Representative TN State Curriculum Standards**  *5th Grade*  GLE’s  GLE 0506.5.1 Make, record, display and interpret data and graphs that include whole numbers, decimals, and fractions.  SPI’s-  SPI 0506.5.1 Depict data using various representations, including decimal and/or fractional data.  *6th Grade*  GLE:  GLE 0606.2.3 Understand and use ratios, rates and percents.  Checks for Understanding-  0606.2.5 Recognize a:b, a/b, and “a to b” as notations for ratios.  0606.2.6 Recognize common percentages as ratios based on fractions whose denominators are 2,  3, 4, 5, or 10.  0606.2.7 Connect ratio and rate to multiplication and division.  State Performance Indicators:  SPI 0606.2.6 Solve problems involving ratios, rates and percents. | |
| Time: 15 Minutes | While reading the literature book, “Counting on Frank”, we will discuss the mathematical concepts of counting, size comparison, and ratio:   * Through-out the read-aloud, the class as a whole and individually, will complete a DLTA (Direct Learning Thinking Activity). * The DLTA will then be discussed as a class. * To carry out the concepts of ratios, we will begin our ratio activity. Ask the students to locate their Frank and Whale manipulatives on their desk. * While modeling the activity on the board, we will discuss part to part ratios and part to total ratios. How they differ and the different ways that they can be written. Than you can ask the students to invent a ratio of their own that they would like to share with the class.   Website sources:   * <http://www.det.nt.gov.au/__data/assets/pdf_file/0014/2633/CountingOnFrank.pdf> * <http://www.mathplayground.com/howto_ratios.html> |

**Virtual Manipulatives Time:** 8 Minutes

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| *Scale Factor X*  [**http://www.mathplayground.com/ScaleFactorX/GameLoader.html**](http://www.mathplayground.com/ScaleFactorX/GameLoader.html)  Objective: The player is disguised as an avatar, must use mathematical reasoning to correct the scaliens who have been altering ratios, proportions, and scale factors. This activity is like a video game and teaching tool so it is hard for the student to realize that they are learning because they are just trying to make it to the next level all while gaining factual information. |
| *Ratio Martian*  <http://www.arcademicskillbuilders.com/games/ratio-martian/ratio-martian.html>  Objective: The martian is hungry and he only likes to eat ratios. The student will have to recognize the different ways that fractions can be represented in order to feed the martian. |

**Activities from the textbook**

**Materials needed: object cards, ratio tables, paper.**

1. Activity 18.1 Which Has More? 5 minutes
2. Activity 18.4 Different Objects, Same Ratios 5minutes
3. Activity 18.6 Using Ratio Tables 5 minutes
4. Activity 18.9 Scale Drawings 5 minute

**Lesson Plan (If time permits)**

***Measuring Up***

<http://illuminations.nctm.org/LessonDetail.aspx?ID=L510>

This lesson focuses on the “Golden Ratio”, a ratio of length to width that can be found in art, architecture, and nature can be related and true compared to the human body. The students have to measure and record to see if the “measure up” to the “Golden Ratio”.