Dear Family,

The Grade 7 students are beginning to study *Unit 2: Ratio and Proportion Applications.*  Here is a little information about what your student will be learning in this unit.

**What is the Focus of this Unit?**

This unit will focus on extending student understanding of ratios and develop understanding of proportionality to:

* Solve single and multi-step ratio and percent problems such as simple interest, tax, tip, fees, commission, mark up, and mark down/discount.
* Determine percent of increase, decrease, and percent error.
* Reproduce a drawing at a different scale.
* Use scale drawings to problem solve situations involving geometric figures.

**What are the mathematical practice expectations for my student?**

* *Make sense of problems and persevere in solving them.*Students exhibit this standard when they represent and interpret proportional relationships to solve ratio and percent problems using visual models, proportions and other equations. They also make sense of proportional situations that involve scale drawings using diagrams and equations.
* *Reason abstractly and quantitatively.* Students will reason about the value of rational numbers in real-world contexts when representing and solving problems. They will apply proportional reasoning to scale drawings and determine if calculations are appropriate to the contexts.
* *Model with mathematics. Students* will use double number lines, tape diagrams and ratio charts to represent real-world situations involving proportional relationships.

**How does this look different than what may have been taught in the past before the transition to the New Illinois Learning Standards for Mathematics?**

Students have previously worked with tape diagrams, double line graphs, tables, graphs, and other models to explore and understand these concepts in real world contexts. We will continue using these models to supplement understanding.

This unit incorporates proportions with percentages, geometry, and properties of operations. Students will solve multi-step problems and analyze those solutions in the context of the problem. In addition, students will explore scale factor as it relates to lengths and area.

Here are two examples of the types of problems your student will be studying:

* If your height is 70 inches and your shadow is 4 feet, find the height of a tree that has a shadow of 10 feet, using the properties of similar triangles
* Mr. Adi bought a new pair of shoes. The shoes cost $130. If he has a coupon for 15% off, how much will he save? Hint: use the following tape diagram.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  | $130 |

**How will my student apply what he/she learns in the future?**

Students will use this understanding of proportionality to find scale factors between geometric figures and develop understandings of congruence and similarity. They will use ratio tables to study statistics and probability.

**How can you help your student at home?**

One of the most important things you can do at home is to have conversations about math class. Finding and sharing examples of rates and ratios in your everyday experiences with your student will provide them with a deeper understanding of the concepts.

For example, if takes you 15 minutes to read 12 pages in your reading book, how long will it take to read 40 pages?

Other examples include computing how much the tip should be after a restaurant meal and finding the sale price of an item. Be sure to attend to precision when computing dollar amounts.

**What are some vocabulary terms that will be addressed?**

Percent increase – The percentage by which something goes up.

Percent decrease- The percentage by which something goes down.

Percent error – The percentage by which something was above or below an anticipated value.

Commission – A fee paid for services, usually calculated as a percentage of the total.

Gratuity – An additional charge or fee for a service; tip. It is normally calculated as a percentage of the total.

Dimension – a measurement in a certain direction, usually height, width, or length.

Markup

Markdown/Discount

Simple Interest

Scale