Dear Family,

The Grade 7 students are beginning to study **Unit 1: Ratios and Proportionality**. Here is a little information about what your student will be learning in this unit.

What is the Focus of this Unit?

This unit builds upon the concepts of ratio and unit rate as well as the mathematical language used to describe this relationship. At the end of this unit, your child will be able to:
- Fluently compute unit rates.
- Represent proportional relationships between quantities.
- Compare and contrast proportional relationships in real world contexts.

What are the mathematical practice expectations for my student?

- *Make sense of problems and persevere in solving them.* Students make sense of ratio and unit rates in real-world contexts. They persevere by selecting and using appropriate representations for the given contexts.
- *Reason abstractly and quantitatively.* Students will reason about the value of the rational number in relation the models that are created to represent them. They will justify answers through conversations and reasoning.
- *Model with mathematics.* Students create models using tape diagrams, double number lines, manipulatives, tables and graphs to represent real-world and mathematical situations involving ratios and proportions. For example, students will examine the relationships between slopes of lines and ratio tables in the context of given situations.
- *Attend to precision.* Students attend to the ratio and rate language studied in grade 6 to represent and solve problems involving rates and ratios.

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 ratio concepts and reasoning. This unit will build upon their experience to include proportional relationships and problem solving. Students will use tape diagrams, double line diagrams, tables, graphs, and other models to explore and understand these concepts in real world contexts. Here is an example:

Does the table show a proportional relationship? Explain.

Minutes	2	4	6	8
Shirts Made	8	16	24	32

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

Students will apply these concepts of proportional relationships between quantities to situations involving multi-step ratio and percent problems, such as percent of increase and decrease, taxes, tips, commissions and fees, markups and discounts, and percent error. In addition, the will use these concepts and skills with scale drawings in real world contexts.

How can I help my student at home?

One of the most important things you can do at home is to ask your student to explain the models he/she is creating or interpreting. By explaining the models, students share their understanding of the mathematics and their strategic reasoning when solving problems. Consider asking some real-life problems that use proportional relationships. For example, if a recipe for 3 dozen cookies requires 2 eggs, how many eggs would be required for 6 dozen cookies?

What are some vocabulary terms that will be addressed?

Here are a few vocabulary terms your student may encounter during this unit:
Ratio – a comparison of two quantities. It can be written as a fraction, with a colon, or with the word "to." Eg. 2/3, 2:3, 2 to 3.
Rate – a comparison of two quantities of unlike units. For example, miles per hour, cans per minute, or dollars per dozen.
Proportion – a relationship between two quantities that maintains a constant ratio. For example, 2/3 is proportional to 4/6.
Unit rate – a rate/ratio expressed as a quantity of one. For example, 60 miles in one hour would be a unit rate.

What are some helpful resources?

Compute unit rates associated with ratios of fractions:
https://learnzillion.com/lessonsets/521
https://learnzillion.com/lessonsets/107
https://learnzillion.com/lessonsets/459
Recognize and represent proportional relationships; interpret a point on the graph of a proportional relationship:
https://learnzillion.com/lessonsets/590
https://learnzillion.com/lessonsets/612