Grade: 7 FCPS 2025-2026 Math Grade 7 Topic 2

7th Grade Topic 2 : Analyze and Use Proportional Relationships	Estimate Time Frame: 18 days
Essential Standards: 7.RP.1, 7.RP.2 Assessment Resource: enVision Topic 2	

FCPS Supporting Links	Additional Supporting Links
Pacing Guide 7th Grade Topic 2 Standards Resource with Sample Formative Assessments enVision 7th Grade Topic 2 Standards Crosswalk Resource FCPS P-12 Mathematics Guidance Document FCPS Achievement & Trauma-Informed Strategies in the Classroom	Kentucky Academic Standards KSA Blueprint Target of the Standards - conceptual, procedural & application Three-Reads Routine Notice and Wonder Routine **MILC Resources Topic 2: Analyze and Use Proportional Relationships** ***enVision Teacher Guide: page 82A to 82D for specific Topic 2 Focus-Coherence-Rigor***

Big Ideas
Analyze proportional relationships and use them to solve real-world and mathematical problems.

Essential Questions	Common Preconceptions/Misconceptions
How can you recognize and represent proportional relationships and use them to solve problems? How can percentages show proportional relationships between quantities and be used to solve problems? What are situations in life that depend on or require the application of ratios and proportional reasoning?	Students may struggle when units are not the same (e.g., comparing miles per hour vs. feet per second). They may forget to convert units before computing a rate. Students may reverse the numerator and denominator when dividing fractions, especially in word problems involving rates. Students may believe a relationship is proportional simply because both quantities are increasing. Students may struggle to recognize proportionality when the constant is a decimal or fraction.

Standards for Mathematical Practices	Kentucky Interdisciplinary Literacy Practices (KILP)
MP.1. Make sense of problems and persevere in solving them. **MP.2. Reason abstractly and quantitatively.** **MP.3. Construct viable arguments and critique the reasoning of others.** MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. **MP.6. Attend to precision.** MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. ***enVision Teacher Guide: page 82E for specific Topic 2 Math Practice suggestions***	1. Recognize that text is anything that communicates a message. 2. Employ, develop, and refine schema to understand and create text. 3. View literacy experiences as transactional, interdisciplinary and transformational. 4. Utilize receptive and expressive language arts to better understand self, others, and the world. **5. Apply strategic practices, with scaffolding and then independently, to approach new literacy tasks.** **6. Collaborate with others to create new meaning.** **7. Utilize digital resources to learn and share with others.** **8. Engage in specialized, discipline-specific literacy practices.** **9. Apply high level cognitive processes to think deeply and critically about text.** 10. Develop a literacy identity that promotes lifelong learning. *Incorporating texts into math instruction fosters interdisciplinary learning for a more engaging educational experience.*

Essential Standards	Sample Learning Intentions & Success Criteria	HQIR/Resource Considerations
Cluster: Analyze proportional relationships and use them to solve real-world and mathematical problems.		
KY.7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. ❑ Conceptual ❑ **Procedural** ❑ Application **Clarifications:** For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction ½/¼ miles per hour, equivalently 2 miles per hour. Coherence KY.6.RP.3→ KY.7.RP.1	We are learning to compute unit rates with ratios of fractions. • I can calculate a unit rate involving fractions. • I can use a unit rate involving fractions to solve real-world problems. • I can calculate unit rates with ratios of lengths and areas.	• Topic 2 Lesson 2-2 • Brainingcamp Task (Lesson 2-2) "Who Will Win the Race?" • enVision Language Support Handbook

MP.2, MP.6, KILP.2, KILP.8		
KY.7.RP.2 Recognize and represent proportional relationships between quantities. ☐**Conceptual** ☐**Procedural** ❑ Application a. Decide whether two quantities represent a proportional relationship. ☐**Conceptual** ☐**Procedural** ❑ Application **Clarifications:** Students test for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. ☐**Conceptual** ❑ Procedural ❑ Application **Clarifications:** Students understand finding the unit rate in a table or graph is equivalent to the constant of proportionality in an equation or verbal description. Coherence KY.6.RP.3a →KY.7.RP.2b →KY.8.EE.6 c. Represent proportional relationships by equations. ☐**Conceptual** ☐**Procedural** ❑ Application	We are learning to determine if two quantities represent a proportional relationship. • I can show a proportional relationship using a table. • I can determine if the ratios between the quantities are equivalent. • I can graph coordinates on a coordinate plane to determine if the graph is a straight line through the origin. • I can analyze the graph to determine if the quantities represent a proportional relationship. We are learning to identify the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. • I can describe how to find the unit rate in a proportional relationship. • I can define constant of proportionality. • I can describe the constant of proportionality in a table, graph, equation, diagram, or verbal description. We are learning to represent proportional relationships as equations using the constant of proportionality. • I can write an equation (in the form $y=kx$) to represent a proportional relationship. • I can recognize k in the equation y = kx as the constant of proportionality. (k = y/x). • I can solve problems using the equation y = kx. We are learning to explain what points on a proportional graph mean in terms of a	• Topic 2 Lesson 2-3 • Topic 2: Let's Investigate! An Even Bigger Puzzle (replaces 2-3) • Topic 2 Lesson 2-4 • Brainingcamp Task (Lesson 2-4) "Earning Money" • Topic 2 Lesson 2-5 • Topic 2: Let's Investigate! Tracking Proportionality (replaces example 1 in Lesson 2-5) • Brainingcamp Task (Lesson 2-5) "Cell Phone Connection-Which Plan?" • Brainingcamp Task (Lesson 2-5) "From Mangoes to Papayas!" • Topic 2 Lesson 2-6 • 3-Act Math Topic 2: Mixin' It Up • enVision Language Support Handbook

Clarifications: If total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$. Coherence KY.7.RP.2c → KY.8.EE.5 d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r), where r is the unit rate. ☐ **Conceptual** ❑ Procedural ❑ Application **Clarifications:** Students describe points (x, y) in terms of the labels of the x and y-axes; students understand in a proportional relationship (0, 0) is a valid point and (1, r) represents the unit rate and the constant of proportionality for the relationship between the quantities. **MP.1, MP.2, MP.3, KILP.2, KILP.3, KILP.7**	situation. • I can identify the constant of proportionality from a graph (1,r). • I can tell what the constant of proportionality means in terms of the situation. • I can tell what the point (0,0) means in terms of the situation. • I can interpret a point on a graph of a proportional relationship.	

Attending to the Standards for Mathematical Practice

Translating a rate to a unit rate allows students to contextualize a complex ratio to something more likely for them to understand, for example, a rate of miles per ONE hour or gallons per ONE minute (MP.2). The use of unit rates allows students to be precise in their understanding, transferring "½ mile in ¼ hour" to something understandable, such as 2 miles per hour (MP.1). Students think about why some relationships are proportional where others are not. Students make sense of and solve multistep ratio problems, including cases with pairs of rational number entries; they use representations, such as ratio tables, the coordinate plane and equations and relate these representations to each other and to the context of the problem. Students depict the meaning of the constant of proportionality in proportional relationships and the importance of (0, 0) and (1, r) on graphs (MP.1). Students compute unit rates for paired data given in tables to determine if the data represents a proportional relationship. Students use concrete numbers to create and implement equations, including $y = kx$, where k is the constant of proportionality. (MP.2)

Supporting Standards
N/A

Vocabulary
complex fraction - Has a fraction in the numerator, the denominator, or both. **constant of proportionality -** The constant multiple that relates proportional quantities *x* and *y*. It is the value of the ratio y/x and is represented by *k*. It is the ratio of the change in y to the change in x. **proportional relationship -** If all ratios relating to quantities are equivalent, they are in a proportional relationship. **rate of change** - How one quantity changes in relation to another. **ratio -** A pair of numbers that compares different types of units. **unit rate** - The cost for one unit of a given item; a rate simplified so that it has the denominator of 1.

*****Disclaimer: Success Criteria is the evidence students must produce to demonstrate learning. This example is not comprehensive.
** Mathematical Practices (A.MP.1- 8) should be evidenced at some point throughout each unit, depending on the explored tasks. It is important to note that MP. 2 should support learning in every lesson.
******* Modeling Standards: Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to *all* standards in that group.