

COMPUTER SCIENCE & DIGITAL FLUENCY SMART START GRANT LESSON PLAN

Date: April 2026 Unit/Lesson: Proportional Relationships Station Rotation	
Approximate Time (in minutes) to complete lesson: 42 minutes	Grade Level: 7th
Materials and/or Resources: - Printed proportional tables (Station 1) - Graph paper and rulers (Station 2) - Debugging tables and highlighters (Station 3) - Real-world scenario cards/worksheet (Station 4) - Pencils - Timer (projected or visible)	CSDF Concept/Standard Addressed: ☐ Impacts of Computing ☒ Computational Thinking ☐ Networks and Systems Design ☐ Cybersecurity ☐ Digital Literacy
Student-friendly “I Can” Statements: I can... - I can identify proportional relationships in tables. - I can determine the constant of proportionality. - I can write equations in the form $y=kx$ - I can graph proportional relationships and explain why they must pass through (0,0). - I can identify and correct errors in tables. - I can determine if a real-world situation is proportional and justify my reasoning.	Vocabulary Words: Proportional relationship Constant of proportionality Ratio Unit rate Equation Graph Origin (0,0) Linear relationship Non-proportional

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ENGAGING THE LEARNERS	To begin the lesson, students will be presented with a quick “Do Now” comparing two situations (one proportional and one non-proportional). Students will be asked: <i>“How can you tell if these relationships follow the same rule?”</i> This activates prior knowledge of ratios and unit rates while encouraging curiosity. The teacher will facilitate a brief discussion, highlighting key ideas such as consistency in multiplication and relationships that begin at zero. This introduction prepares students for deeper exploration during station work.
EXPLORING THE CONCEPT	Students will participate in a station rotation activity, working collaboratively in pairs or small groups to investigate proportional relationships through multiple representations: ● Station 1: Students analyze tables to determine the constant of proportionality and write equations. ● Station 2: Students graph relationships and determine whether they are proportional based on graphical features. ● Station 3: Students “debug” tables by identifying and correcting errors in patterns. ● Station 4: Students evaluate real-world scenarios and decide whether relationships are proportional, providing justification. Throughout the exploration, students engage in hands-on problem solving, discussion, and reasoning. The teacher circulates to monitor understanding, ask guiding questions, and provide support as needed.

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EXPLAIN THE CONCEPT(S)	Following the station rotations, the class will come together for a brief discussion to synthesize learning. Students will share strategies and findings from each station. The teacher will reinforce key concepts, including: • A proportional relationship has a constant rate of change • It can be represented by an equation in the form $y=kx$ • Its graph is a straight line that passes through the origin (0,0) Students will complete an exit reflection, explaining how to identify a proportional relationship using evidence from tables, graphs, and real-world situations. The teacher will clarify misconceptions and emphasize connections across representations.
ELABORATE	To extend their understanding, students will apply their knowledge of proportional relationships to new and more complex situations. Students may be given an additional real-world task, such as creating their own proportional scenario (e.g., cost vs. number of items, distance vs. time) and representing it using a table, graph, and equation. Students will then exchange their scenarios with a partner or group to analyze and determine if the relationship is proportional, justifying their reasoning. This promotes deeper understanding through application, peer discussion, and critique. As an extension or enrichment, students can compare proportional and non-proportional relationships and explain the differences using multiple representations. This helps solidify conceptual understanding and encourages students to generalize their learning beyond the initial tasks. The teacher will continue to facilitate by asking probing questions and encouraging students to make connections between tables, graphs, equations, and real-world contexts.
EVALUATE: Assessment of Student Knowledge: ☐ Informal (observation, student work sample, etc..) • observation, student work samples, station participation ☐ Formal (formative or summative) • formative exit reflection and written explanation at Station 4 • The unit test	

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Cross-Curricular Links (standards):

Mathematical reasoning and problem solving

CCSS.Math.Content.7.RP.A.2

- Students identify proportional relationship within a table and graph and relate real world situations to it.

Written explanation (ELA – justification and reasoning)

CCSS.ELA-LITERACY.W.7.1

- Students justify whether relationships are proportional using mathematical evidence

CCSS.ELA-LITERACY.SL.7.1

- Students work in groups and discuss reasoning at each station

Computational thinking (debugging, pattern recognition)

CSTA 2-AP-17

- Applied through **debugging tables** and identifying errors in patterns

CSTA 2-AP-10

- Students follow logical steps to determine proportionality

Homework / Notes / Reflection:

Students complete a brief reflection explaining how to identify a proportional relationship, including key features such as a constant rate and a graph that passes through the origin.

Optional homework: Additional practice identifying proportional vs. non-proportional relationships in tables, graphs, and real-world contexts.