

Shifting Gears with Equations!

Interest = Principal

Amount

I pay
to borrow
the money

Amount
you borrow
or



Applying the Logic of Math to Real Life!

This lesson demonstrates to students the relevance of solving mathematical equations to everyday life. Students warm-up as a group with an introduction to the interest formula and learn to solve it for a given variable using word problems related to finance. As their vocabulary and reasoning skills develop, they apply this formula to the investigation of purchasing their first car.

LESSON - Part 1

Solving Equations using The Interest Formula

Students will be introduced to the simple interest formula $I = P \cdot R \cdot T$ (Interest = Principal x Rate x Time) and develop vocabulary through questioning. They will solve equations as part of whole group instruction by constructing formulas derived from relationships in physics and finance. Students will work independently and in groups to solve equations for a specified variable by applying inverse operations. Students will demonstrate their understanding of the vocabulary and line of reasoning by responding to specific examples using small individual wipe off boards and classroom Smart Board to present their solutions to the class. Students will have access to calculators to perform computational work.

LESSON - Part 2

Applying the Interest Formula to Buying a Car!

The teacher will announce that the class will be going on a virtual “shopping trip”. Students will work in pairs to collaborate and build on their knowledge of simple interest by creating a fictitious purchase of a car. They will investigate specific examples on the web or newspaper, and will create and solve their own authentic problem with a monthly budget of \$650 and a given % interest. Students will use an iPad to video their partner explaining the created problem and its solution using mathematic vocabulary. For reflection, students will utilize todaysmeet.com back channel on line tool to briefly blog about their shopping trip experience, revelations, and how they will apply this mathematical knowledge to their future.

Materials

- Small dry erase boards (or plastic plates) – tissue as erasers
- Calculators
- Ipads or classroom computer
- Newspaper “advertising section for automobiles or computer
- Classroom smart board (or overhead)

Resource Links (click to open)

achievethecore.org

todaysmeet.com

borenson.com

Classroom Tips

- set up room to allow for small groups to work independently and with entire class.
- allow students to BYOT if no ipads available

Mathematical Practices

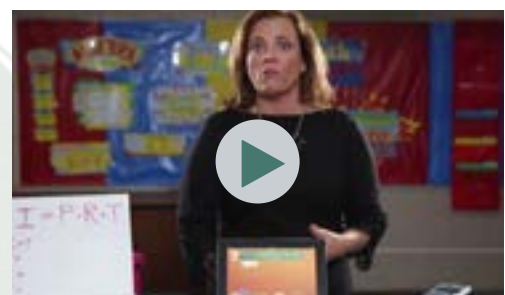
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

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Click here for Teacher to Teacher Video



Special message to teachers, parents and interested others: This lesson was designed to shed light as to what the actual standards are and how they are being used by teachers all across the country to help all of our children — no matter the zip code — learn to think most strategically, critically and collaboratively. We hope the lesson demonstrates the simplicity and high level of expectations teachers and state leaders have agreed to as most important to help prepare our youth for the workplace. Let's know the facts, then join hands and help our teachers implement these standards in how we reinforce them in our homes and throughout our community.

The Common Core State Standards www.corestandards.org

Mission Statement: The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy.

Mathematics: Toward greater focus and coherence - For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is “a mile wide and an inch deep.” These Standards are a substantial answer to that challenge. It is important to recognize that “fewer standards” are no substitute for focused standards. Achieving “fewer standards” would be easy to do by resorting to broad, general statements. Instead, these Standards aim for clarity and specificity.

The Standards for Mathematical Practice [Click here](#) for easy reference to the specific standards. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).

As specified by CCSSO and NGA, the Standards are (1) research and evidence based, (2) aligned with college and work expectations, (3) rigorous, and (4) internationally benchmarked. A particular standard was included in the document only when the best available evidence indicated that its mastery was essential for college and career readiness in a twenty-first-century, globally competitive society. The Standards are intended to be a living work: as new and better evidence emerges, the Standards will be revised accordingly.

CCSS.Math.Practice.MP4 Model with mathematics. [Click here](#) for easy reference to the specific standards.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

Mathematics » High School: Algebra » Reasoning with Equations & Inequalities

[Click here](#) for easy reference to the specific standards.

Understand solving equations as a process of reasoning and explain the reasoning.

CCSS.Math.Content.HSA-REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Create equations that describe numbers or relationships.

[Click here](#) for easy reference to the specific standards.

CCSS.Math.Content.HSA-CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm’s law $V = IR$ to highlight resistance R .

English Language Arts Standards » College and Career Readiness Anchor Standards for Writing » 6

[Click here](#) for easy reference to the specific standards.

Production and Distribution of Writing

CCSS.ELA-Literacy.CCRA.W.6 Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

English Language Arts Standards » Anchor Standards » College and Career Readiness Anchor Standards for Speaking and Listening

[Click here](#) for easy reference to the specific standards.

Presentation of Knowledge and Ideas

CCSS.ELA-Literacy.CCRA.SL.4 Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

The activities included in this Ignite Curriculum Guide are provided to inspire and equip educators to implement the lesson as seen on The Ignite Show. The intent is not to necessarily imply mastery of the standards, but to offer alignment to a sampling of standards.

FOR MORE INFORMATION www.theigniteshow.com **CONTACT US AT** mail@theigniteshow.com