

Figure 3.12: Mathematics Models and Application Lesson

Mathematics Models and Application Lesson: Simple and Compound Interest

Students connect interest to everyday practical examples.

UDL Applications

- Representation
 - ◆ Students link the concept of interest to their everyday life (for example, with a mortgage or car loan). Students learn symbols and vocabulary, and the teacher clarifies formulas, such as $I = PRT$ (interest = principal \times rate \times time) and $M = P + I$ (monthly rate = principal + interest).
- Action and Expression
 - ◆ Students receive interest models in guided practice, with varying rates of interest calculated for buying a car that are charted in a table in their interactive mathematics journal.
- Engagement
 - ◆ The teacher divides mathematics goals into incremental steps and provides checklists once each goal is met.

UbD Applications

Students show their understanding of the learning by creating interest problems with the goal of applying the knowledge to real-life situations. They exchange problems with their peers and solve them.

RTI Applications

Tier 1: All students engage in discussion about when, where, why, and how interest is used. Students view an academic tutorial, *Introduction to Interest*, from the Khan Academy (n.d.c.).
 Tier 2: Students who need additional assistance receive practice problems from the Council for Economic Education (n.d.) three times each week. Students review their progress along with the mathematics interventionist during small-group supplemental instruction.
 Tier 3: Students who are still struggling receive small-group instruction with the mathematics interventionist four periods each week to strengthen their mathematics procedural fluency with the calculations required to solve problems with simple interest and other mathematics concepts.

Rigor

The teacher monitors mathematics content and knowledge transfer by evaluating students' thinking and reasoning skills in formal and informal curriculum-based class discussion and assessments.

Monitoring

The learners keep interactive mathematics notebooks of completed work that has been reviewed and graded.

Individuality

The teacher determines what the students already know and compacts the curriculum as students work in a self-paced environment that offers repetition and enrichment with alternate assignments. As an example, an “I Remember Box” contains index cards with a review of other mathematics topics explored earlier in the marking period or year to reinforce the concepts. Student answers are counted as a quiz grade. Some examples of stations for Living the Math include designing a garden within a given space; grocery store applications, such as calculating unit prices of selected items, using coupons, or buying in bulk; cooking and baking problems; and planning a road trip.

Source: Council for Economic Education. (n.d.). EconEDLink: Simple interest KEY (teacher). Accessed at www.econedlink.org/lessons/docs_lessons/1008_SimpleInterestKEY.pdf on August 23, 2016; Khan Academy. (n.d.b). Graphing parabola table of values [Video file]. Accessed at www.khanacademy.org/math/algebra/quadratics/graphing-quadratic-functions/v/graphing-a-quadratic-function on August 22, 2016.