

Lesson Plan – Algebra Internet Scavenger Hunt – Balancing Equations

Grade Level: 7th grade

Objectives

- Student will access the Internet and the Web Poster created for this activity with the instructions and website links.
- Student will look up the definition of algebra and complete a cloze activity on what algebra is.
- Student will read about Al-Khwarizmi and Diophantus, the “fathers of algebra” and answer some questions.
- Student will review terminology, such as ‘equation,’ ‘expression,’ and ‘balance scale.’
- Student will balance equations using concrete manipulatives (M&Ms and chocolate kisses).
- Student will solve simple linear equations using a balance beam representation with virtual manipulatives.
- Student will play games such as Equation Buster and Rags to Riches, using what he has learned about balancing equations.

Michigan GLCEs

A.FO.06.04 Distinguish between an equation and algebraic expression.

A.FO.06.12 Understand that multiplying or dividing both sides of an equation by the same non-zero number creates a new equation that has the same solution.

A.FO.07.13 From applied situations, generate and solve linear equations of the form $ax+b = c$ and $ax+b = cx + d$ and interpret solutions.

Materials

Exploring Algebra: Balancing Equations the Chocolate Way! Worksheet

21 M&Ms and 8 chocolate kisses for each student

Computer with Internet Access

Algebra Scavenger Hunt - student directions sheet for Internet Algebra Scavenger Hunt, pencil

Webposter created using 4teachers.org’s Web Poster Wizard visiting the following websites:

- <http://4teachers.org> (Web Poster Wizard)
- <http://www.kidskonnnect.com/content/view/13/27/> (what is algebra?)
- <http://www.bsu.edu/web/cvjoness/AlgBridge/father.htm> (father of algebra)
- <http://www.teachers.ash.org.au/jeather/maths/dictionary2.swf> (math glossary)
- http://nlvm.usu.edu/en/nav/category_g_3_t_2.html (using semi-concrete balancing method)
- http://mathsnet.net/algebra/11_equation.html (equation buster)
- <http://www.quia.com/rr/4096.html> (solve equations and become a millionaire)

Procedures

The teacher will begin the lesson by introducing the lesson to the student. *Today we are going to participate in an Algebra Internet Scavenger Hunt. First you will read what algebra is, next you will read about the “father of algebra” and then you will learn how to balance equations and play some math games on the Internet. Have fun!*

At this time, the teacher helps the student get logged onto the Web Poster student directions sheet. The activities and the directions are intended to be self-directed and self explanatory. The

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teacher will observe and take notes and will be available for questions or to prompt the student in their thinking. After the student completes the What is Algebra?, the Father of Algebra, and the Terminology steps of the Algebra Internet Scavenger Hunt, the student breaks for some chocolate math and the teacher and student discuss what he has learned so far.

At this time, the teacher models for the student how to “balance” equations using manipulatives, M&Ms and chocolate kisses. The student follows along on the “Exploring Algebra: Balancing Equations the Chocolate Way!” worksheet. After the teacher models how to balance the equations using the manipulatives, the student completes 5 more equations on their own.

Student now resumes his Algebra Internet Scavenger Hunt using a balance beam representation from the National Library of Virtual Manipulatives and then plays several games – Equation Buster and Rags to Riches, using what he has learned about balancing equations. Each activity gets progressively more difficult and moves from a concrete representation of balancing equations, to semi-concrete, to abstract.