

TITLE OF LESSON

Algebra 1 Unit 1 Lesson 21 – Equations with forms: $X * Y$, $X * Y * Z$, $X * X$, $X * X * X$, $X ** 2$, $X ** 3$
You Do Speak Math: Creation of the Individual

TIME ESTIMATE FOR THIS LESSON

One class period

ALIGNMENT WITH STANDARDS

California – Algebra 1:

6.0 Students graph a linear equation and compute the x - and y -intercepts (e.g., graph $2x + 6y = 4$). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $2x + 6y < 4$).

MATERIALS

Homework Lesson 21 – Student Page

Homework Lesson 21 Key – Teacher Page

Pens, paper, markers, colored pencils, rulers – any things you have or can think of that students can use to group and divide

CD/tape player (Computer with CD drive)

LESSON OBJECTIVES

- To introduce equations with forms: $X * Y$, $X * Y * Z$, $X * X$, $X * X * X$, $X ** 2$, $X ** 3$
 - To relate these forms to examples in the world
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EXPLANATION OF LESSON

We will introduce various forms of equations and seek out examples from the world that mimic these forms.

FOCUS AND MOTIVATE STUDENTS

- 1) Homework Check – Stamp/initial complete homework assignments. Pass back graded assignments and have students place in folders.
 - 2) [Agenda](#) – Have students copy the agenda you posted.
 - 3) Review – Quickly review homework. Collect complete homework assignments.
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ACTIVITIES – INDIVIDUAL AND GROUP

1. Assign Groups – Break the students into even size groups. If you have to, divide the class in half. If you have an odd number of students have one student act as a scribe to write on the board.
2. Define Groups – Give each student the same number of sets of objects. For instance give each student 2 packs of five cards. Ask how many cards there are. Have them use the variables G , P , C where G is the number of groups, P is the number of packs and C is the number of cards in the packs.
3. More Examples – Ask for other examples of similar equations. For instance, if you had 6 packets of 8 ten-dollar bills, how would you define the groups?
4. Area and Volume – Expand to space. As you do this, have the students spread out and use the room they need to experiment with these ideas. Use width, breadth, and height. Use a cube as a demonstration. What if we moved the cube in space? How do we know which direction is width or breadth. What if all sides of the cube or tile (2D) are the same? Can we call each dimension D or X . Demonstrate the area by using tiles? Have the student

build 3 by 3 areas with tiles? Do this in smaller groups. Do the same with cubes. Have them calculate the area and the volumes. Demonstrate how this can be represented with graphs.

5. Homework Review – Pass out Homework Lesson 21. Review the instructions and go over the first homework assignment. Field questions.
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HOMEWORK

- 1) What is the volume of a 2 by 2 by 2 cube? What is the area of a 2 by 2 tile floor? What is the volume of a 4 by 4 by 4 cube? A 4 by 4 tile floor? Come up with one other example of when we would multiply variables together.
 - 2) Complete **Homework Lesson 21**, due tomorrow
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GROUP ROLES

Students will be working individually during this class period, unless a student needs help.

DOCUMENTATION FOR PORTFOLIO

None