

## Lab Framework

**Text:** CORD

**Unit number and title:** Unit 16

**Short Description:** Linear Equations

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### Lab Title Linear Equations

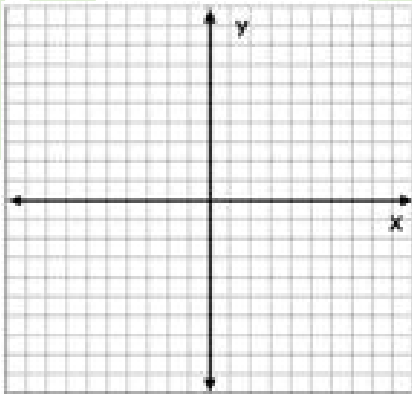
#### LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

- **Lab Objective**  
To orient students with the fundamentals which define a linear equation and or function and how to determine essential information to solve practical applications.
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)
- **Vocabulary**
  - Equation
  - Variables
  - Unknowns
  - X variable
  - X intercept
  - Y variable
  - Y intercept
  - Slope
  - Coefficient
  - Constant
  - Coordinate graph
  - Solving single variable equations
- **Materials List**
  - Pencil
  - Paper
  - Ruler
  - Calculator
- **State Standards addressed**
  - Math: A1.1A-B, A1.2A-B, A1.2B, \*.1A-G, A1.2.D, A1.2.E-F, A1.3.A, A1.3.B-C, A1.4.A-C
  - Reading: 2.1.4, 2.1.5
  - Writing: 2.2.1, 2.4.1
- **Leadership Skills**  
Student will be required to organize into groups and conduct discussions about the task. The will be required to have constructive conversations which permit for all viewpoints in a positive manner.

- **Set-up information**

Review the definition of a coordinate graph and how to label the corresponding x and y axis. Review the format for a linear equation written in the form of  $y = mx + b$



Plot the points  $(-1, 3)$ ,  $(2, -3)$  connect the points with a line  
Show students how to determine the steepness of the line called the slope by calculating the difference in the y values divided by the difference in the x value.

Linear equations have four basic forms. Each equation can be rewritten into other forms using elementary algebra.

**Slope Intercept Form:**  $y = mx + b$ , where b is the y-intercept of the line and m is the slope.

**General (or Standard) Form:**  $Ax + By = C$ , where C is a constant and A and B are constants that are not both zero. If  $A = 0$ , the solution is  $y =$  constant and represents a horizontal line. If  $B = 0$ , the solution is  $x =$  constant and represents a vertical line.

**Point-Slope Form:**  $y - y_1 = m(x - x_1)$ , where the line goes through point  $(x_1, y_1)$  and has slope m.

**Intercept Form:**  $x/A + y/B = 1$ , where A and B are constant and the line has an x-intercept of  $(A, 0)$  and a y-intercept of  $(0, B)$ .

**Personal Finance**

- Pose a question to students based on them obtaining a job.

“If you get a job making \$15 per hour ( $m = \$15$ ) what will the graph of your labor look like for every hour you work? How much money will you make after 6 hours ( $x = 6$  hours), after those 6 hours you make  $m$  times  $x = 10(6) = \$90$ .  
In the linear equation above:  $90(y) = 15(m)(6)(x)$

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)

Set up time equals less than 10 minutes  
Set up a basic display on the document camera using pennies and Arabic numbers in equation form.

- **Teacher Assessment of student learning** (scoring guide, rubric)  
Exit ticket
- **Summary of learning** (to be finished after student completes lab)
  - discuss real world application of learning from lab
  - opportunity for students to share/present learningStudents will be asked to write a brief reflection on the exit ticket which pertains to the real world application of this topic
- **Optional activities**
- **Career Applications**  
Business, Medicine, Science, Police investigations, Athletes, Musicians and many more

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**LAB TITLE:** \_\_\_\_\_

**STUDENT INSTRUCTIONS:**

- **Statement of problem addressed by lab**
- **Grouping instructions and roles**
- **Procedures – steps to follow/instructions**
- **Outcome instructions**
- **Assessment instructions (peer-teacher)**

# Washington Applied Math Council

<https://wa-appliedmath.org/>

## Lab Data Collection

Student: \_\_\_\_\_ Date: \_\_\_\_\_

Unit: \_\_\_\_\_

Lab Title:

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)

Washington  
Applied  
Math  
Council

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