Lab Template

Text:
Volume: Green CORD_____   Chapter: _____
Unit number: __17___   Title of unit: _____
Developed by *(Include contact information)***: Troy Holman**
tholman@rochester.wednet.edu
Date: ____June 27, 2012_____

Attach the Following Documents:
1. Lab Instructions
2. Student Handout(s)
3. Rubric and/or Assessment Tool

Short Description (Be sure to include where in your unit this lab takes place):

Students will graph lines in slope intercept for using dry spaghetti noodles and graph paper. Students will then write equations from a graphed line. Students will also create a table from the graphed line.

Spaghetti Lines

LAB PLAN

TEACHER: *(Teacher Prep/Lab Plan)*
- **Lab Objective**
  Students will work collaboratively, but report individually, to successfully graph lines and write equations of lines.
- **Statement of prerequisite skills needed** *(Vocabulary, Measurement Techniques, Formulas, etc.)*
  Students will need to understand slope-intercept form, how to graph points on a Cartesian plan, and use slope.
- **Vocabulary**
  Slope   y-intercept
  Slope-intercept form
- **State Standards addressed:** *(Highlight "Green" Standards, you may use your District's Power Standards if applicable)*
  - **Math:**
    A.1.3.B Represent a function with a symbolic expression, as a graph, in a table, and using words and make connections among these representations.
    P A.1.4.C **Identify and interpret the slope and intercepts of a linear function** including equations for parallel and perpendicular lines.
    A.1.8.A Analyze a problem situation and represent it mathematically.
    A.1.8.B Select and apply strategies to solve problems.
  - **Reading:**
  - **Writing:**

- ✦ **Leadership:**
- ✦ **SCAN Skills/Workplace Skills:**

- ✦ **Teacher Preparation:** *(What materials and set-up are required for this lesson?)*
    - ✦ Materials: ruler, graph paper, student answer sheet, spaghetti noodles
    - ✦ Set-Up Required: copy the graph paper and student answer sheet and have the noodles and rulers ready for distribution to students

- ✦ **Lab Organizational Strategies:**
    - ✦ Grouping/Leadership/Presentation Opportunities: Students will work in groups of 2 or 3
    - ✦ Cooperative Learning: Students will need to be able to decide together where to put the noodle
    - ✦ Expectations: Students will be able to graph lines and generate equations of lines in slope-intercept form
    - ✦ Time-line: 1-2 days

- ✦ **Post Lab Follow-Up/Conclusions** *(to be covered after student completes lab)*
    - ✦ Discuss real world application of learning from lab:
      Discuss where students could use lines in the real world
      Students have the opportunity to work in teams
    - ✦ Career Applications:
      Builders using slopes on roofs, sidewalks, drainage
    - ✦ Optional or Extension Activities:
      To fully implement standard A.1.4.C, have the students use two noodles to show perpendicular and parallel lines, then generate equations for the perpendicular and parallel lines.

Spaghetti Lines student sheet

1. Take graph paper and draw x and y axis on the paper with the ruler.

2. Take the noodles and graph the following equations, discuss in your group how to place the noodles. Once they are placed have the teach initial your rubric for the equations.

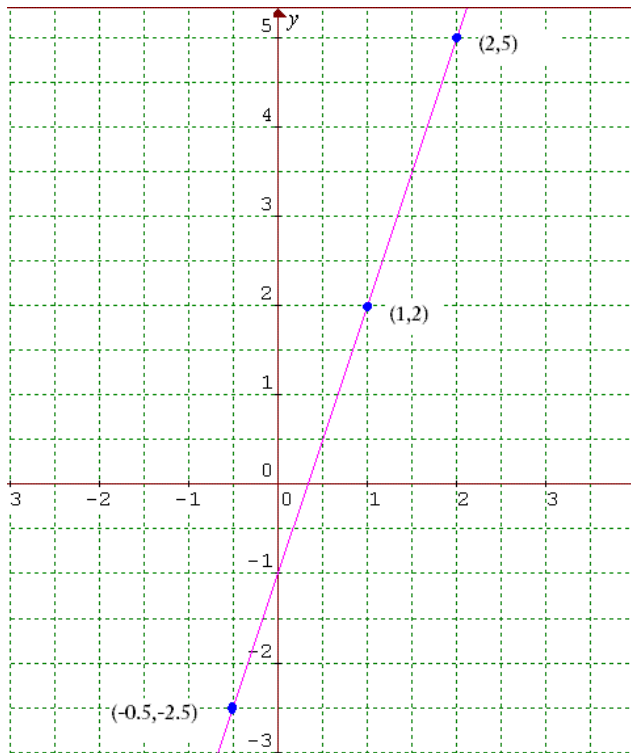$$y = 3x - 2 \qquad y = -2/3x + 4 \qquad y = 5/2x$$

Write the equation of the graphed line in slope intercept form for the following graphs:
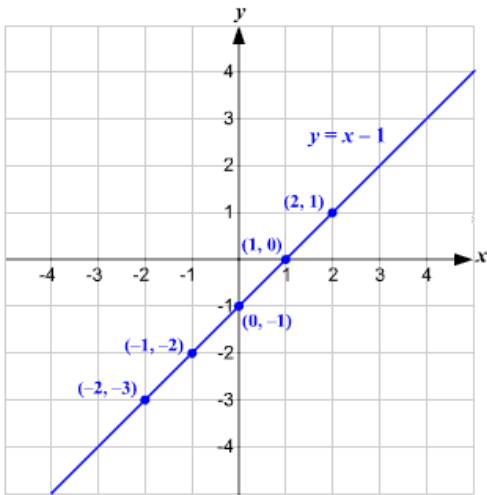
3.
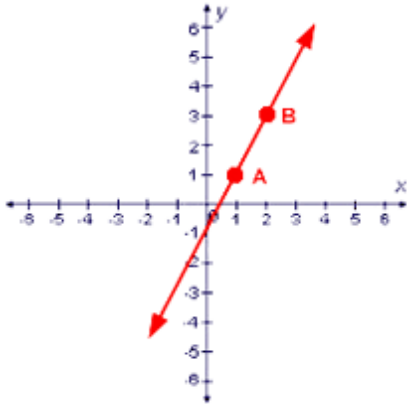
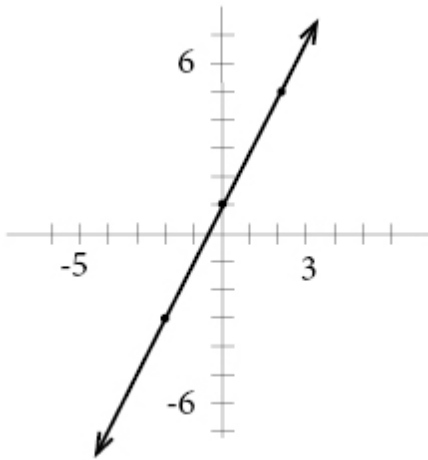equation of the line: _____

4.

equation of the line: _____
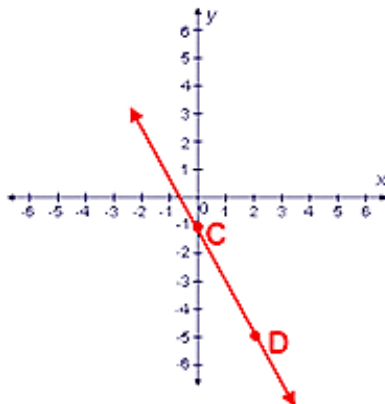
5.

equation of the line: _____

Create a table of the graphed line for the following graphs

6.

x	y

7.

x	y

Rubric for Spaghetti Lines

Item	Points
Sign of for the lines on the graph paper _____ / _____ / _____	/ 3
Equation of line for #3 m / b / equation	/3
Equation of line for #4 m / b / equation	/ 3
Equation of line for #5 m / b / equation	/ 3
Table for #7 x / y	/ 2
Table for #8 x / y	/ 2
Total	/ 16