



## Lead Student Lesson Plan

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# L13: Using Slopes and Writing Equations of Lines

## Objectives

By the end of the gathering, students will be able to

- **Practice speaking English.** Getting better at the skills listed below will help all students to be more readily understood when they speak English with others.
- **Answering questions.** There may be some in the class who are struggling and need some help. Using some time to help them overcome the issues is great. However, spending too much time on questions will take away from the activities that need group participation at the end of the lesson. If questions take too long for the gathering, be sure to remind everyone that tutoring is instantly available at [byui.edu/mathhelp](http://byui.edu/mathhelp), and that they can get a personal tutor to meet with them if they would like.
- **Lines and Slope.** The shortcuts of using the y-intercept and slope should help students to graph lines more quickly and efficiently. If you have students who are finding two points instead of using the point and the slope, let them know that they are correct but that there is also a simpler way.
- **Slope Monster.** Helping the students to see the connections between the slope of the line and the numbers in the equation. Finishing the Slope Monsters should make that more readily visible. Getting slope quickly from lines will also make it easier to do the last set of problem which will require students to write the equations of lines when knowing the slope.
- **Exam 4 Retakes.** The policy is different for Exam 4 than for the others. Please make sure to discuss it.

## Student Preparation

Students were asked to prepare for gathering by completing specific activities and/or pondering certain questions. Please refer to the gathering instructions in this week's unit or lesson in the course.

# Lesson Outline

Below is a sample lesson plan. Feel free to adjust it to best fit the needs of your group. However, try to make sure that the main things are still completed.

<b>OPENING</b>	
<b>Announcements, Hymn, and Prayer</b> (10 minutes)	Announcements Opening Hymn: Chosen by the Missionaries Opening Prayer: By Invitation
<b>Devotional</b> (5 minutes)	<b>Lead Student</b> Here is a scripture that you may choose to use in your devotional. You may also choose one on your own to share. 2 Nephi 28:30
<b>GROUP ACTIVITIES</b>	
<b>English Verb Tense Practice</b> (18-20 minutes)  <b>Print the English Irregular Verbs list for each student</b>	<b>Small Groups</b> In this activity, you will practice using irregular verbs in the present and past tenses. Divide the students into groups of four to five students.  <ol style="list-style-type: none"><li>1. In the groups, each student will describe one of their most embarrassing moments. While describing the experience, students will try to use at least 5 of the words from the English Irregular Verbs list from the English Exercises. Students will use any of the tenses that are appropriate for the story.</li><li>2. After each student describes their experience, the group will ask questions about the experience using "wh" questions: what, when, where, why, who, and how.</li><li>3. The student describing their experience will answer the questions to provide more details of the situation.</li><li>4. Other students will share any thoughts on their stories and ask any other follow-up questions they may have.</li><li>5. Then, another student will tell their story and others will ask questions for them to respond to.</li></ol>
<b>English Vocabulary Practice</b> (8-10 minutes)	<b>Pairs or Small Groups</b> Divide the class in half and ask them to stand in two circles. One circle will be inside the other circle. The students in the inside circle will face out

<p><b>Bring flashcards</b></p>	<p>toward the outside circle and the students in the outside circle will look toward the students on the inside.</p> <p><b>Inside-Outside Circle Vocabulary Activity:</b></p> <ol style="list-style-type: none"> <li>1. The inside circle of students will hold up a vocabulary flashcard with the word showing for the student they are facing.</li> <li>2. The student on the outside will say what the word means.</li> <li>3. The student on the inside will use the word in a sentence.</li> <li>4. After doing all of the above with one word, then the outside student circle will rotate to the right to face the next person in the circle.</li> <li>5. Then, with the new partners facing one another, repeat steps 1 through 4 with the inside students choosing a new card.</li> <li>6. The outside circle will continue to rotate around the circle until they return to the original partners or for a maximum of 10 minutes</li> </ol>
<p><b>Math Exercise 4.3 Part A</b></p> <p>(8-10 minutes)</p>	<p><b>Whole Class</b></p> <p>Review this week's <a href="#">Math Exercise 4.3 Part A</a> homework problems. If there are questions about the assignments, work out a few of the most difficult problems together as a whole group or in small groups of 3-4 people.</p> <p>Be sure to write many equations that are answers for Exercises 4.3A, #29.</p> <p><b>Either A:</b> Ask for a volunteer who understands the difficult problems and can explain how to complete the problem. (It may help to remind people that being able to explain something to someone else is a great way to reinforce one's own learning. Try to include everyone.)</p> <p><b>Or B:</b> In small groups, work through one or two of each type of problem in the homework, letting each group decide which problems they want to work through together.</p>
<p><b>Quiz Discussion</b></p> <p>(3 minutes)</p>	<p><b>Whole Class</b></p> <p>On the quizzes and exams with the graphing of lines, instead of pictures or graphs, the questions ask you to describe the line as vertical, horizontal, tilting upward as moving to the right, or tilting downward as moving to the</p>

	<p>right. Discuss these four options and how graphing lines with two points will help to correctly answer them.</p>
<p><b>Slope Monster</b>  (10 minutes)</p>	<p><b>Whole Class</b></p> <ul style="list-style-type: none"> <li>▪ In this class we have had timed tests that practice fundamental arithmetic facts and skills, which we called Monster tests. (Why is “Monster” the word we use? I don’t know.) In the first week, you had to fill out the Addition/Subtraction Monster and the Multiplication Monster tests. Now we have one for slope. This is to make sure that the skill of being able to get the slope of a line from its equation is very practiced. Make sure that everyone has a copy, or can see a copy of the <a href="#">Slope Monster</a>. (This is Exercise 4.3B #1)</li> <li>▪ Have everyone fill out the Slope Monster (put the slopes next to the lines). Time it for three minutes.</li> <li>▪ Correct it in class using the solution. Ask those that finished how they were able to do it so quickly. Put those ideas up on the board. Make sure everyone understands them.</li> <li>▪ Give another copy to everyone and time it for two minutes. Correct it again. The improvement in students times and grades should help give them confidence.</li> <li>▪ If anyone is ready to give up and doesn’t get it, please encourage them to get with a tutor. They will feel better if they do.</li> </ul>
<p><b>Math Exercise 4.3 Part B</b>  (12-17 minutes)</p> <p><b>Print the answers.</b></p>	<p><b>Small Groups</b></p> <p>Work through the problems in <a href="#">Math Exercise 4.3 Part B</a>; rotate the responsibility to explain how to do each problem through the group. If a student doesn’t know how to do a problem when it is their turn, they should explain as much as possible and then the rest of the group should help finish the problem. Then, the student should explain how to solve the problem back to the group.</p> <ul style="list-style-type: none"> <li>▪ #2,3 can be done quickly. If anyone is still having trouble with these, get them to a tutor.</li> <li>▪ #4-6 Note that the instructions here are explicitly for the intercepts. To do these correctly, students can’t just pick their own values; they must pick 0 for x to get the y-intercept and 0 for y to get the x-intercept. On number 5, (0,0) will be obtained twice. That is both the x and y intercept. We need some other second point somewhere to graph this line. This is where students may pick any value to stick in.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ #7-13 Formula and review on slope. May go quickly.</li> <li>▪ #14-19 Now is the time to use the shortcuts. Get one point (easiest is an intercept) and the slope. Remember that slope is rise (up and down) over run (across left and right). If students are graphing with two random points they aren't wrong; they are still right. But this activity is specifically to lift their sights higher and to help them see that there is a more efficient way.</li> </ul>
<b>Math Exercise 4.3</b> <b>Part B</b> (13-18 minutes)	<b>Whole Class</b> Writing Equations of lines <ul style="list-style-type: none"> <li>▪ Be sure to do the example from pg. 182 on the board so everyone can see it done and have something to follow.</li> <li>▪ #20-25 Most students will feel best if slope-intercept form, <math>y = mx + b</math>, is used in writing the equations of the lines. A few students will find it exciting to do it as well with Standard Form. If they are getting the right answers, let them do it that way, but answer questions from students with the method that they are trying to get good at.</li> </ul>
<b>Exam Preparation</b> (10-15 minutes)	<b>New Small Groups</b> Exam Review. Divide the students into groups of three. In the groups, the students will discuss their visual charts for the upcoming exam. If they have not completed their visual chart, the students should work on it together. Make sure all the students understand the material for the upcoming Exam 4.  Notice: Since Exam 4 is so close to the end of the semester, students who score 75% or below will not be required to retake it, but retakes are optional to everyone, and especially encouraged for those that feel studying for Exam 4 will help prepare them for the Final.
CLOSING	
<b>Conclusion</b> (2 minutes)	<b>Whole Class</b> As appropriate, bear your testimony as it pertains to this lesson, this course, or your experiences with the math or personal finance concepts you have learned.
<b>Prayer</b> (2 minutes)	Closing Prayer: By invitation

## Note

*Please download and print a copy of these instructions to use as a reference during Thursday's Pathway Gathering.*