# Lesson Plan Template

**Grade:** 9th Grade

**Subject:** Algebra I

**Materials:** lesson note-taking sheet, review sheet, pencil/pen

**Technology Needed:** 1-1 (Computer for each student), Microsoft PowerPoint, headphones

**Instructional Strategies:**

- ☐ Direct instruction
- ☐ Guided practice
- ☐ Socratic Seminar
- ☐ Learning Centers
- ☐ Lecture
- **X** Technology integration
- **X** Other (list)
  - Flipped Classroom
- ☐ Peer teaching/collaboration/ cooperative learning
- **X** Visuals/Graphic organizers
- ☐ PBL
- ☐ Discussion/Debate
- ☐ Modeling

**Guided Practices and Concrete Application:**

- ☐ Large group activity
- **X** Independent activity
- ☐ Pairing/collaboration
- ☐ Simulations/Scenarios
- **X** Other (list)

  Explain: Self-Paced; Students will be watching a PowerPoint presentation on the lesson. They will fill out corresponding notes and complete a review sheet when finished with guided note-taking.
- ☐ Hands-on
- **X** Technology integration
- ☐ Imitation/Repeat/Mimic

**Standard(s)**

**F-IF.C.7a** - Graph linear and quadratic functions and show intercepts, maxima, and minima.

**Objective(s)**

- I can construct a graph of a linear function given in slope-intercept form
- I can use slope-intercept form to graph.
- I can determine the y-intercept of a linear function given in slope-intercept form.
- I can create an input-output table to graph linear functions.

**Bloom's Taxonomy Cognitive Level:**

- **Synthesis –** Construct
- **Application –** Use
- **Application -** Determine

**Differentiation**

**Below Proficiency:** For students below proficiency, I would do one of two things. The first option would include making a note-check mandatory after they finish watching this lesson. Instead of waiting until the formal assessment for note-check, they have to check-in with me right after they watch this video so I can check to make sure they copied all of the notes and understand the material.

The second option would be for if the student does not understand. They would be asked to watch the video more than once, and I could be close by. This way they can stop the video and ask questions where they are confused.

**Above Proficiency:** For students who are above proficiency, they would be allowed to move on at their self-pace. At some point, if multiple students are below proficiency, I may ask an above proficiency student to help some of the below proficiency students. This way, they above proficiency student may understand it even more, along with helping the below proficiency student come to proficiency.

One more differentiation strategy may be to introduce the above proficiency student to quadratic equations a little early and have them compare graphs of quadratic equations to linear equations.

**Approaching/Emerging Proficiency:** For students who are approaching/emerging proficiency, they would be able to keep on the normal self-pace track. Their notes and review will be checked before the formal assessment to make sure they understand the material that is being presented.

**Modalities/Learning Preferences:** There are multiple learning preferences that this lesson appeals to. They include:

- Visual
- Auditory
- Logical
- Solitary/Intrapersonal

**Classroom Management- (grouping(s), movement/transitions, etc.)**

- Students will grab their binders and assigned computers and be seated before the bell rings.
- Students will be monitored to make sure they are watching their PowerPoint, not on any other websites/applications.
- Students will raise their hand and remain silent when in need of assistance or note check.

**Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)**

- Students will be expected to stay on relevant material (PowerPoint), not other websites or apps.
- Student will have a meeting after class with teacher if they cannot stay on task and/or cause distractions to others.

# Lesson Plan Template

| Minutes | Procedures |
|---|---|
| 2 | **Set-up/Prep:**<br>- Students will grab their computers and binders then proceed to their assigned seats. Students will then log into their computers and go to their lessons. They will also prepare their binders to take notes on the approptiate lesson. |
| 3 | **Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)**<br><br>- Students will first be presented with the Driving Question.<br>- I will present the students with a linear function in the form of y = mx + b and ask them how this is relevant to graphing linear functions. I will then tell them by that by simply being given an equation in this form, we are able to create a linear graph without any further solving. |
| 10-15 | **Explain: (concepts, procedures, vocabulary, etc.)**<br><br>1.) **Definitions - Slope-intercept form**: y = mx + b, where m is considered the slope of the line and b is considered the y-intercept of the line.<br>**Slope -** The "steepness" of a line. Calculated by rise over run (change in y/change in x)<br>**Y – Intercept** – the value of y at the point where the line crosses the y-axis<br><br>2.) Students will then go into the main information of the PowerPoint. Slides will be presented in the following order<br><br>- Slope – What is slope and what does it mean for graphing. Example problem of y = 2x (2x is slope (2/1)) We will go over how this is rise over run (y/x). Since it is positive, it can be looked at as up 2 units and over 1 unit. We will then look at y = -3x. (-3/1) Since it is negative, we will go DOWN 3 and to the right 1. We will also use an (x,y) table based off of the function to help graph the function.<br><br>- We will then talk about the y-intercept part of y = mx + b. I will give the examples of y = 3x + 2. This means that the y-intercept is positive (0,2). We will use (x,y) table to graph the function. When using the y-intercept, the x-value is always 0. (Tying in ordered pairs from last lesson.)<br><br>- Example of y = 2x - 3. We will create an (x,y) table to help graph the equation. We will then go back and see how the graph compares to the function. We will see the slope of positive 2 and the y-intercept of negative 3.<br><br>- Another example will be y = -x + 2. We will create a (x,y) table and graph the function. We will then see how this compares to the slope intercept form. We want to go up 2 for the y-intercept (0, 2). Then we will use slope, which is -1. This equals -1/1, which means down 1 right 1.<br><br>- Next example will be y = 3x - 3. This means we want to go down 3 on the y-axis for the y-int (0,-3). Then we will use slope of 3 to graph the rest of the equation. 3 is equal to 3/1, which means up 3 and to the right 1.<br><br>- The next example will be where students graph an equation using only slope-intercept form, no (x,y) table. The equation will be y = 2x + 3. The We will break down the different parts of the function and state how each piece of information is used. First, we will find the y-intercept at (0,3). Then from there, we will start doing slope, which is 2 or 2/1. This means 2 up and 1 to the right.<br><br>- The next example will include a fraction, y = 2/3x + 1. We will go up 1 on the y-axis for the y-int (0,1). Now the slope looks weird with a fraction, but they have actually done us a favor by making it a fraction. Numerator is rise and denominator is run. Therefore, since it is positive, we want to go up 2 and to the right 3. |
| 10 | **Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)**<br>- Students will complete their review sheet with several different problems to assess their comprehension.<br><br>- If students are struggling, one strategy I may use is to have students go to Geogebra and use the graphing calculator. This way they can type in a bunch of different equations and see how they are affected by different values. |
| 2 | **Review (wrap up and transition to next activity):**<br>- The PowerPoint will conclude with a review of the important material covered during the lesson.<br>- I will recap what slope and slope-intercept form are. I will also recap how to find the y-intercept in linear equations.<br>- Students will fill out the "I can" statement at the end of their notes and move on to their review sheet. |

| Formative Assessment: (linked to objectives) | Summative Assessment (linked back to objectives) |
|---|---|

# Lesson Plan Template

**Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.**

- I will walk around during the class period to observe students who are on this lesson. If they are, I will see if they have any questions.
- Also, I will observe them while they are completing their reviews and see if they grasp the concept. If not, we will talk about the areas they are struggling with.

**Consideration for Back-up Plan:**

- The back-up plan I would use comes from a tactic I discussed earlier. That is, if a student is struggling or wants to see more examples, I will have them go to the Geogebra graphing calculator. This way they can easily graph many functions and see the differences. Also, this makes it easier to observe the different parts of a graph when using slope-intercept form.

**End of lesson:**

- Students will be given several problems on their assessment they take after every couple of units. At this point, they will demonstrate their ability to graph a linear equation using slope-intercept form.
- If they struggle with graphing slope-intercept form at this point, we will have some 1 on 1 instruction to get the student to proficiency.

**If applicable- overall unit, chapter, concept, etc.:**

- **Lesson –** Graphing Slope Intercept Form
- **Unit 5 –** Linear Functions

**Reflection (What went well? What did the students learn? How do you know? What changes would you make?):**

I thought overall the lesson seemed to go pretty well. The students seemed to have a good grasp on slope-intercept form in general. Although this was not a direct instruction lesson and I was not in the classroom much, I was able to speak with a few students who had completed this lesson and they said they did understand most of the material. As a form of assessment, I would ask them different things pertaining to slope-intercept form and based off of their answers, I would try to gauge their true level of understanding.
Another way I measured the level of understanding was by walking around and watching students who were completing the review/formative assessment for my lesson and seeing how they were answering the questions. They seemed to have a pretty good grasp on the material as well.

There are a couple of changes I would make in my lesson. The most common error seemed to be with understanding how to find the slope given only 2 points. Also, getting them to understand fully that the slope is substituted in for the m-value of $y = mx + b$. The last thing I would change is adding a part about how to change from standard form, point slope form, etc. into slope-intercept form. This seemed to be the biggest holdup for most students who had difficulties.

Overall, I feel the lesson went well. There are a few things to improve upon, but overall the basis for the lesson will stay the same.