Prompt: write a lesson plan for 8th grade math on the topic of graphing linear equations

Lesson Title: Graphing Linear Equations
Objective: Students will be able to graph linear equations on the coordinate plane and interpret the slope and y-intercept of the graph.
Materials:

- Graph paper
- Calculator (optional)
- Handouts with linear equations to graph

Warm-Up: Review the concept of the coordinate plane and the definition of a linear equation. Have students identify the slope and y-intercept of a few simple linear equations (e.g. $y = 2x + 1$, $y = -3x + 2$).
Direct Instruction:

1. Introduce the steps for graphing a linear equation on the coordinate plane:
- Find the y-intercept by substituting $x = 0$ and solving for y. This is the starting point for the graph.
- Choose a value for x and substitute it into the equation to find the corresponding value of y. Plot this point on the coordinate plane.
- Choose a different value for x and repeat the process until you have plotted several points.
- Connect the dots to complete the graph.
2. Demonstrate the process of graphing a few linear equations on the board using graph paper. Emphasize the importance of accurately plotting the points and drawing a straight line through them.
3. Have students work in pairs to graph a few linear equations on their own graph paper. Assist as needed.

Guided Practice:

1. Distribute handouts with linear equations for students to graph.
2. Have students work in pairs to graph the equations and check their work with a calculator (optional).
3. Review the graphs as a class, pointing out any mistakes and discussing the slope and y-intercept of each equation.

Independent Practice:

1. Have students choose a linear equation from a list provided or create their own equation.
2. Have them graph the equation on graph paper and write a brief explanation of the slope and y-intercept of the graph.

Closure: Review the steps for graphing linear equations and the importance of accurately interpreting the slope and y-intercept. Ask students to share any questions or observations they have about the topic.
Assessment: Collect and grade the graphed equations and explanations from the independent practice activity. Use a quiz or other formative assessment to check for understanding.