Algebra 1 Unit 2: Linear Equations, Inequalities, and Systems
Lessons 1–5: Writing and Modeling with Equations

Explore, Play, and Discuss

- I can tell which quantities in a situation can vary and which ones cannot.
- I can use letters and numbers to write equations representing the relationships in a situation

Activity Suggestions:

- ➢ Lesson 1 Activities 1 and 2: : Students collaborate in small groups online or through a class discussion board.
- ➢ Lesson 2 Activities 2 and 3 : Students complete these in an online or paper journal.
- ➢ Lesson 5 Activity 3 Launch: Provide a demonstration or worked example to introduce students to graphing on Desmos.

Assessment Suggestions:

- ➢ Check Your Readiness assessment: Administer items 1, 2, 6, and 7 within the first day or two of this section. Use the guidance provided with each problem to adjust instruction so that students can access the math in the next section.

Deep Dive

- I can explain the meaning of the term “constraints”.
- I can use words and equations to describe the patterns I see in a table of values or in a set of calculations

Activity Suggestions:

- ➢ Lesson 1 Activity 3: Define constraint for students (if there is time, use examples from 1.2).
- ➢ Lesson 3 Activities 1 and 2 : Synchronous

Assessment Suggestions:

- ➢ Lesson 2 cool-down
- ➢ Lesson 3 cool-down

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Synthesize and Apply

- I can explain what it means for a value or pair of values to be a solution to an equation.
- I can find solutions to equations by reasoning about a situation or by using algebra.
- I can use graphing technology to graph linear equations and identify solutions to the equations.

Activity Suggestions:

- ➢ Lesson 4: Students complete these activities in an online or paper journal.
- ➢ Activity 5.3: Students complete this activity in an online or paper journal.

Assessment Suggestions:

- ➢ Revision to 2.2 and 2.3 based on teacher feedback.
- ➢ cool-down Lesson 4
- ➢ cool-down Lesson 5
- ➢ Mid-Unit Assessment Question 4

Ongoing Practice

- Assign one or more of the distributed practice problem sets from Lessons 1–5 to be completed over the time period that the section is being worked on.
- These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit.
- Specify which problems students should submit, or let them choose.
- Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources

- Are You Ready for More? Lesson 2
- Activity 5.1 Which One Doesn't Belong: This could be completed in an online journal, on a class discussion board.
- Unit 1, Lesson 16
- If students need additional practice solving equations, draw from Grade 8 Unit 4 Lessons 3 and 4.
- Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

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Lessons 6–11: Manipulating Equations and Understanding Their Structure

Explore, Play, and Discuss

- I know and can identify the moves that can be made to transform an equation into an equivalent one.
- I understand what it means for two equations to be equivalent, and how equivalent equations can be used to describe the same situation in different ways.

Activity Suggestions:

- ➢ Lesson 6 : Students complete these activities in an online or paper journal. 6.3 benefits from a worked example for activities 2 and 3.
- ➢ Activity 7.1: Students complete this activity in an online or paper journal.

Assessment Suggestions:

- ➢ Check Your Readiness Assessment: Administer items 3, 4, and 5 within the first day or two of this section. Use the guidance provided with each problem to adjust instruction so that students can access the math in the next section.
- ➢ Lesson 6: cool-down

Dive Deep

- I can explain why some algebraic moves create equivalent equations but some do not.
- I know how equivalent equations are related to the steps of solving equations
- Given an equation, I can solve for a particular variable (like height, time, or length) when the equation would be more useful in that form.

Activity Suggestions:

- ➢ Activities 7.2 and 7.3: Sync discussion
- ➢ Activity 8.2: Sync discussion (Emphasize #4).

Assessment Suggestions:

- ➢ Lesson 7 cool-down
- ➢ Activity 9.2

Synthesize and Apply

- I can graph a linear equation of the form $ax + by = c$.
- I can take an equation of the form $ax + by = c$ and rearrange it into the equivalent form $y = mx + b$.

Activity Suggestions:

- ➢ Activity 10.2: Share one worked example, and have students complete the other two in an online or paper journal.
- ➢ Lesson 11: Share a worked example for 11.1, and have students complete the activities in an online or paper journal.

Assessment Suggestions:

- ➢ cool-down Lesson 10
- ➢ cool-down Lesson 11
- ➢ Revision to previous work.
- ➢ Mid-Unit Assessment questions 1, 2, and 3

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Ongoing Practice	
	• Assign one or more of the distributed practice problem sets from Lessons 6–11 to be completed over the time period that the section is being worked on. • These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit. • Specify which problems students should submit, or let them choose. • Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	
	• Lesson 6: Are you ready for more? • Lesson 7: Are you ready for more? • Activity 8.3 • Lesson 9 • Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

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Lessons 12–17: Systems of Linear Equations in Two Variables

Explore, Play, and Discuss

- I can explain what we mean by "the solution to a system of linear equations" and can explain how the solution is represented graphically.

Activity Suggestions:

- ➢ Lesson 12 Activities 1 and 2: Students complete these activities in an online or paper journal.
- ➢ Activity 13.1: Students complete this activity in an online or paper journal.
- ➢ Activity 14.2: Students complete this activity in an online journal

Assessment Suggestions:

- ➢ cool-down for Lesson 12
- ➢ A journal entry comparing the methods indicating any initial preferences

Dive Deep

- I can solve systems of equations by substituting a variable or an expression.
- I can solve systems of equations by adding or subtracting the equations strategically to eliminate a variable.
- I know that adding or subtracting equations in a system creates a new equation, where one of the solutions to this equation is the solution to the system.

Activity Suggestions:

- ➢ Activity 13.2: Sync discussion
- ➢ Synthesize Activity 14.2, Activity 14.3: Sync discussion. Have students collaborate in small groups and then synthesize with the whole class.
- ➢ Activity 15.3. Sync discussion

Assessment Suggestions:

- ➢ cool-down for lesson 13
- ➢ cool-down for Lesson 14

Synthesize and Apply

- I can solve systems of equations by multiplying each side of one or both equations by a factor, then adding or subtracting the equations to eliminate a variable.
- I can tell how many solutions a system has by graphing the equations or by analyzing the parts of the equations and considering how they affect the features of the graphs.

Activity Suggestions:

- ➢ Activity 15.2: Have students complete this activity in an online or paper journal.
- ➢ Activity 16.3 Complete as a virtual card sort.

Assessment Suggestions:

- ➢ cool-down for Lesson 15
- ➢ cool-down for Lesson 16
- ➢ cool-down for Lesson 17
- ➢ Revise work from previous activities
- ➢ Mid-Unit Assessment questions 5, 6, and 7

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	➢ Activities 17.1 and 17.2: Provide feedback or a way for students to check their own work.	

Ongoing Practice	• Assign one or more of the distributed practice problem sets from Lessons 12–17 to be completed over the time period that the section is being worked on. • These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit. • Specify which problems students should submit, or let them choose. • Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	• Lesson 15: Are You Ready for More? • Lesson 17 Activity 3 • Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

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Lessons 18–23: Linear Inequalities

Explore, Play, and Discuss

- I can write inequalities that represent the constraints in a situation.
- I can solve one-variable inequalities and interpret the solutions in terms of the situation.
- Given a two-variable inequality and the graph of the related equation, I can determine which side of the line the solutions to the inequality will fall.

Activity Suggestions:

- ➢ Lesson 18 Activities 1 and 2: Complete these activities in an online or paper journal.
- ➢ Lesson 19 Activities 2 and 4: Complete these activities in an online or paper journal. Students would benefit from a worked example.
- ➢ Lesson 21 Activity 2: Complete this activity in an online or paper journal.

Assessment Suggestions:

- ➢ Lesson 18 cool-down
- ➢ Lesson 19 cool-down
- ➢ Select questions from Lesson 21 Activity 2 synthesis for reflection in a journal entry.

Dive Deep

- I can write and solve inequalities to answer questions about a situation.
- I can describe the graph that represents the solutions to a linear inequality in two variables.

Activity Suggestions:

- ➢ Activity 20.3: Sync discussion
- ➢ Activities 21.2 and 3: Share student work from 21.2 to launch this activity.
- ➢ Activity 22.2: Sync discussion

Assessment Suggestions:

- ➢ Lesson 21 cool-down

Synthesize and Apply

- I can find the solutions to a two-variable inequality by using the graph of a related two-variable equation.
- I can use graphing technology to find the solution to a two-variable inequality.

Activity Suggestions:

- ➢ Activity 22.3: provide a worked example; students can complete in an online journal
- ➢ Activity 23.2

Assessment Suggestions:

- ➢ Lesson 22 cool-down.
- ➢ Lesson 23 cool-down.
- ➢ End-of-Unit Assessment problems 1, 2,4, and 6.

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Ongoing Practice	• Assign one or more of the distributed practice problem sets from Lessons 18–23 to be completed over the time period that the section is being worked on. • These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit. • Specify which problems students should submit, or let them choose. • Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	• Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

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Lessons 24–26: Systems of Linear Inequalities in Two Variables

Explore, Play, and Discuss

- I can write a system of inequalities to describe a situation, find the solution by graphing, and interpret points in the solution.

Activity Suggestions:

- ➢ Lesson 24: Activities 1, 2, and 3. Students can complete in an online journal. Provide worked examples for Activities 2 and 3.
- ➢ Activity 25.1: Students can complete in an online journal.

Assessment Suggestions:

- ➢ Lesson 24 cool-down.

Dive Deep

- I can explain how to tell if a point on the boundary of the graph of the solutions to a system of inequalities is a solution or not.

Activity Suggestions:

- ➢ Activity 25.2: Sync discussion
- ➢ Activity 25.3: Info gap: students work in pairs and return for a whole-class synthesis.
- ➢ Launch 26.2

Assessment Suggestions:

- ➢ Lesson 25 cool-down.

Synthesize and Apply

- I can interpret inequalities and graphs in a mathematical model.
- I know how to choose variables, specify the constraints, and write inequalities to create a mathematical model.

Activity Suggestions:

- ➢ Complete 26.2 independently in an online or paper journal.

Assessment Suggestions:

- ➢ End of unit assessment items 3, 5, and 7.

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Ongoing Practice	
	• Assign one or more of the distributed practice problem sets from Lessons 24–26 to be completed over the time period that the section is being worked on. • These could also be lagging, so that students are working on practice problems from the previous section or unit during this section or unit. • Specify which problems students should submit, or let them choose. • Note: Several existing platforms already have IM's practice problems loaded so that students can complete and submit them online. Some can be autoscored.

Anytime Resources	
	• Teach and encourage students to study the lesson summaries (at the end of every lesson) and refer back to them.

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