Accelerated Intervention,
Algebra I
Module 3
Describing and Graphing Linear Functions and Equations
Teacher Edition

Product ID:
407-1833
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Acknowledgments
Region 4 Education Service Center would like to acknowledge the talent and expertise of those who contributed to the development of this book. Their dedication to our core values of excellence in service for children made possible the creation of this resource to assist educators in providing quality, effective instruction for all students.

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What Is *Accelerated Intervention, Algebra I*?

1. A resource that serves as an intervention for students who have not been successful on STAAR®, Algebra I

2. An intervention resource that provides opportunities for rigorous mathematical conversations while providing supports for students at varying levels of readiness

3. An intervention resource that engages students through strategies including cooperative learning, card sorts or matching, and analysis of student work

4. An intervention resource that provides an opportunity for students to track their progress with analysis of strengths and areas to improve within a culminating lesson

5. An intervention resource of classroom-ready 5E lessons. The Engage phase of each lesson consists of a student-centered activity that either bridges from students’ prior knowledge or encourages interest in deeper exploration of the concepts in the lesson. The Explore phase of each lesson provides students with an opportunity to “do mathematics” and begin to formulate ideas and conjectures. In the Explain phase of each lesson, students formalize the mathematical ideas from the Explore phase with a focus on academic vocabulary, as well as procedures related to the concepts. The Elaborate phase of each lesson allows students to apply or extend their understanding of the concepts in the lesson with additional practice problems. The Evaluate phase consists of four selected-response or griddable items that can be used to assess student understanding. Skills focus activities have been included for students who need additional practice.
Each lesson supports multiple student expectations. These are listed at the beginning of each lesson and are labeled as readiness or supporting.

**Analyzing Data**

**TEKS**

A.2 The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations.

(A) The student is expected to determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities. \textit{Readiness Standard}

(C) The student is expected to write linear equations in two variables given a table of values, a graph, and a verbal description. \textit{Readiness Standard}

A.4 The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness, based on real-world data.

(A) The student is expected to calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association. \textit{Supporting Standard}

(B) The student is expected to compare and contrast correlation and causation in real-world problems. \textit{Supporting Standard}

(C) The student is expected to write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems. \textit{Supporting Standard}

**STAAR® Reporting Category**

2 Describing and Graphing Linear Functions, Equations, and Inequalities
The student will demonstrate an understanding of how to describe and graph linear functions, equations, and inequalities.

3 Writing and Solving Linear Functions, Equations, and Inequalities
The student will demonstrate an understanding of how to write and solve linear functions, equations, and inequalities.

Each lesson identifies the reporting categories addressed within the lesson.
What Is in *Accelerated Intervention, Algebra I*?

Student Learning Objectives
- Create a scatterplot to represent sets of paired data.
- Determine if a relationship is causal or associative.
- Determine the domain and range values for a given situation.
- Write the equation for a trend line or line of best fit for a set of data.
- Determine the correlation coefficient for a set of two-variable data.

### Materials for each phase

<table>
<thead>
<tr>
<th>Phase</th>
<th>Materials</th>
<th>Instructional Grouping</th>
</tr>
</thead>
</table>
| Engage | ✷ Heart Rate  
          ✷ Heart Rate Question Cards  
          ✷ Two-Variable Data  
          ✷ Highlighter or pencil for shading  
          ✷ Stopwatch  
          ✷ Analyzing Data | Pairs of students  
                                        Pairs of students |
| Elaborate | ✷ Independent Practice: Analyzing Data | Individual |
| Evaluate | ✷ Evaluate: Analyzing Data | Individual |
| Skills Focus | ✷ Skills A: Trend Lines without Technology  
                ✷ Skills B: Scaling the Axes | Teacher-led small group |

Notes
- Provide a graphing calculator for each student to use throughout the lesson.
- Skills focus exercises are provided to help students who might be struggling with a specific concept or skill in the lesson. Not all students will need to complete the skills focus activities.

Additional skills focus activities are also listed.

Grouping sizes for each phase are summarized to assist in the arrangement of the classroom.
Rather than a specific answer to each discussion question, what to listen for is listed in the Listen For . . . section.

Each phase includes detailed directions to implement the activity. Titles of activity masters and student pages are printed in bold for ease of reference.
What Is in *Accelerated Intervention, Algebra I*?

**Listen For . . .**
- Use of vocabulary such as correlation, domain, and range.
- Description of the relationships that exist between quantities, including association.

**Evaluate**

1. Distribute a copy of *Evaluate: Analyzing Data* to each student.
2. Prompt students to complete *Evaluate: Analyzing Data* independently.
3. Upon completion of *Evaluate: Analyzing Data*, use the following error analysis to assess student understanding of the concepts and procedures the class addressed in the lesson and provide additional support as needed.

**Answer Key and Error Analysis for Evaluate: Analyzing Data**

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Correct Answer</th>
<th>Reporting Category</th>
<th>TEKS</th>
<th>Conceptual Error</th>
<th>Procedural Error</th>
<th>Guess</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D</td>
<td>2</td>
<td>A(4)(B)</td>
<td>A</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>3</td>
<td>A(2)(A)</td>
<td>A</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>3</td>
<td>A(2)(C)</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>3</td>
<td>A(1)(C)</td>
<td>A</td>
<td>B</td>
<td>D</td>
</tr>
</tbody>
</table>

Each selected-response item is labeled with the STAAR® reporting category and student expectation. Incorrect answer choices are classified according to type.
What Is in Accelerated Intervention, Algebra I?

Each cumulative lesson includes an Inventory Probe for students to assess student understanding of the concepts in this module.

Ten selected-response items are provided to assess student understanding in the cumulative lesson, and the Elaborate phase has been omitted in order to provide additional time to assess student understanding.

Name: __________________________ Date: __________________________

Functions and Their Representations Inventory Probe

Circle the number (1-5) that describes how comfortable you are with the concepts addressed in this module.

1. Identify domain and range of linear functions.
   - 1: I am not comfortable with this and need additional help.
   - 2: I can do this with some help.
   - 3: I can do this independently.
   - 4: I can do this with some additional help from others.
   - 5: I am comfortable with this and can explain it to others.

2. Determine if a relationship is causal or associative.

3. Determine if a relationship represents a function or not.

4. Use a functional relationship to answer questions in a real-world situation.

5. Determine specific function values.

6. Determine scatterplots.

7. Calculate the correlation coefficient for a data set and interpret it as a measure of strength of an association.

8. Present relationships using models, diagrams, graphs, and equations.

9. Make decisions, predictions, and critical judgments in problem situations.

10. Determine a trend line or a line of best fit for a set of data.

11. Use a line of best fit to make predictions about real-world data.

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