

# 1 Searching for Patterns

## Topic 1: Quantities and Relationships

ELPS: 1.A, 1.C, 1.E, 1.F, 1.G, 2.C, 2.E, 2.I, 3.D, 3.E, 4.B, 4.C, 5.B, 5.F, 5.G

Topic Pacing: 13 Days

Lesson	Lesson Title	Highlights	TEKS*	Pacing**
1	<b>A Picture Is Worth a Thousand Words</b> Understanding Quantities and Their Relationships	Students are presented with various scenarios and identify the independent and dependent quantities for each. They then match a graph to the appropriate scenario, label the axes using the independent and dependent quantities, and create the scale for the axes. Students make basic observations about the similarities and differences in the graphs. They then look more deeply at pairs of scenarios along with their graphs to focus on characteristics of the graphs, such as intercepts, increasing and decreasing intervals, and maximum and minimum points. The lesson concludes with students creating their own scenario and a sketch of a graph to model the scenario.	A.3C A.7A A.9D	2
Suggested Placement of Learning Individually with Skills Practice or MATHia				1
2	<b>A Sort of Sorts</b> Analyzing and Sorting Graphs	Students begin this lesson by cutting out 17 different graphs. They sort the graphs into different groups based on their own rationale, compare their groupings with their classmates' and discuss the reasoning behind their choices. Next, four different groups of graphs are given, and students analyze the groupings and explain possible rationales behind the choices made. Students explore different representations of relations. Students need to keep their graphs as they will be used in lessons that follow.	A.3C A.7A A.9D	1
Suggested Placement of Learning Individually with Skills Practice or MATHia				1
3	<b>F of X</b> Recognizing Functions and Function Families	The definitions <i>function</i> and <i>function notation</i> are introduced in this lesson. For the remainder of the lesson, students use graphing technology to connect equations written in function forms to their graphs and then identify the function family to which they belong. The terms <i>increasing function</i> , <i>decreasing function</i> , and <i>constant function</i> are defined, and students sort the graphs from the previous lesson into these groups and a group labeled for functions that include a combination of increasing, decreasing, and constant intervals. The terms <i>function family</i> , <i>linear function</i> , and <i>exponential function</i> are then defined, and students sort the increasing constant and decreasing functions into one of these families. Next, the terms <i>absolute minimum</i> and <i>absolute maximum</i> are defined, as well as the terms <i>quadratic function</i> and <i>linear absolute value function</i> . Students sort the functions with an absolute minimum or absolute maximum into one of these families. Students then complete a graphic organizer for each function family that describes the graphical behavior and displays graphical examples. In the final activity, students use their knowledge of the function families to demonstrate how the families differ with respect to their $x$ - and $y$ -intercepts. Graphing technology is necessary to help students connect some equations and their graphs.	A.2A A.3C A.6A A.7A A.9A A.9D A.12A	3
Suggested Placement of Learning Individually with Skills Practice or MATHia				1

# Texas Algebra I: Module 1, Topic 1 Pacing Guide

165-Day Pacing











Lesson	Lesson Title	Highlights	TEKS*	Pacing**
4	<b>Function Families for 2000, Alex</b> Recognizing Functions by Characteristics	Given characteristics describing the graphical behavior of specific functions, students name the possible function family/families that fit each description. Students revisit the scenarios and graphs from the first lesson, name the function family associated with each scenario, identify the domain, and describe the graph. Students then write equations and sketch graphs to satisfy a list of characteristics. They conclude by determining that a function or equation, not just a list of characteristics, is required to generate a unique graph.	<b>A.2A</b> <b>A.3C</b> <b>A.6A</b> <b>A.7A</b> A.9A <b>A.9D</b> A.12A	2
Suggested Placement of Learning Individually with Skills Practice or MATHia				1
End of Topic Assessment				1

# Texas Algebra I: Module 1, Topic 1 Pacing Guide

165-Day Pacing

1 Day Pacing = 45-minute Session

\* This activity highlights a key term or concept that is essential to the learning goals of the lesson.

Day 1	Day 2	Day 3	Day 4	Day 5
<p>TEKS: A.3C, A.7A, A.9D</p> <p><b>LESSON 1</b> <b>A Picture is Worth a Thousand Words</b> GETTING STARTED * ACTIVITY 1 *</p>	<p><b>LESSON 1</b> continued ACTIVITY 2 * TALK THE TALK</p>	<p><b>LEARNING INDIVIDUALLY</b></p> <p> Skills Practice</p> <p>OR</p> <p> MATHia</p>	<p>TEKS: A.3C, A.7A, A.9D</p> <p><b>LESSON 2</b> <b>A Sort of Sorts</b> GETTING STARTED * ACTIVITY 1 * TALK THE TALK *</p>	<p><b>LEARNING INDIVIDUALLY</b></p> <p> Skills Practice</p> <p>OR</p> <p> MATHia</p>
Day 6	Day 7	Day 8	Day 9	Day 10
<p>TEKS: A.2A, A.3C, A.6A, A.7A, A.9A, A.9D, A.12A</p> <p><b>LESSON 3</b> <b>F of X</b> GETTING STARTED ACTIVITY 1 *</p>	<p><b>LESSON 3</b> continued ACTIVITY 2 * ACTIVITY 3 *</p>	<p><b>LESSON 3</b> continued ACTIVITY 4 * ACTIVITY 5 * TALK THE TALK *</p>	<p><b>LEARNING INDIVIDUALLY</b></p> <p> Skills Practice</p> <p>OR</p> <p> MATHia</p>	<p>TEKS: A.2A, A.3C, A.6A, A.7A, A.9A, A.9D, A.12A</p> <p><b>LESSON 4</b> <b>Function Families for 2000, Alex</b> GETTING STARTED * ACTIVITY 1 *</p>
Day 11	Day 12	Day 13		
<p><b>LESSON 4</b> continued ACTIVITY 2 * TALK THE TALK</p>	<p><b>LEARNING INDIVIDUALLY</b></p> <p> Skills Practice</p> <p>OR</p> <p> MATHia</p>	<p><b>END OF TOPIC ASSESSMENT</b></p>		