1 Reasoning with Shapes

Topic 2: Rigid Motions on a Plane

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

Topic Pacing: 19 Days

Lesson	Lesson Title	Highlights	TEKS*	Pacing**
1	**Put Your Input In, Take Your Output Out** Geometric Components of Rigid Motions	Students develop the concept that geometric rigid motion transformations can be considered as functions, with rotations, reflections, and translations as the operations. Translations can be described using lines and line segments. Reflections can be described using lines. Rotations can be described using rotation angles. The inputs and outputs are geometric shapes. Each input and its corresponding output have the same size and shape.	**G.3B** G.3C	1
2	**Bow Thai** Translations as Functions	Students analyze transformation machines and conclude that translations along parallel lines always produce images that are congruent to their pre-image, while translations along rays with a common endpoint produce dilations or images that are similar to, but not congruent to, their pre-image. The term *isometry* is defined to label these differences, with the understanding that any rigid motion transformation that preserves size and shape is an isometry. Students then engage in a context involving an animated website where they learn and use function notation to represent geometric translations.	**G.3B** G.3C G.6C	2
	Suggested Placement of Learning Individually with Skills Practice or MATHia			1
	Mid-Topic Assessment			1
3	**Staring Back at Me** Reflections as Functions	Students analyze reflections as isometries. They construct a perpendicular bisector of a segment and then conclude that the perpendicular bisector is the line of reflection between the endpoints of the segment. Students investigate reflections as functions using the context from the previous lesson, use function notation to represent geometric reflections, and construct lines of reflection. They combine what they learned in this lesson and the previous lesson to identify sequences of translations and reflections to demonstrate that two figures are congruent.	**G.3B** G.3C G.5B **G.6A** G.6C	2
	Suggested Placement of Learning Individually with Skills Practice or MATHia			1
4	**Turn Yourself Around** Rotations as Functions	Students analyze rotations. First they use concentric circles to rotate a triangle and determine that rotations are isometries. They then are introduced to the notation for the rotation function and use it to rotate any figure using only a protractor and ruler. Students then reverse the process and identify the center of rotation and angle of rotation given a pre-image and image of a figure. As in the previous lesson, they identify sequences of transformations to demonstrate that two figures are congruent. Students then use a graphic organizer to summarize what they have learned about translation, reflection, and rotation isometries.	**G.3B** G.3C G.5B G.6C	3
	Suggested Placement of Learning Individually with Skills Practice or MATHia			1

Texas Geometry: Module 1, Topic 2 Pacing Guide

180-Day Pacing

TEXAS MATH SOLUTION

Lesson	Lesson Title	Highlights	TEKS*	Pacing**
5	**Slide, Flip, Turn: The Latest Dance Craze?** Translations, Rotations, and Reflections on the Coordinate Plane	Students recall what they know about transformations of functions by examining the graph of the basic function, $f(x)$, and its transformed graph $g(x)$. Students then cut out a model of a trapezoid and translate, rotate, and reflect the model on a coordinate plane to determine how transformations affect the coordinates of the figure. Compositions of transformations are explored on the coordinate plane.	G.3A **G.3B** G.3C	3
Suggested Placement of Learning Individually with Skills Practice or MATHia				1
6	**OKEECHOBEE** Reflectional and Rotational Symmetry	Students explore reflectional and rotational symmetry within a figure using patty paper prior to formal definitions being provided. They then analyze these symmetries in more depth as they relate the number of lines of symmetry and the measures of angles of rotation to specific types of figures. Students identify reflectional and rotational symmetry in letters of the alphabet and some titles in this lesson. They also identify the relationship between the rotational symmetries of a regular figure and the measure of each of its interior angles.	G.3D	1
Suggested Placement of Learning Individually with Skills Practice or MATHia				1
End of Topic Assessment				1

Texas Geometry: Module 1, Topic 2 Pacing Guide

180-Day Pacing

TEXAS MATH SOLUTION

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
TEKS: **G.3B**, G.3C **LESSON 1** **Put Your Input In, Take Your Output Out** GETTING STARTED ✱ ACTIVITY 1 ✱ TALK THE TALK	TEKS: **G.3B**, G.3C, G.6C **LESSON 2** **Bow Thai** GETTING STARTED ✱ ACTIVITY 1 ✱	**LESSON 2** continued ACTIVITY 2 ✱ TALK THE TALK	**LEARNING INDIVIDUALLY** Skills Practice OR MATHia	**MID-TOPIC ASSESSMENT**
Day 6	**Day 7**	**Day 8**	**Day 9**	**Day 10**
TEKS: **G.3B**, G.3C, G.5B, **G.6A**, G.6C **LESSON 3** **Staring Back at Me** GETTING STARTED ✱ ACTIVITY 1 ✱ ACTIVITY 2 ✱	**LESSON 3** continued ACTIVITY 3 ✱ TALK THE TALK ✱	**LEARNING INDIVIDUALLY** Skills Practice OR MATHia	TEKS: **G.3B**, G.3C, G.6C, G.5B **LESSON 4** **Turn Yourself Around** GETTING STARTED ✱ ACTIVITY 1 ✱	**LESSON 4** continued ACTIVITY 2 ✱
Day 11	**Day 12**	**Day 13**	**Day 14**	**Day 15**
LESSON 4 continued ACTIVITY 3 ✱ TALK THE TALK ✱	**LEARNING INDIVIDUALLY** Skills Practice OR MATHia	TEKS: G.3A, **G.3B**, G.3C **LESSON 5** **Slide, Flip, Turn: The Latest Dance Craze?** GETTING STARTED ACTIVITY 1 ✱	**LESSON 5** continued ACTIVITY 2 ✱ ACTIVITY 3 ✱	**LESSON 5** continued ACTIVITY 4 ✱ TALK THE TALK

Texas Geometry: Module 1, Topic 2 Pacing Guide

180-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 16	Day 17	Day 18	Day 19
LEARNING INDIVIDUALLY Skills Practice **OR** MATHia	TEKS: G.3D **LESSON 6** **OKEECHOBEE** **GETTING STARTED** * **ACTIVITY 1** * **ACTIVITY 2** **TALK THE TALK** *	**LEARNING INDIVIDUALLY** Skills Practice **OR** MATHia	**END OF TOPIC ASSESSMENT**