## Case Study: 4th Grade

#### by Erin Mayer

#### Setting

The following case study is from a fourth grade class in Albuquerque Public Schools in New Mexico, with a class size of 21 students: 11 boys and 10 girls. Nine of the students qualify for EL services (ranging from 1.9 to 4.9 on the WIDA ACCESS); seven students are in Special Education services, and five receive gifted services. The school is a Title I school with 100% Free/ Reduced Price Lunch (FRPL). Ten of the students are bused from a low-income area of the city several miles away from the school, four students live in the school neighborhood, and the other six are transfers because parents have moved out of the school's area and are keeping their children here to finish the year.

On the New Mexico Standards Based Assessment (NMSBA) given in March of the previous year (third grade), one student scored advanced in math, five of the students scored proficient, eight were nearing proficient, and seven were at beginning steps.

New Mexico places students into two groups based on a number of factors, one of which is their NMSBA scores. The achievement of the different quarters is looked at when schools are evaluated by the state Public Education Department (PED). Seven of the students were in the bottom quarter (Q1), which is the lowest performing 25% of students. The others were in the top three quarters (Q3), which represents the remaining students. Students are reclassified every three years as part of the growth model, which is connected to the A to F school grading system for the state.

In the following case study, Unit 4, Lines, Angles and Degrees, falls as the fourth unit of the school year out of 7 units, close to the middle of the 2<sup>nd</sup> trimester.

#### Planning the Unit Standards

My grade level developed a curriculum map from the Units of Study provided by our district. The curriculum map determines the standards being addressed in this unit. In order to begin the planning process, a close analysis of the standards is required. An evaluation of the higher order thinking skills the students need to be able to demonstrate to meet grade level standards is critical in preparing the unit. A resource my grade level team has used to support

this is A Taxonomy for Learning, Teaching, and Assessing (2001). The standards describe expectations through the verbs that are used. For this unit, (Lines, Angles, and Degrees) the standards state in 4.MD.5 and 7, Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. *Recognize angle measure as additive.* The knowledge level here is to recognize or remember, meaning this is a new concept for students at this level. They are being introduced to this understanding of angles, unlike the following fourth grade standard, 4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure, in which the expectations of student learning is at a higher level along the taxonomy of critical thinking. In the second standard, students are being asked to apply their remembered knowledge to a task. Being able to evaluate the cognitive demand of the standard is crucial for teachers to effectively design the instruction.

The key concepts addressed in this unit are a combination of two domains, Measurement and Data (MD), standards 4.MD.C.5-7 and Geometry (G), standards 4.G.A.1-3. These standards are a combination of conceptual learning and application learning.

In fourth grade, the CCSSM build on students' conceptual understanding of shapes, polygons and quadrilaterals from their third grade standards, to being able to classify figures based on new attributes, including parallel and perpendicular lines, as well as symmetry. When students move to fifth grade, they will apply their understanding of shapes to coordinate planes. Analyzing the vertical alignment across the grades to understand what each grade is responsible for is an important part of developing a unit. Once I had an understanding of the vertical alignment of the standards for geometric measurement and geometric properties, I then looked deeper into the specifics of the fourth grade standards I would be teaching in this unit.

#### Organization

The next part of my planning always involves organization. Organization paves the path to success for my students and for me. The more I understand how all the pieces in a unit fit together and what I



need to be successful in the day-to-day delivery of lessons, the more effective I am in my teaching and ensuring that my students are truly learning. This type of planning provides me with a deep understanding of all the pieces necessary to be flexible throughout instruction. When I hold the big picture of the unit, I am able to adjust for students' needs on a day-to-day basis. I am prepared to scaffold for missing elements in students' learning, connecting ideas across the unit and the content, and I can provide opportunities to develop conceptual understanding through a chart talk or guided math group.

and Respond at the beginning of the unit and in the middle. During Closure and Goal Setting, it was used as a read aloud to close the unit. This book contains descriptive language that anchors many students in visualizing angles and degrees and how they are are used within a story. I started with the Listen and Respond to engage students in a low affective filter strategy with the concept. This strategy was highly informative, providing me insights into how to best guide instruction during the unit. The students' work gave me a glimpse of how the students connected to angles and degrees and this specific piece of literature, as well as into which intelligences they were tapping

In this case study, I use an Excel<sup>®</sup> worksheet to gather information as I plan and prepare (see Unit 4 Lines, Angles, & Degrees worksheet, page 73). I use it to capture different elements for each component as I research and design the unit, including: Focus and Motivation, Compendium, unit lessons, Closure and Goal Setting, pre/post tests, standards, mathematical practices, resources, references, pacing window, schedule, notes, etc. Having a way to place and collect



During the Listen and Respond, a quick peek at the illustrations can support an emergent English learner.

(linguistic, logicalmathematical, visualspatial, and interpersonal). Knowing that angles and degrees are first introduced in fourth grade, I was curious to see what prior knowledge, if any, the students would include in their sketches and writings. After the Listen and Respond, I could see from the students' math journals that a few of the students had experience with angles or degrees, however, most

information saves me time in the long run. This unit contained one lesson for a pretest, one lesson for Focus and Motivation, one lesson for the Compendium, 15 lessons for content teaching, one lesson for a test, and one lesson for Closure and Goal Setting.

In the remainder of this case study, I will talk through my thinking on planning for the specifics for each of the framework's components.

## *Case Study: AIM4S<sup>3™</sup> Components Focus and Motivation*

For Focus and Motivation, the first lesson of the unit, I look to a variety of activities that will engage my students and tap different intelligences. I make sure to select from a variety of sources to build this introductory lesson. I utilize literature, animation, activities, and games.

**5**6

For this unit I used the literature book, *Sir Cumference and the Great Knight of Angle Land* (2001) as a Listen

of the students did not. A few of my students did make direct connections to angles or degrees in their journals. This let me know that angles and degrees would be a new concept for most of the class.

During the lesson we watched the animation "Angles" by *BrainPop*. This animation gives a general overview of angles and talks about the protractor as a tool used for measuring angles. Fourth graders are expected to use protractors to measure and sketch angles. From Dr. Medina's work we know that learners retain up to 65% when text, narration and animation are combined (*Brain Rules*, 2008). This supports student learning in a variety of modalities.

Finally, we finished with an activity designing mandala circles. In this activity students draw concentric circles and then dissect the circles with designs. This gives students an experience of creating angles and using symmetry with art. I talked with them about circles being 360 degrees and relating it to real world experiences the students would connect with, such as skateboard and bike tricks that are measured by degrees. Being mindful that the Focus and Motivation component of the framework is meant to provide students with engaging experiences around the new concept to excite them and provide me with insight to inform my instruction, I circulated while students were working, asking questions and sharing ideas, but not providing direct instruction. The students enjoyed the activity as they became more knowledgeable in creating symmetric patterns and using angles to design their circles. This activity proved to be invaluable later in the unit when we were measuring and drawing angles.

#### Compendium Introduction and Inquiry

I started this lesson by introducing the topic and writing "Geometry: Lines, Angles, and Degrees" on the Compendium. The students had a lot of conversation about what we had done the day before during Focus and Motivation, asking, "What really was a degree anyway?" as we got started. This lead nicely into the inquiry strategy. Students felt they knew several facts that connected to 90 degrees and 360 degrees from what they had seen and experienced during the Focus and Motivation lesson. Their questions were basic knowledge questions, such as, "What do degrees mean?" and "Who invented degrees?" These types of basic questions during the inquiry informs my teaching; I know that students will need activities to build conceptual understanding before they are ready for more advanced application.

Next, I started delivering the concept frame. I started with the tables of reference (left on Compendium) on the different areas we would be working on, embedding examples connected to the terms. During the delivery of this part of the Compendium, the learning log prompts for the students were to draw a line or acute angle, etc. While the students were drawing to the prompt I circulated to look at their learning logs to see how they were connecting to the information. I also modeled what the different angles or parallel and perpendicular lines looked like with my arms, having the students repeat the terms and the gestures.

The quadrilateral section contained prior knowledge from their third grade standards as well as new information for their fourth grade standards. I knew it would be important to highlight the attributes that would be new to the students. During this section many students remembered the names of the quadrilaterals. This informed me that students had the foundation they needed to apply the fourth grade attributes to quadrilaterals.



I moved to the section on symmetry and types of turns next. We had a brief discussion on how symmetry can be found in many places in the natural world. I gave the prompt, "Turn to your neighbor and come up with two items that are symmetrical." This gave the students time to connect with the content and me a chance to hear what connections they were able to make at this point. As I listened, I called on several students who had an accurate example of symmetry to share out. During the section on turns, I had the students get up and make the turns to connect their learning through TPR (Total Physical Response) (Asher, 2009).

Up to this point students had shown connections to the content. Most were able to talk about quadrilaterals, symmetry, and turns. I noticed that angles and defining lines were new to almost all of my students. All of this information is helpful as I think about necessary adjustments that will need to come during the unit lessons.

I knew that the last section of the Compendium would be new to all of my students. I had seen this in the activities we did during Focus and Motivation and on their pretest. Students were not familiar with a protractor. A few could name the tool but didn't know how to use it or what it was for. I used a clock and fractions as references for this section because we had done a lot of work with using a clock to understand fractions in a previous unit. Using references that the students are already familiar with gave them a foundation for applying the new concept of degrees. I also wanted to have a large model for the protractor to support their learning and especially to understand the scale goes both directions, which is a common misunderstanding with students. I covered the clock face with clear tape so that a dry erase marker could be used throughout the unit.

My instruction during this section was very direct and clear with less student interaction. This is important when delivering a new concept that is unfamiliar to students and where they have not had previous learning experiences. During this section I also provided a model of the type of problems the students would solve later in the unit by applying their knowledge of degrees and using protractors.

#### Key Instructional Principle Connection: Student Output

When building the Compendium, it is key to have students talk with partners multiple times during the lesson. With the inquiry chart, students should talk with a partner before you call on students to share out what they know or the questions they have and you record these on the chart. During the concept frame, the teacher can give students a specific prompt after a chunk of information to increase interaction and give students an opportunity to process information. For example, "Turn to your neighbor and ask, 'Where do you see obtuse angles in our classroom?'" Think-pair-share or 10/2s are simple strategies that give all students a chance to share their ideas and listen to others rather than just four or five students sharing out to the whole group. This increases engagement, validates all students' voices and gives students an opportunity to build their oral academic language skills. The CCSS Mathematical Practices set the expectation that students are able to ask and answer questions, justify their ideas and listen critically to others. Plenty of practice opportunities are essential for students developing these skills.

#### Standards & Mathematical Practices

I wrote the standards/mathematical practices following the context frame to set the expectations of the unit. I wanted to anchor the students in the standards and mathematical practices following the concept frame so they could make connections. We discussed unfamiliar words, and then I highlighted the words and added a sketch, symbol or synonym to shelter the language.

My instruction during the Compendium lesson remained focused on frontloading the unit, while providing many opportunities for peer interaction with the content and oral language through partner sharing and learning logs. This is important when delivering a new concept with which students are not familiar.



## Case Study: Unit Lessons

For this unit, I used *Go Math* (Houghton-Mifflin Harcourt) materials to frame the unit lessons, combining chapters 10 and 11. When I am planning and reviewing the material I will be using for the unit lessons, I spend a considerable amount of time evaluating which lessons will match the depth needed to align with the level of understanding the standards

require and what might be missing. Before I teach the unit, I have a plan for the unit lessons based on information I have about my students from their performance on previous units to know what additional scaffolding or enrichment pieces will need to be added to make the instruction effective. Once we start the unit, I revise this plan based on the pretest that addresses this unit's standards and the student responses to the Focus and Motivation activities, Compendium, and different lessons as we go.



Mazhane and Mom walk the classroom walls and view the Compendium during family conferences.

understanding or are applying concepts that they already understand. Instruction and practice can be whole group, small group and independent depending on how much guidance students need to be successful with the lesson objectives. To close the lesson we often return to the essential question, an exit slip, or processing of the inquiry chart. Processing the inquiry chart can be done at any point during the lesson; the important piece to remember is to connect it to

what you are doing or "ahas" the students are making, maximizing the teachable moments.

The first lesson of this unit began with reviewing their homework from the previous day which focused on dividing circles into fractional parts. This homework tapped their background knowledge from third grade and got them thinking about information that would help them for this lesson. The students talked to their neighbor about anything they were unsure about and then compared their answers on the other problems. If they didn't have the same answers, they

Looking at the unit organizer (page 73), you can see the entire sequence of lessons. I incorporate flex days, as well, to accommodate unexpected stumbling blocks that come up during a unit. This allows for time to carry a lesson over several days when students are struggling with a concept. I identify games, animations, literature, and activities that complement the lessons, as well.

My main goal throughout all the unit lessons is to be flexible with a focus on the end goal. I give homework that reflects what we did during the lesson. I plan exit slips every few days to see what understandings the students are holding and what they are having trouble with, and then I make changes accordingly. A typical day's lesson will start with homework review and questions. Next will be an opening activity—often a game, animation or literature. Then we investigate the essential question, which leads into the main part of the lesson. This part of the lesson looks different depending on if we are building a conceptual talked through the problem together to see if they could figure it out. Then as a group we addressed any problems they weren't able to resolve on their own. We went back to the Compendium and looked at the section on References with Clocks and Fractions and reviewed what we knew about fractions in reference to clocks. We then extended this concept to angles so students could see that the fractional part of 1/12 or one hour can now be represented as a 30 degree angle. I used a dry erase marker to write this angle on the clock on the Compendium. I highlighted the degrees around the clock to focus students' attention on the degrees. This gave us the opportunity to process one of their questions on the inquiry chart, "What do degrees mean?" We discussed the question and students decided we should write, "Degrees are the units used to measure angles."

For the opening activity we watched "Angles" on *BrainPop*. This video used a clock to support measuring angles and front loaded language that we would be using that day. While we were watching,



I facilitated the viewing so we could connect our previous study of fractions and clocks to fractions and angles and clocks and angles. These short conversations help students bridge to new information.

We then moved on to our essential question for lesson 11.1, Angles and Fractional Parts of a Circle, which was, "How can you relate angles and fractional parts of a circle?" I had the essential question posted on the Promethean flipchart. Students discussed the question with their teams, and I scribed their thoughts. A couple of the students' responses were, "Each fraction part shows an angle," and, "How you divide up the circle can tell you the angle."

During this lesson we referred back to the Compendium and our experiences with using clocks as a reference with fractions to help us understand angles. I knew from their responses to the essential question that some of my students would need additional scaffolding to understand the connection of angles and fractional parts of a circle. Knowing this, I replaced the suggested Go Math lesson that had the students labeling angles shown on a circle to a more physical activity. We made connections to clocks and used our arms to show a quarter turn or <sup>1</sup>/<sub>4</sub> on a clock and that representation of a 90 degree angle, as well as half turns or ½ to 180 degrees and full turns or one whole to 360 degrees. We also did this by standing up and making the turns with our bodies. Once they had the hang of this I would give them a different direction, for example, make a <sup>1</sup>/<sub>4</sub> turn clockwise, make a 90 degree turn counterclockwise, etc.

After this activity, I checked in with the students using a quick process to see where they thought they were at in identifying angles using fractional parts of a circle in their mathematics books. Most of the students felt they could do it if they could work together with their teams; about six students felt that they wanted to work with me through several problems first. This is an example of how I use continuous feedback during lessons to guide my instruction as well as to develop students' metacognitive awareness of their own level of understanding. I worked with the six students through a facilitated discussion. Once this group of students felt they could try a problem on their own, I circulated to the students working in teams to check in with their progress. Some students needed small clarifications while others only needed to see if

their responses were correct. I closed this lesson by bringing the students back together to add to their original responses to the essential question. Students were now able to add, "Angles can cut up a circle just like fractions do. So if you know there are 360 degrees in a circle, if it is four equal parts you know you have four 90 degree angles."

During unit lessons we work toward mastery of standards with students. There are connections made to Focus and Motivation activities and to the Compendium. Being well planned prior to teaching the unit and responding to the Continuous Feedback from your students during instruction allows you to adjust instruction as needed. Across the unit lessons there is a balance of whole group, small group, and individual instruction, as well as written practice all with the goal of moving students to being able to demonstrate proficiency individually.

## Closure & Goal Setting

I use a variety of assessments, both formative and summative, to look at student progress from the beginning through the end of a unit. The formative assessments are ongoing throughout the unit. When a student is able to demonstrate proficiency on an exit slip or an assignment, I make sure to document that information to inform next steps with that student. I do the same for students who are not proficient, moving them in and out of guided mathematics groups. This way I can adjust instruction throughout the unit and there are no surprises when students take the end-of-unit assessment. This maximizes class time, filling in gaps and deepening understanding as we move through the lessons. For the summative or end-of-unit assessment for this unit, I used the Go Math assessment.

During the last few lessons of this unit, students worked on a series of problems in the form of a practice test that represented the scope of what was covered in the unit. This allowed students to identify any areas that they were still struggling with and gave time for students to ask questions. I talked to the students about the importance of working on the problems on their own first, so they could see if they truly knew the information. Next, students were able to partner up or work in their teams to check and compare their work. During this time, I circulated around the room and checked in with students. This gave me time to work more closely with individual students on problem areas for specific standards.

Timeline	Assessment	Beginning Steps	Nearing Proficient	Proficient
Beginning of unit	Pretest	100%	0%	0%
End of unit	Posttest	39%	6%	55%
After reteaching at the end of the unit	Retesting after reteaching	0%	6%	94%

# Next, students took their end-

of-unit assessment. I reviewed the assessment with the students the very next day. I've found it is more meaningful and validating for students when we review the assessment soon after they take it. This is also an important time to reteach with students who did not meet proficiency when students are still connected to the concept rather than waiting for a few weeks.

As a class we looked at our growth from the pretest to the posttest. Above is a table showing the students' growth over the course of this unit.

When I looked closely at the students' posttests, reteaching needed to occur for 45% of the students on specific standards they were still struggling with at the end of the unit. It can feel overwhelming to see 45% of the students needed some type of reteaching. But close analysis on why students missed certain problems and concepts, or what academic behaviors helped or hindered their progress, informs me and the student on what changes need to be made. This type of reflection between me and my students is highly informative and leads to changes that strengthen the student's understanding of appropriate, productive student behaviors and strategies that support them in their proficiency. It also gives me insights to the best ways to support my students.

Following the discussion on how the class did on the test, I ran several guided mathematics groups with the nearing proficient and beginning steps students. We worked on the standards that they had missed. After several sessions, the students were again tested on the standards they missed and this moved the class to 94% proficient and 6% nearing proficient.

As part of the closure and goal setting of the previous unit, we began our PDSA for this unit (Plan-Do-Study-Act). Our plan had been for all students to be proficient with a score of 3 or 4 on the end of unit assessment. The "do" came from the students. They determined that I should make sure to give examples of problems, explain the information many times, answer questions, and show different ways to solve the mathematics. They decided that their "do" as students would be to ask questions, work with their teams, pay attention, do their classwork and homework, and stay focused. During the closure and goal setting lesson for this unit we went back to and finished our unit-long PDSA.

As a class we looked at our end-of-unit assessment results, including the results after the reteaching. Our "study" had been that all but one student was proficient. We then reflected on the unit; this was our "act" or what we had actually done during the unit. The students' reread what they had put under the "do" at the beginning of the unit. Students felt that overall they had asked questions, worked with their teams, and done their work. They felt that I had given example problems, explained information in multiple ways, and answered their questions. They felt strongly that the guided math groups really supported the students who still had trouble at the end of the unit and wanted to make sure that was recorded in the "act" section as well.



Students complete the "study" and "act" parts of the PDSA at the end of the unit.

Students then completed an individual PDSA. As with the class PDSA, the "plan" and "do" had been done as part of the Closure and Goal Setting with the last unit. It is a cycle that is completed from one unit to the next. While students were working on their personal PDSAs, I floated and talked with different students. Then students talked with their team and selected a strategy to share out to the whole class that has helped them improve. Some of the things that students shared were: "I am doing better because I asked questions right when I was stuck and didn't wait." "Making sure I was able to use the protractor was important." "Practicing with my team helped, but I had to make sure I could do it on my own too."

I wrapped up the closure time by going back to the story "Sir Cumference and the Great Knight of Angle Land" which had been used during Focus and Motivation. The kids made many connections to what they had learned during the unit. They loved how the medallion in the story looked just like a protractor and were quick to add this time the information on degrees before I could read it. We had one more question on their inquiry chart that hadn't been processed, which was, "What do I need to know about lines, angles, and degrees?" We had a short discussion about the best way to respond to the question. The students decided that, from the standards and lessons, we should answer the question on the inquiry chart by writing, "We need to know what they were and how to measure them." We closed the unit by reviewing the literature and revisiting the inquiry chart. We then were ready to begin the next unit.

#### Key Instructional Principle Connection: Continuous Feedback

Going through a goal setting process that includes action planning, looking at data and reflecting on actions is well worth the time. This process develops important metacognitive skills for students. They see that their behaviors and choices help them succeed or impede their learning. There is a shared sense of community responsibility for the learning and progress that takes place in the classroom.

This process also includes the opportunity for students to give feedback to the teacher on instruction. As teachers, we do not pause often enough to directly ask students, "What am I doing that is helping you?" "What else could I do?" "Anything that I could change?" We make lots of adjustments to our instruction based on our own reflections and perceptions of what we think is working. Why not take a few minutes and get the "real scoop" from our students?

ok report (*) Sleep (*) F	nspire - Studio
Untitled* *	Page 1 of 1 Best Fit
Plan PD	DSA Do
All students to score proficient on the endofunit assessment.	D Answer Questions Help students Madel - Explain Problems Disten - Follow directions Show respect. Ask questions De homework. Helpeach other
Compendium - Guided Groups Essential Questions Paying Attention Asking Question Try In a - Building own Out	Pretest   Posttest All students   student 4 Scored a ONE   student 2





CCSS.Math.Content.4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

CCSS.Math.Content.4.MD.C.5a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. CCSS.Math.Content.4.MD.C.5b An angle that turns through n one-degree angles is said to have an angle measure of n

degrees.

CCSS.Math.Content.4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. CCSS.Math.Content.4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping

parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problem to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

CCSS.Math.Content.4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CCSS.Math.Content.4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triang triangles.

CCSS.M figure c

Geometry: Lines, Angles, and Degrees Unit 4 Planner—Excel<sup>®</sup> Worksheet

The standards and mathematical practices are cut and pasted in the unit planner so I have easy access to the specific language of the standards.

CCSS.Math.Content.4.G.A.3 Recognize a line of symmetry fo figure can be folded along the line into matching parts. Iden	Math Unit 4 Lines, Angles, & Degrees				
CCSS.Math.Practice.MP2 Reason abstractly and quantitative	Desire Dis-		1 Lesson Pretest, 1 Lesson F/M, 1 Lesson Compendium, 15 Lessons for content teaching, 1 Lesson Test, 1 Lesson Closure & Goal Setting		
CCSS.Math.Practice.MP3 Construct viable arguments and cri	Pacing Plan	Dec. 4-Jan. 17			
CCSS.Math.Practice.MP4 Model with mathematics. CCSS.Ma	Focus & Motivation				
The overall pacing plan is identified, and as I find resources for Focus and Motivation, I capture them here.	Literature	Strategy		Resource	
		Listen & Respond		Sir Cumference and the Great Knight of Angle Land, by Cindy Neuschwander, Wayne Geehan	
		Read Aloud		Sir Cumference and the Great Knight of Angle Land	
	Songs				
	Study Jams	Types of Lines	Classify Quadrilaterals	www.studyjams.scholastic.com	
	Animation: Video				
	Brain Pop	Angles	Parallel & Perpendicular Lines	www.brainpop.com	
	Study Jams	Line of Symmetry	Classify Quadrilaterals	www.studyjams.scholastic.com	
		Types of Lines	Classify Angles		
	Activity	Protractor Art		http://www.incredibleart.org/lessons/elem/linda-mandala.htm	
	Games	Angle Race		http://em-ccss.everydaymathonline.com/g_login.html	
		Triangle Shoot, Line Shoot, Symmetry Shape Shoot, Symmetry Lines Shape Shoot		http://www.sheppardsoftware.com/math.htm	

Compendium	See Unit 4 Line				
Lesson Sequence					
Go Math	Chapter 10 & 11		Dec. 20	11.1 Angles & Fractional parts of a Circle	Main Focus Ch. 10
Dec. 4	pretest		Jan. 6	11.2 Degrees	Two Dimensional Figures
Dec. 5	Focus & Motivation	& Motivation Jan. 7 11.3 Measure and Draw A		11.3 Measure and Draw Angles	Lines, Rays, & Angles
Dec. 6	Compendium		Jan. 8	Exit Slip	Quadrilaterals
Dec. 9	10.1 Lines, Rays, and Angles		Jan. 9	11.4 Join & Separate Angles	Symmetry
Dec. 10	10.2 Classify Triangles		Jan. 10	11.5 Unknown Angle Measures	
Dec. 11	10.3 Parallel Lines and Perpendicular Lines		Jan. 13	Flex Days	Main Focus Ch. 11
Dec. 12	10.4 Classify Quadrilaterals		Jan. 14		Classifying angles
Dec. 13	Exit Slip		Jan. 15	Practice Test	Degrees
Dec. 16	10.5 Line Symmetry		Jan. 16	Test	Measuring and Drawing Angles
Dec. 17	10.6 Find and Draw Lines of Symmetry		Jan. 17	Review: Closure & Goal Setting	
Dec. 18	10.7 Problem Solving-Shape Patterns				
Dec. 19	Exit Slip				

The pacing for individual days in the unit is mapped out, incorporating Focus and Motivation, the Compendium, the Go-Math Lessons, formative and summative assessments, etc.