

Annotated Lesson: Math Example

Adapted with permission from the Colorado Department of Education

Grade: CCSSM.5.G.1

Now we'll look at how a math teacher planned to gather evidence of student understanding during a lesson about the coordinate grid. The example has been annotated with the four main ideas of this module.

*Gather Evidence Aligned
to Learning Goals and
Success Criteria*

First, the teacher establishes Learning Goals and Success Criteria to help students move toward accomplishing the standard, "Graph points on the coordinate plane to solve real world and mathematical problems (CCSSM.5.G.1)." Learning Goals and Success Criteria are necessary prerequisites to designing or selecting appropriately aligned evidence-gathering **opportunities**.

Now we'll look at how a math teacher planned to gather evidence of student understanding during a lesson about the coordinate grid. The example has been annotated with the four main ideas of this module.

Learning Goals

LG1: Understand the structure of a coordinate grid

LG2: Relate the procedure of plotting points in quadrants to the structure of a coordinate grid

Success Criteria

SC1: I can talk and write about plotting points on a coordinate grid using correct vocabulary

SC2: I can plot and label points in each quadrant on a coordinate grid

SC3: I can create a rule about coordinates for each quadrant

*Plan and Strategically
Position Evidence-
Gathering Opportunities*

Next, the teacher thinks about how she will gather evidence of student learning throughout the **lesson**, relative to the Success Criteria, which are indicated in parentheses.

Start of Lesson	
STRATEGY	ELABORATION
<p>Vocabulary “whip around” to elicit prior knowledge and see how students understand the concept (SC1)</p> <ul style="list-style-type: none"> Opening Question: What comes to mind when you think of coordinate graphing? Look For: Targeted vocabulary use: origin, x-axis, y-axis, coordinates, quadrant 	<p>At the start of the lesson, the teacher plans to use a “whip around” vocabulary check. She will prompt students with the question, “What comes to mind when you think of coordinate graphing?” She will be listening and observing student responses for targeted vocabulary, which is the first Success Criterion.</p>

Think of “Evidence” Broadly

Capture a Range of Student Responses

Middle of Lesson	
STRATEGY	ELABORATION
<p>Walk coordinates to label each location on large graph (SC2) and describe the process verbally (SC1)(SC1)</p> <p>Plot and label points in four quadrants to individually design a fictional town, “Robertsville” (SC1, SC2)</p>	<p>In the middle of the lesson, the teacher plans to have students walk to various locations in the room based on coordinates, and label those coordinates. She will ask students to describe their thinking as they move to various locations, checking for appropriate vocabulary usage in the think-aloud. Additionally, she will ask students to individually plot and label points in the four quadrants, based on the imaginary town of Robertsville.</p>

Think of “Evidence” Broadly
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End of Lesson	
STRATEGY	ELABORATION
<p>Generalize quadrant locations for set of coordinates verbally and in writing, in cooperative groups (SC3)</p> <p>Chart created rules for each quadrant and gallery walk (SC3)(SC3)</p>	<p>At the end of the lesson, the teacher plans to elicit evidence of students’ capacity to generalize quadrant locations for a set of coordinates. Students will do this verbally and through small groups as they complete a written task. Students will create charts of rules about coordinate graphing in their small groups and engage in a gallery walk.</p>

Think of “Evidence” Broadly
Capture a Range of Student Responses

After Lesson	
STRATEGY	ELABORATION
<p>Reflection self-assessment (SC1, SC2, SC3) (sample below)</p> <div style="border: 1px solid black; padding: 10px;"> <p>Think about your learning...</p> <p>Circle the number that you feel best matches your level of success with each item.</p> <p>I can talk and write about plotting points using correct vocabulary. Not at All 1 2 3 4 Absolutely 5</p> <p>I can plot points in all four quadrants. Not at All 1 2 3 4 Absolutely 5</p> <p>I can create a ruler for ordered pairs (x, y) for quadrants I, II, III, and IV. Not at All 1 2 3 4 Absolutely 5</p> <p>After this lesson, I feel like I need more time learning: <u>Graphing</u></p> </div>	<p>One final piece of evidence the teacher intends to collect at the end of the lesson is a self-assessment from each student. This strategy is designed to help students reflect on their learning as well as provide the teacher with insights about how students are thinking about their own learning. The students are asked to rate their learning in relation to the Success Criteria for the lesson and to say what they need more time learning. In the sample provided, the student wrote that he needs more time learning "Graphing."</p>

Think of "Evidence Broadly"

Plan and Strategically Position Evidence-Gathering Opportunities

Capture a Range of Student Responses

There is one more evidence-gathering component to this teacher's lesson planning: she plans the types of questions she will use at strategic points in the lesson. She designs open-ended questions that will make student thinking visible and also serve as a catalyst for deeper student thinking and reflection.

Planned Questions		
START OF LESSON	MIDDLE OF LESSON	END OF LESSON
<p>Are we in agreement with these definitions?</p> <p>How might we make the definitions more clear?</p> <p>Are any big ideas missing?</p>	<p>Where should you start?</p> <p>How would you label this point? How do you know?</p> <p>How do you know you've plotted this point correctly?</p>	<p>What are you noticing about all the coordinates in this quadrant?</p> <p>How might you develop a rule for all the coordinates in this quadrant?</p>

Planned Questions		
START OF LESSON	MIDDLE OF LESSON	END OF LESSON
How might some of these terms go together or be related?	Tell me your thinking.	How are the coordinates alike? Different? How can you organize the coordinates in Quadrant 1 so you can analyze them? (a list, chart, table...)