

Transcript – Geometry: Amplifying an Instructional Task

In this activity, we are going to amplify a typical Geometry task that reflects the revised TEKS. This process will amplify the task to one that connects multiple student expectations and our mathematical process standards.

We are looking at a task that addresses student expectation G(11)(A), which asks students to apply the formula for the area of regular polygons to solve problems using appropriate units of measure.

The original task is included in your journal, titled *Amplifying an Instructional Task Geometry Example*. Take some time to consider how a student would complete the task. Ask yourself, “How does this task address the student expectation?” Would you consider this a simple task or one that integrates multiple process standards and student expectations?

Transcript – What to Consider When Amplifying an Instructional Task

What should we consider as we amplify an instructional task? There are several approaches that could be used to amplify the task. We might consider whether there are other student expectations in the same strand or across other strands that relate to the topic. Another option is to look at the mathematical process standards for connections to the given student expectation. Is there a real-world context that fits the mathematics? In addition, we may want to ask how the task would change if the context changes. We would also want to consider our students’ needs.

How could meaningful collaboration or support affect successful completion of the task?

The answers to these questions give many different options and ideas for amplifying a task. The next page in your journal has a template to help you think about how you might amplify the task you just completed.

Take a moment to review the Geometry example.

Transcript – Amplifying an Instructional Task Template

The idea behind this template is not to create another form for teachers to fill out, but to have a process or a set of guiding questions in place to amplify the tasks they are already using. The top section of the template has questions regarding the task you have chosen. The bottom section of this template is completed for the task we are looking at today. Take a few moments to read through the template. What do you notice?

The goal behind this first column is to analyze the task that we have. Our task is straight forward and represents a typical starting point in many instructional materials. We begin amplifying the original task by identifying the process and content standards presented in the original task.

As we amplify our tasks, we look to the strand or strands of the student expectations for the original task and other revised student expectations to identify additional related mathematical ideas.

What process standards complement the identified content standards?

The next column looks at the context of the problem. If the task we are starting with is already situated within a real-world context, what else could we explore, or what could be an extension? If the original task is not within a context, what contexts will allow us to explore the mathematical idea? We can also look at the mathematical context. What other representations could be used to present the problem? Answering these questions will provide opportunities to enrich the original task.

The final column examines considerations related to student needs. When providing a task, how could we provide entry points for the task to meet the needs of a struggling student? What about the needs of an English language learner? What about an advanced student? Would these options meet the needs of an advanced mathematics student who is struggling with English?

The *Amplifying an Instructional Task Example* provides a sample of how the original task could be amplified using our brainstorming template. Take a moment to work through the four examples provided in the journal. What do you notice as you work the examples? You may want to refer back to the template as you work the tasks and jot down notes as needed. Identify as many of the considerations made as possible.

Transcript – Examining Amplified Tasks

Now that you have had the opportunity to complete the four amplified tasks, let's look at some of the pieces you may have noticed. The original task was already in context; however, the starting points for this task are different. When looking at Option A out of context, students are only given the side length of a regular hexagon. This will require additional content standards to be integrated into the knowledge and skills required to complete this problem. Students need the understanding of special right triangles or right triangle trigonometry in order to determine the apothem of this figure; whereas in the original task, it was given to them. In option B, students are now being asked to consider a composite figure, as well as a special right triangle.

Task B has been identified as a scaffolded task. How so? This task is still amplified from its original form, and differentiation of the task has been added for struggling learners. Although the information given is the same information as given in the amplified task, students are provided the formula for the area of a regular polygon, allowing them the ability to identify what information they will need to calculate the area of the stage. They are also given the formula for the special right triangle being used in both options. The depth and complexity of the question have not been compromised with this differentiation. It allows accessibility to the content for struggling learners by providing needed formulas in a convenient location.

In Task C, which is also labeled as a scaffolded task, we see that several sentence starters have been provided to the students. The sentence starters allow students to focus their thinking on what the question is actually asking. Again, we see that the depth and complexity of this task are not compromised. This addition makes the task accessible for English language learners, as well as other students who struggle with verbal and written communication. It also provides the opportunity for students to engage with precise mathematical language.

When considering the students as we amplify tasks, we must not forget the advanced students. Task D exemplifies an enriched task that asks students to go beyond the knowledge and skills necessary to complete the amplified task. The questions explore different pricing for materials, as well as how changing the amount of material could affect the dimensions of the stage being built.

These activities are some examples of amplifying Geometry tasks. You will have the opportunity to amplify a given task using this process in a later module.