



Bit by bit. Putting it together. Composite area activity and coherent standards.

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National Council of Teachers of Mathematics
Annual Meeting
San Antonio, Texas
April 7, 2017



Session Outline:

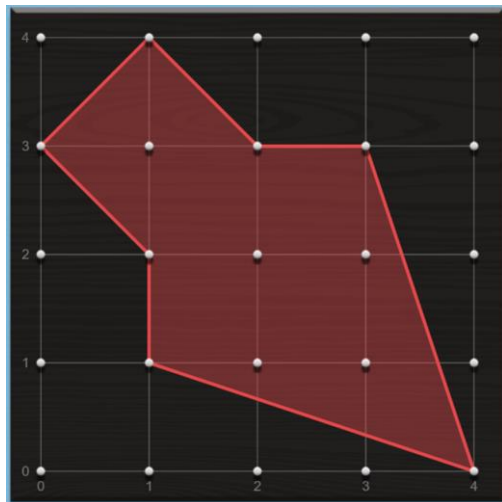
- 1) Connect students/participants with task.
- 2) Connect tasks to standards.
- 3) Unpack the standard/COHERENCY.
- 4) Focus on associated mathematical practices.
- 5) Discuss rigor and cognitive demand.



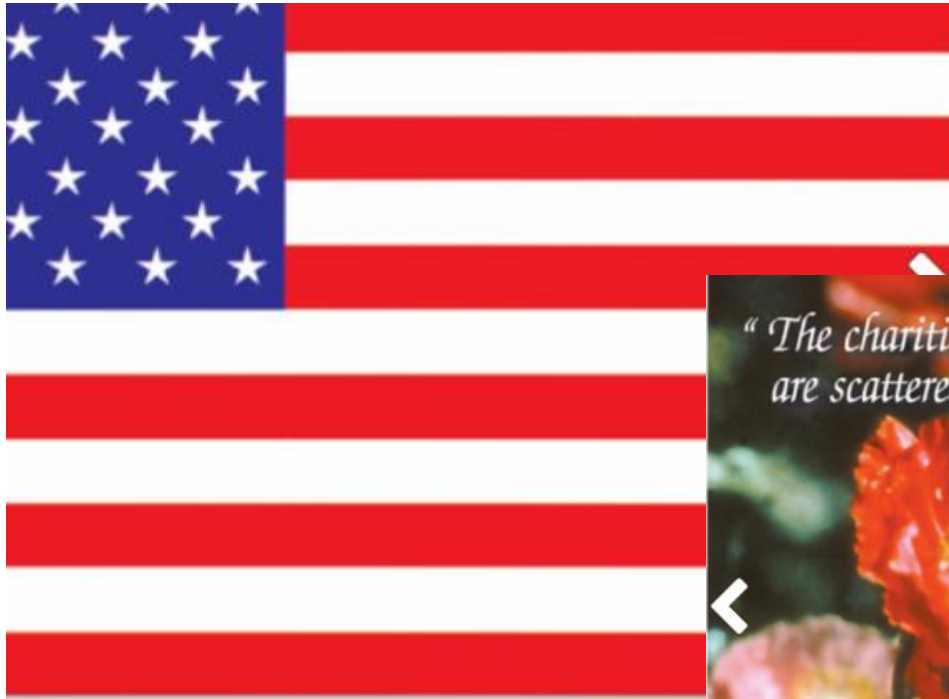
Session Outline:

- I. Connect students/participants with task.





Flower Seeds



Cost of Seed

Common Name	American Flag Full Size Seed Packet
Packet Size	Full Size Packet
Ships As	Seed
Plant Type / Life Cycle	Annual
Coverage	1 packet covers 10 square feet

\$0.75 per 3 1/4" x 4 1/2" packet

Qty:

5

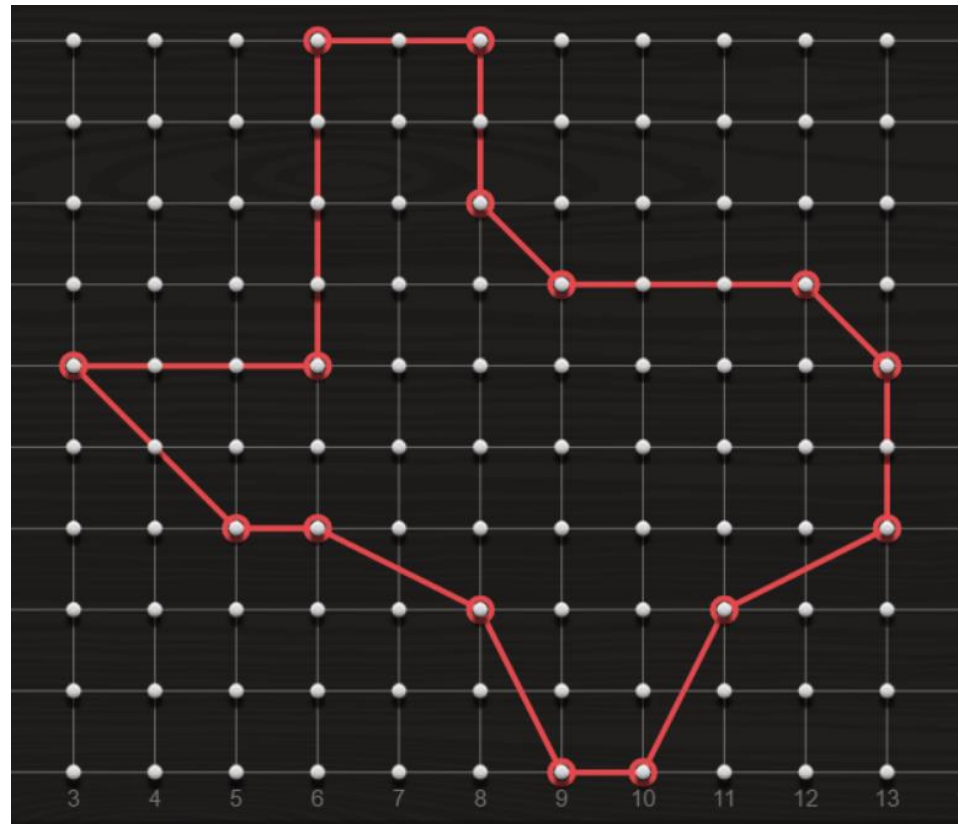


ADD TO CART

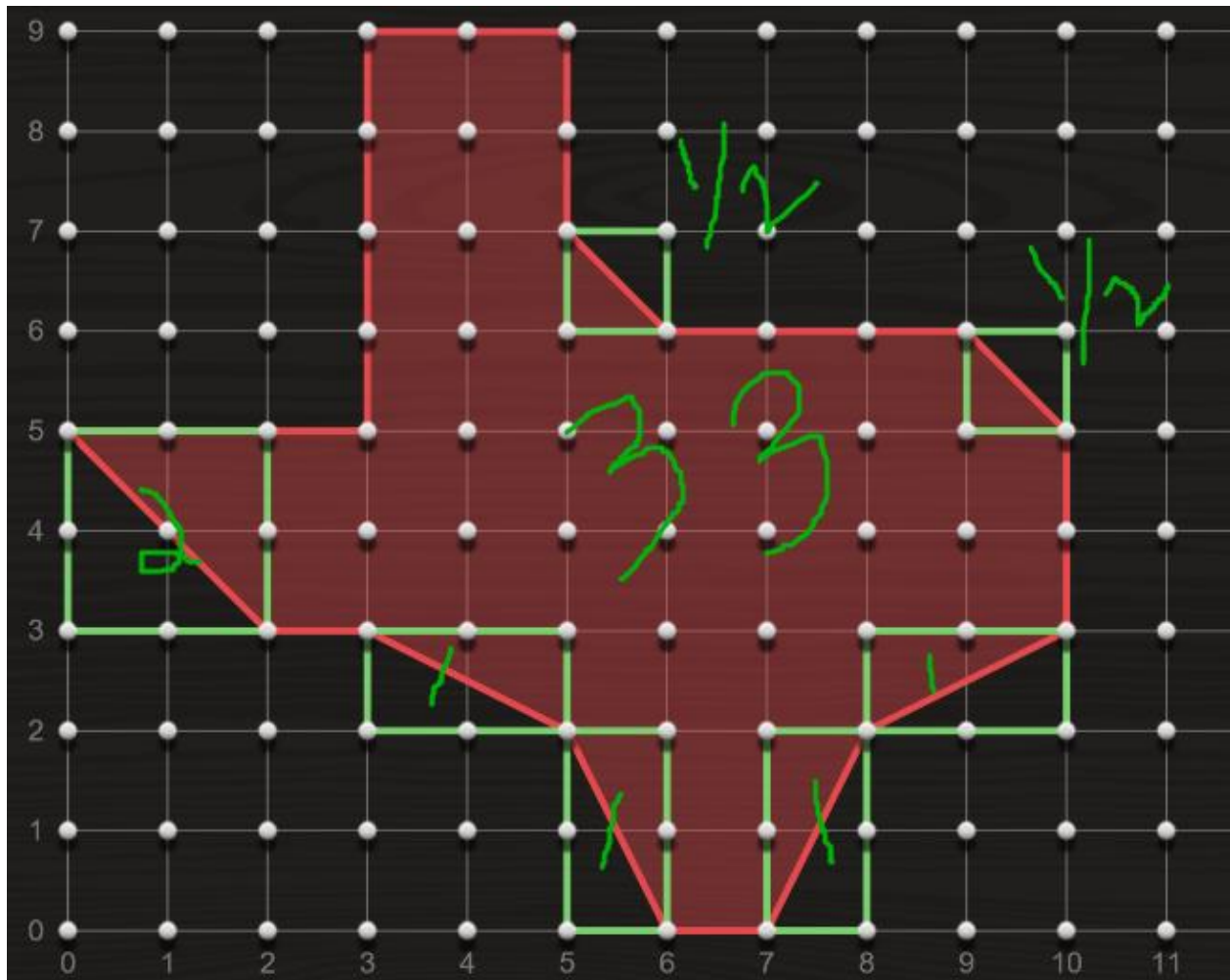
Texas outline – Contest?!?!?



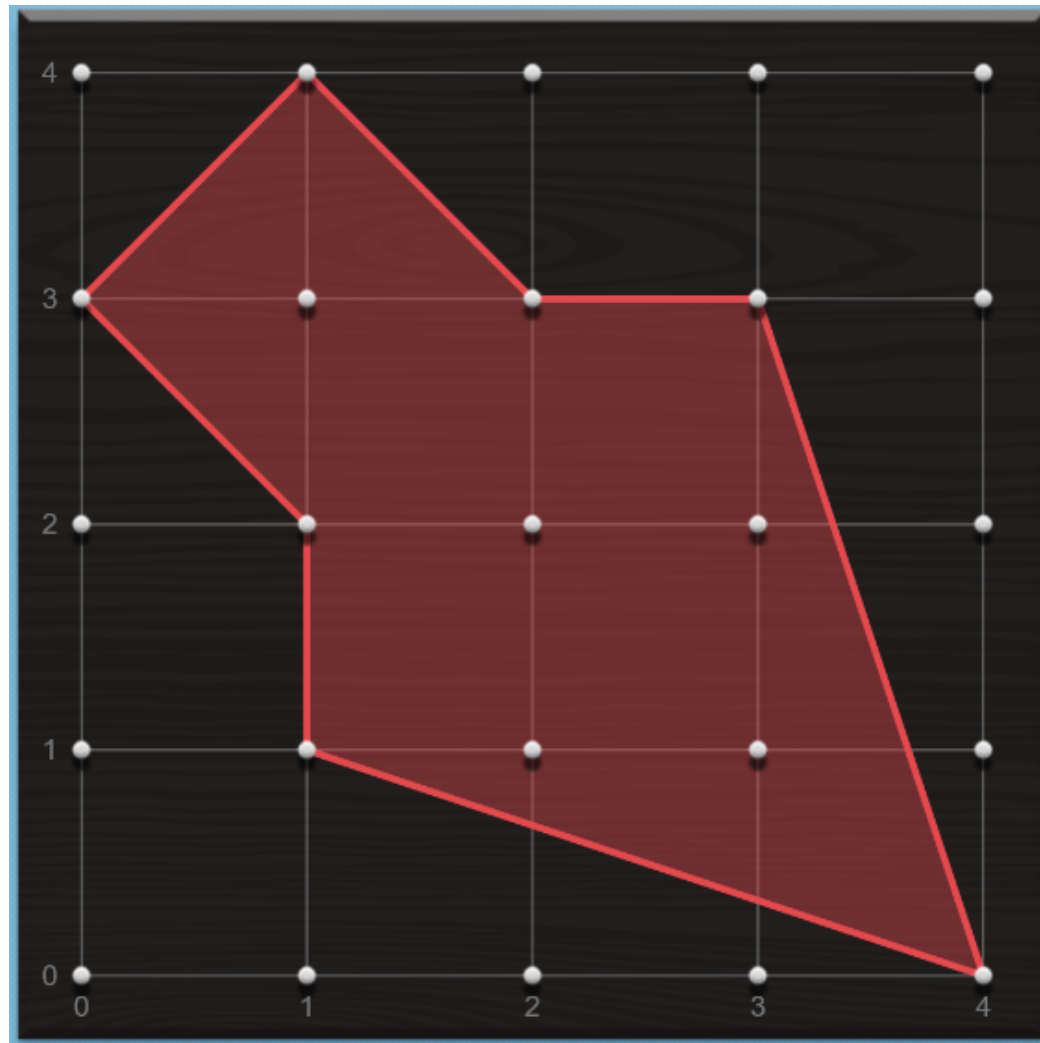
Mine is the best!



A solution: 40 units^2



Arrow Outline



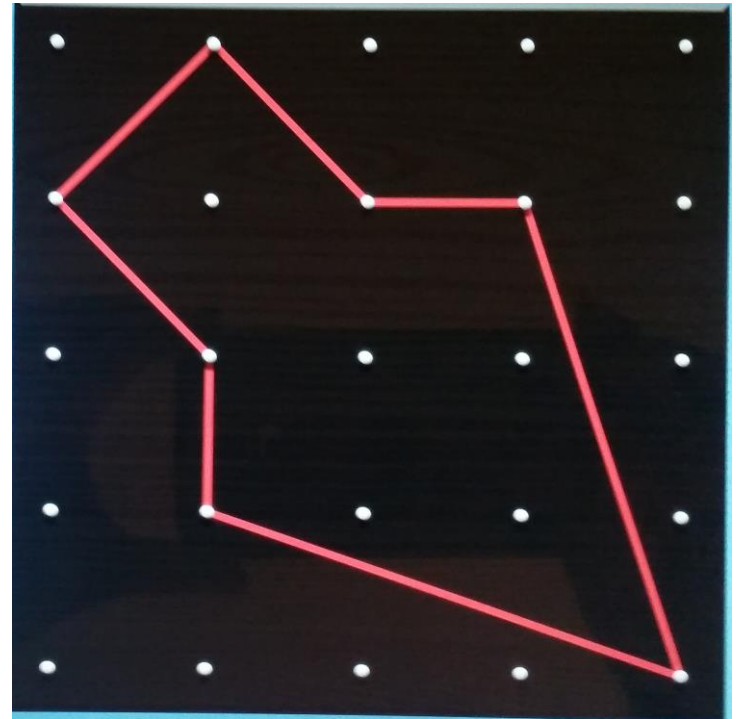


Session Outline:

- 1) Connect students/participants with task.
- 2) Connect tasks to standards.

Connect tasks to standards

What are the standards associated with this task?



What is the learning goal?

SEARCH THE STANDARDS



CCSS.MATH.CONTENT.6.GA.1

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.



Session Outline:

- 1) Connect students/participants with task.
- 2) Connect tasks to standards.
- 3) **Unpack the standard/COHERENCY.**

Unpack the Standard

- What is the essence of the standard?

What is the essence of the standard?

CCSS.MATH.CONTENT.6.GA.1

Find the **area** of right triangles, other triangles, special quadrilaterals, and polygons by **composing** into rectangles or **decomposing** into triangles and other shapes; apply these techniques in the context of solving **real-world** and mathematical problems.



Unpack the Standard

- What is the essence of the standard?
- Examine the progression/prerequisites of standards related to tasks.

Examining the Progression

Pre-requisites

Grade 3.MD.C. Understand concepts of area and relate area to multiplication and addition.

Grade 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Grade 5.G.B Classify two-dimensional figures into categories based on their properties

Unpack the Standard

- What is the essence of the standard?
- Examine the progression/prerequisites of standards related to tasks.
- **Determine future associated required knowledge for next grade level/transition.**

Determining future associated knowledge

Grade 7 :

CCSS.Math.Content.7.G.B.6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

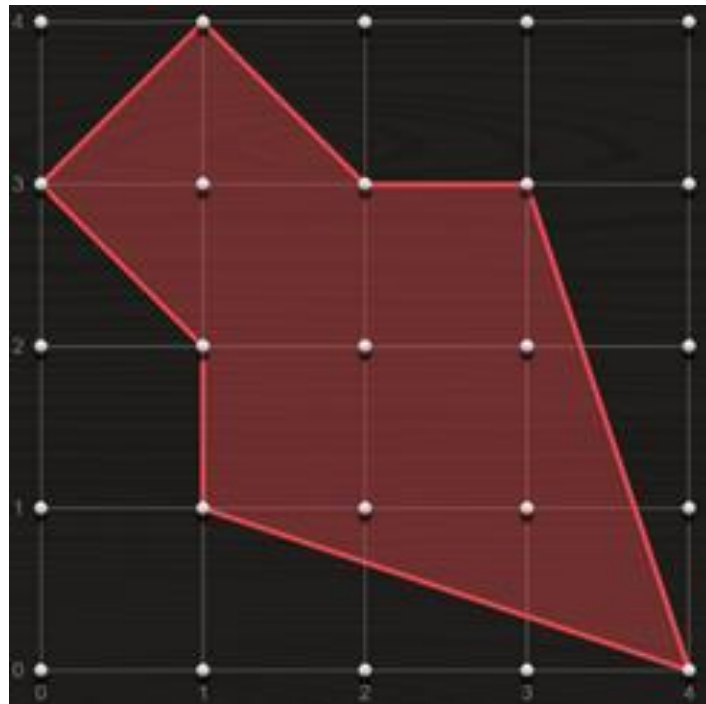


Unpack the Standard

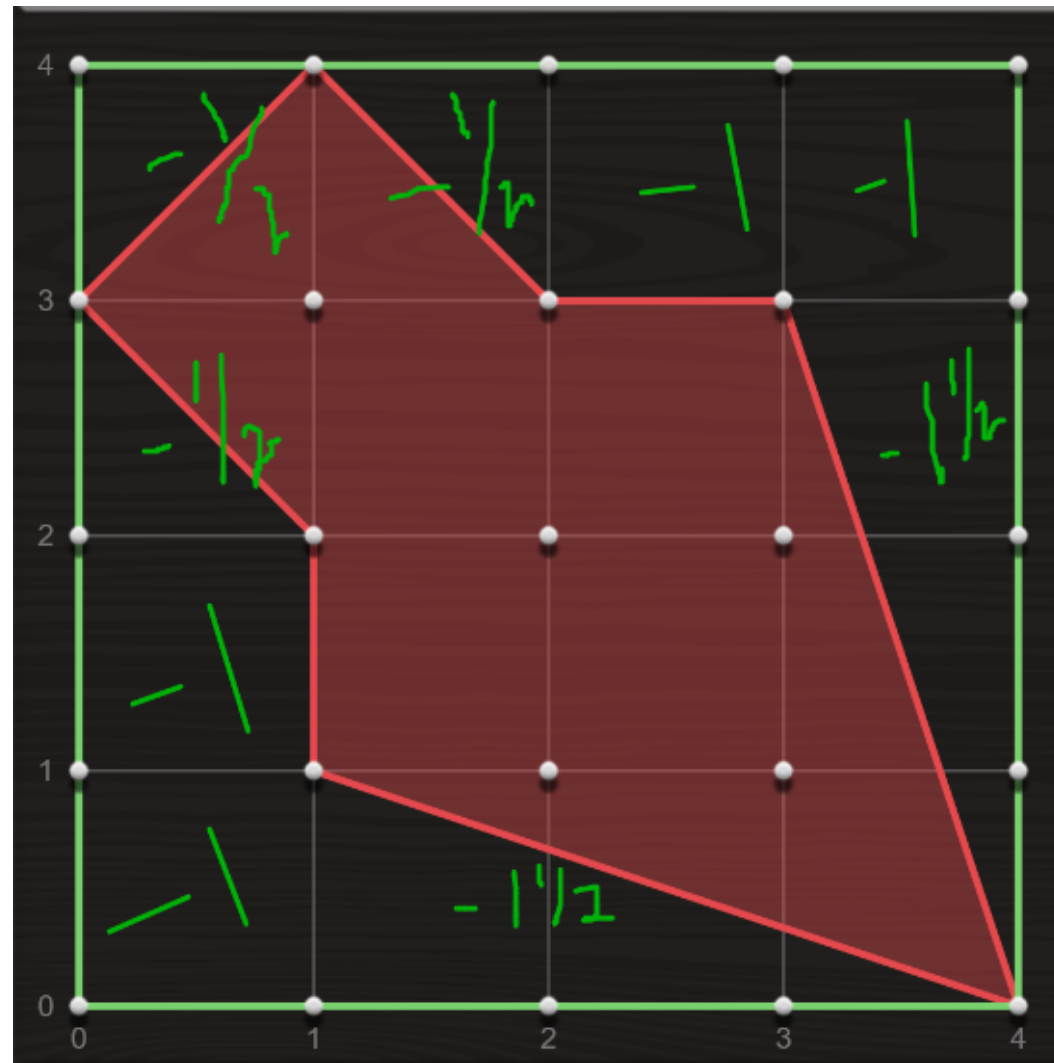
- What is the essence of the standard?
- Examine the progression/prerequisites of standards related to tasks.
- Determine future associated required knowledge for next grade level/transition.
- **Anticipate possible strategies.**

What were your solutions?

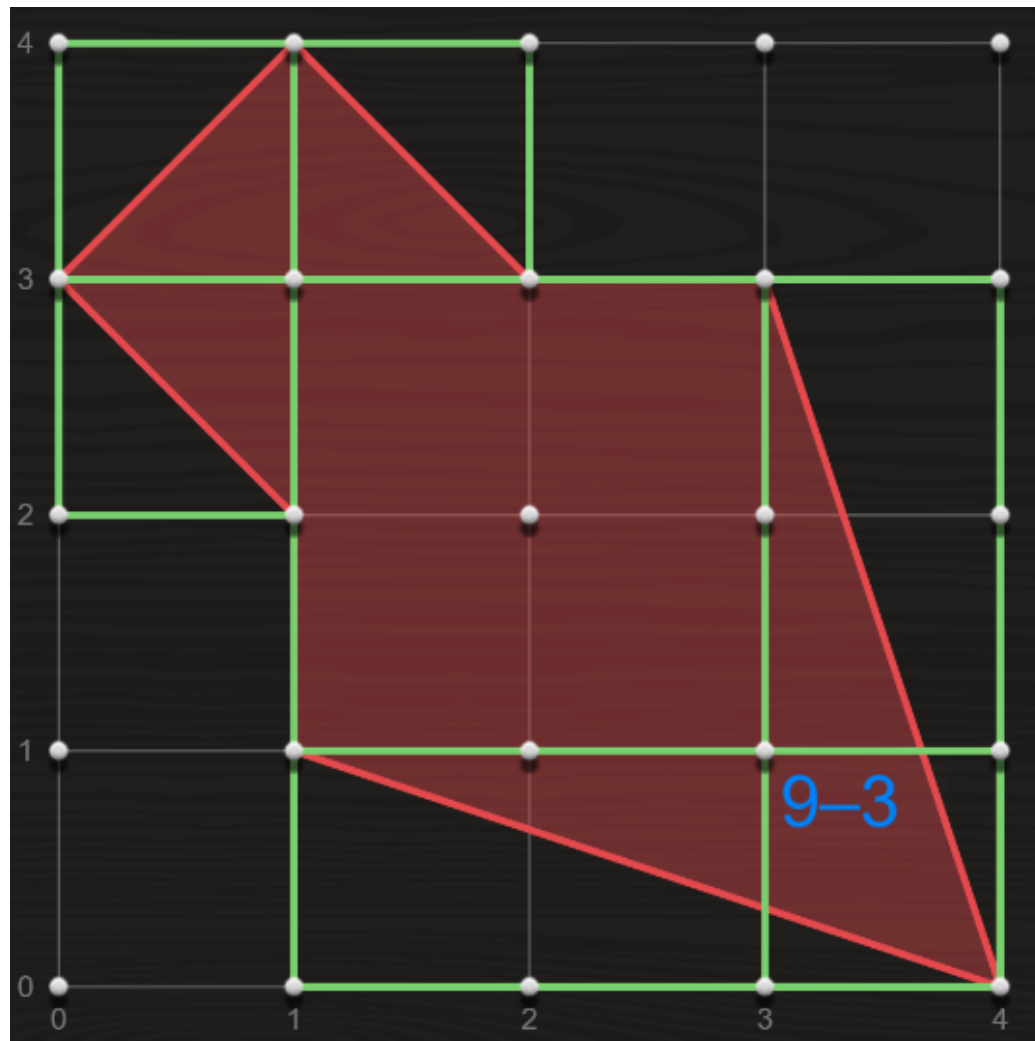
- Share with a neighbor



A Solution



A Solution

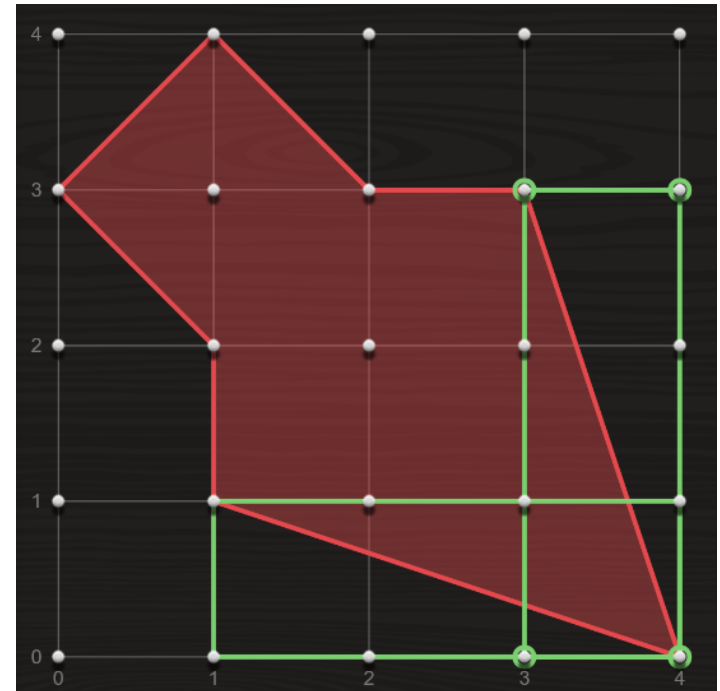
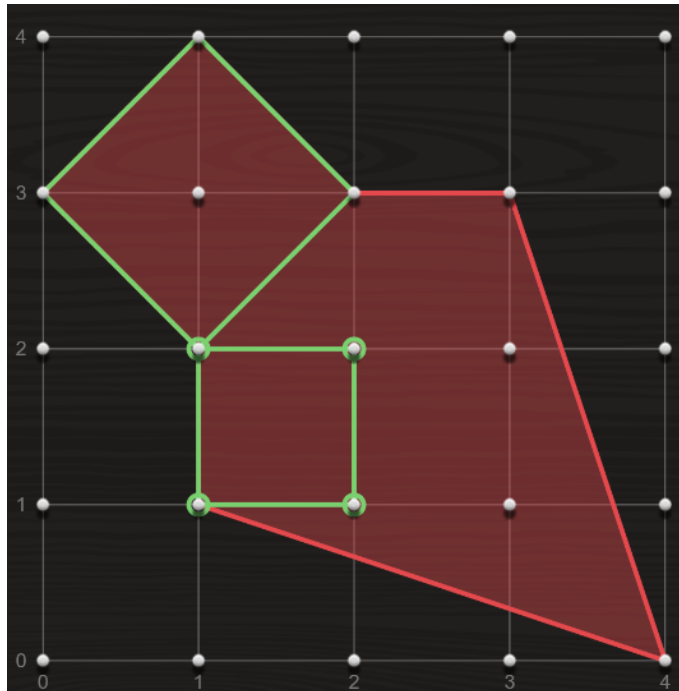




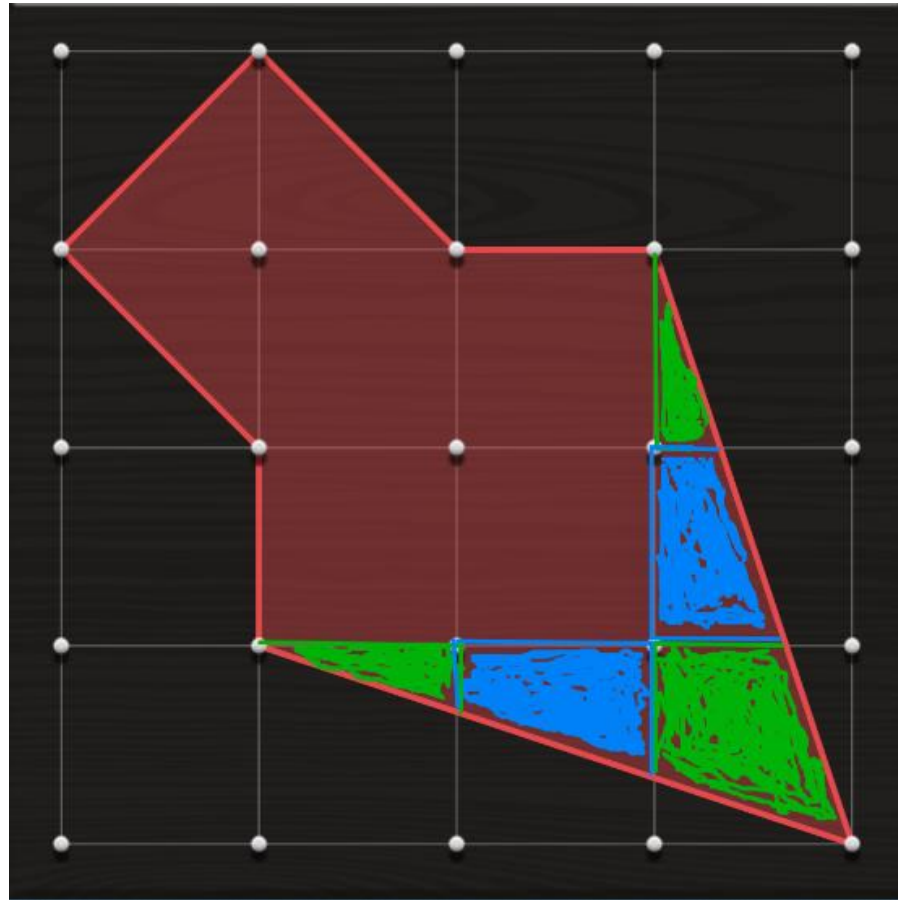
Unpack the Standard

- What is the essence of the standard?
- Examine the progression/prerequisites of standards related to tasks.
- Determine future associated required knowledge for next grade level/transition.
- Anticipate possible strategies.
- **Anticipate common misconceptions.**

Anticipate Common Errors

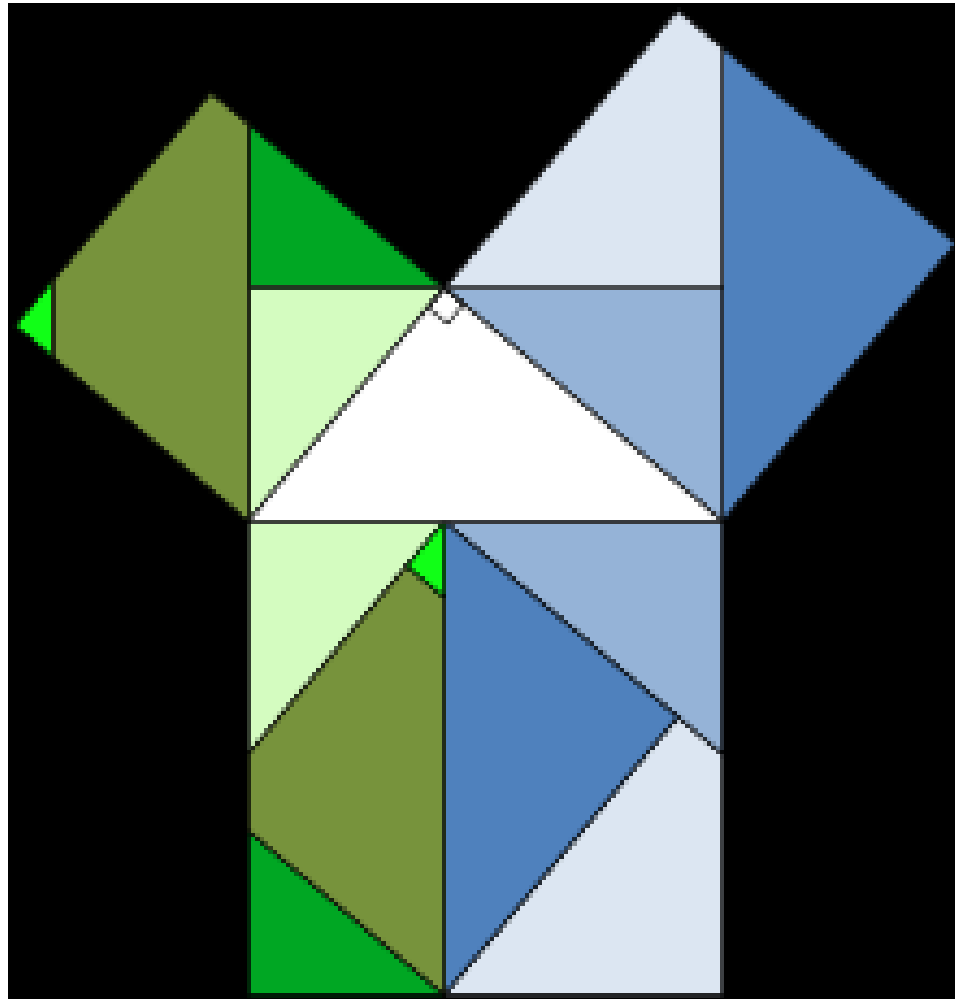


Error or Not?



Is this enough?

Proof of the Pythagorean Thm?



Finish the Problem



Common Name

American Flag Full Size Seed Packet

Packet Size

Full Size Packet

Ships As

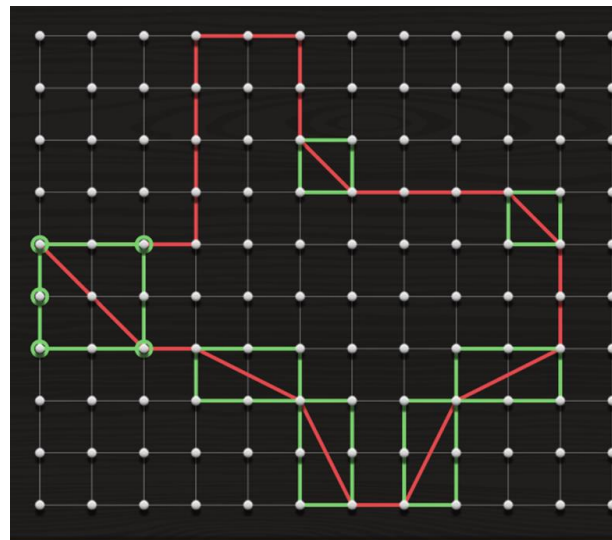
Seed

Plant Type / Life Cycle

Annual

Coverage

1 packet covers 10 square feet





Session Outline:

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- 3) **Unpack the standard/COHERENCY.**
- 4) **Focus on associated mathematical practices.**



With which Mathematical Practices are students engaged?

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



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- 5) **Discuss rigor and cognitive demand.**

Rigor & Cognitive Demand

- Conceptual Understanding
- Procedural Skills & Fluency
- Application

Revisit Session Outline

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 - Anticipate possible strategies.
 - Anticipate common misconceptions.
4. Focus on associated mathematical practices.
5. Discuss rigor and cognitive demand.

Thank You!

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