Mathematics Claim #1
CONCEPTS AND PROCEDURES

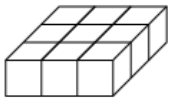
Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.

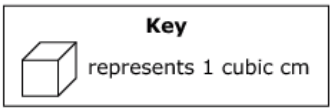
Claim 1 Grade 5 Target I

RANGE Achievement Level Descriptors (Range ALD) Target I: Geometric measurement: understand concepts of volume and relate volume to multiplication and addition.	**Level 1** Students should be able to use unit cubes to find the volume of rectangular prisms with whole-number edge lengths.
	Level 2 Students should be able to understand the concept that the volume of a rectangular prism packed with unit cubes is related to the edge lengths.
	Level 3 Students should be able to use the formulas $V = l \times w \times h$ and $V = b \times h$ to find the volume of rectangular prisms. They should be able to find the volume of two non-overlapping right rectangular prisms.
	Level 4 Students should be able to find the volume of a right rectangular prism after doubling the edge length of a side and compare it to the original.

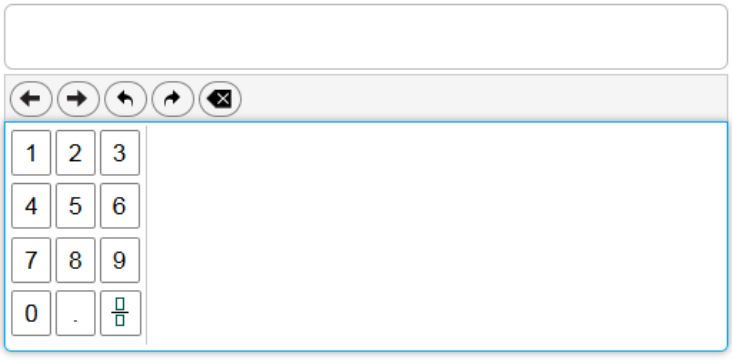
78834

Ethan is building a rectangular prism. The bottom layer of the rectangular prism is shown.





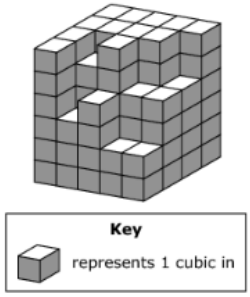
He builds a prism that has 6 layers. Enter the volume, in cubic centimeters, of the **completed** rectangular prism.



Grade	Claim	Domain	Target	DOK	Content	MP	Key	Range ALD
5	1	MD	I	2	5.MD.4	1	54	Level 1

78976

Jason stacks cubes to create a solid rectangular prism. The completed prism is 6 inches high, 5 inches wide, and 4 inches long.



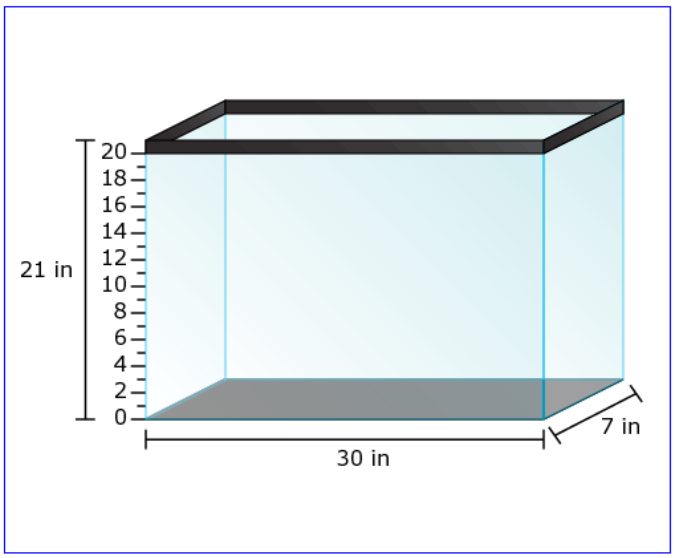
Enter the volume, in cubic inches, of the **completed** rectangular prism.

Grade	Claim	Domain	Target	DOK	Content	MP	Key	Range ALD
5	1	MD	I	2	5.MD.4	2, 6	120	2

105447

Walter puts 1050 cubic inches of dirt into the tank shown.

Click the number line to show the height of the dirt in the tank.



Grade	Claim	Domain	Target	DOK	Content	MP	Key	Range ALD
5	1	MD	I	2	5.MD.C.5	1, 2	5 in	Level 3

91018

The dimensions of a right rectangular prism are:

- length = 12 inches
- width = 6 inches
- height = 4 inches

What will happen to the volume of the right rectangular prism if the height is doubled?

Ⓐ The new volume will be half the original volume.

Ⓑ The new volume will be twice the original volume.

Ⓒ The new volume will be 4 times the original volume.

Ⓓ The new volume will be 8 times the original volume.

Grade	Claim	Domain	Target	DOK	Content	MP	Key	Range ALD
5	1	MD	I	2	5.MD.5	2, 7	B	Level 4

Mathematics Claim #2
PROBLEM SOLVING

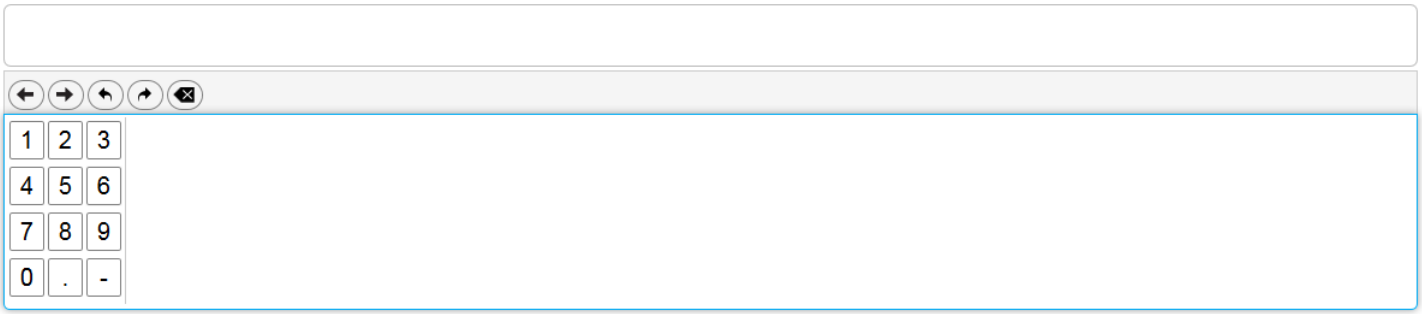
Students can solve a range of complex well-posed problems in pure and applied mathematics, make productive use of knowledge and problem solving strategies.

Range ALDs – Claim 2 Grades 6 - 8	**Level 1** Students should be able to identify important quantities in the context of a familiar situation and translate words to equations or other mathematical formulation. When given the correct math tool(s), students should be able to apply the tool(s) to problems with a high degree of scaffolding.
	Level 2 Students should be able to identify important quantities in the context of an unfamiliar situation and to select tools to solve a familiar and moderately scaffolded problem or to solve a less familiar or a nonscaffolded problem with partial accuracy. Students should be able to provide solutions to familiar problems using an appropriate format (e.g., correct units, etc.). They should be able to interpret information and results in the context of a familiar situation.
	Level 3 Students should be able to map, display, and identify relationships, use appropriate tools strategically, and apply mathematics accurately in everyday life, society, and the workplace. They should be able to interpret information and results in the context of an unfamiliar situation.
	Level 4 Students should be able to analyze and interpret the context of an unfamiliar situation for problems of increasing complexity and solve problems with optimal solutions.

12091

At the school football game, a customer bought 4 hot dogs and 3 hamburgers for a total of $13.50. Another customer bought 2 hot dogs and 5 hamburgers for $15.50.

Enter the price, in dollars, of a hamburger.



Grade	Claim	Domain	Target	DOK	Content	MP	Key
8	2	EE	A	3	8.EE.C	2	2.50

Claim #3

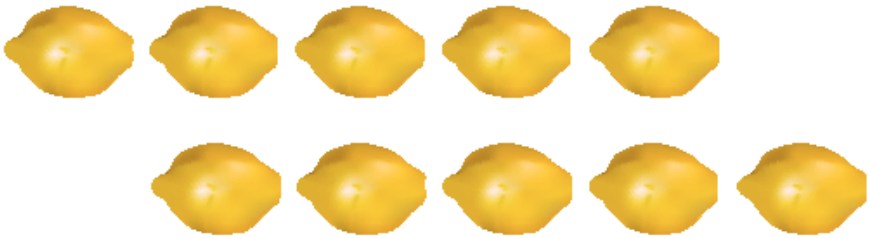
COMMUNICATING REASONING

Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.

Range ALDs – Claim 3 Grades 3-5	**Level 1** Students should be able to base arguments on concrete referents such as objects, drawings, diagrams, and actions and identify obvious flawed arguments in familiar contexts.
	Level 2 Students should be able to find and identify the flaw in an argument by using examples or particular cases. Students should be able to break a familiar argument given in a highly scaffolded situation into cases to determine when the argument does or does not hold.
	Level 3 Students should be able to use stated assumptions, definitions, and previously established results and examples to test and support their reasoning or to identify, explain, and repair the flaw in an argument. Students should be able to break an argument into cases to determine when the argument does or does not hold.
	Level 4 Students should be able to use stated assumptions, definitions, and previously established results to support their reasoning or repair and explain the flaw in an argument. They should be able to construct a chain of logic to justify or refute a proposition or conjecture and to determine the conditions under which an argument does or does not apply.

26990

Liam is making lemonade. He needs 16 ounces of lemon juice. He has 10 lemons.



Each lemon makes about $1\frac{1}{2}$ ounces of lemon juice.

Will he have enough lemon juice? Explain how you know.

No because every two lemoens is three ounces 3 times 5=15 and thats one ounce short.

Grade	Claim	Domain	Target	DOK	Content	MP	Key
4	3	NF	B	3	4.NF.A, 4.NF.B.4	1	2 pt. CR

Item-Specific Rubric for Grade 4 Item 26990

2-points*

Student determines that Liam does not have enough lemon juice, supported by the total amount of lemon juice in the ten lemons (15 ounces).

OR

Student determines that Liam has close to the amount of lemon juice that he needs and supports this by describing that the total approximate amount of lemon juice (15 ounces) is close to the total needed (16 ounces).

1-point*

Student correctly determines the number of ounces for 10 lemons (15 ounces), but provides an incorrect decision or no decision regarding whether this is enough or includes extraneous incorrect or uninterpretable information that draws into question the student's ability to clearly articulate the basis for his or her decision.

OR

Student performs an incorrect computation using a correct process (e.g., shows multiplication 10 x 1 ½ with incorrect total), and reaches a correct conclusion based on the result of the computation.

0-points

Student provides a conclusion (enough juice or not enough juice; yes or no), but without any explanation or work that supports the conclusion. OR Student's response lacks necessary evidence of the student's ability to justify a decision with mathematical reasoning.

***Scoring Note**

The response provides work or an explanation that shows some understanding of the relationship between 1 ½ ounces of juice per lemon to the amount of juice needed (16 ounces).

Note: No calculators are used for mathematics items in Grades 3–5.

Mathematics Claim #4

MODELING AND DATA ANALYSIS

Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.

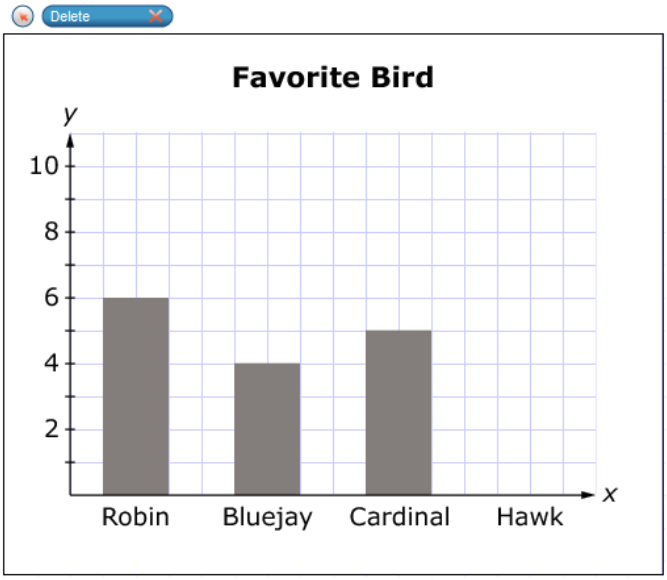
Range ALDs – Claim 4 Grades 3-5	**Level 1** Students should be able to identify important quantities in the context of a familiar situation and translate words to equations or other mathematical formulation. When given the correct math tool(s), students should be able to apply the tool(s) to problems with a high degree of scaffolding.
	Level 2 Students should be able to identify important quantities in the context of an unfamiliar situation and to select tools to solve a familiar and moderately scaffolded problem or to solve a less familiar or a non-scaffolded problem with partial accuracy. Students should be able to provide solutions to familiar problems using an appropriate format (e.g., correct units, etc.). They should be able to interpret information and results in the context of a familiar situation.
	Level 3 Students should be able to apply mathematics to solve unfamiliar problems arising in everyday life, society, and the workplace by identifying important quantities and mapping, displaying, explaining, or applying their relationship and by locating missing information from relevant external resources. They should be able to construct chains of reasoning to justify a model used, produce justification of interpretations, state logical assumptions, and compare and contrast multiple plausible solutions.
	Level 4 Students should be able to apply mathematics to solve unfamiliar problems by constructing chains of reasoning to analyze a model, producing and analyzing justification of interpretations, stating logical assumptions, and constructing and comparing/contrasting multiple plausible solutions and approaches.

18479

Mr. Lowe asked his students to vote for their favorite bird. A total of 22 students voted.

Bird	Votes
Robin	6
Bluejay	4
Cardinal	5
Hawk	

Click above Hawk on the graph to show the number of students who chose it as their favorite bird.



Grade	Claim	Domain	Target	DOK	Content	MP	Key
3	4	MD	D	2	3.MD.B.3	4, 5, 6	7