CONSTRUCTING Viable ARGUMENTS AND CRITIQIUNG THE REASONING OF OTHERS: Strategies THAT MAKE A DIFFERENCE

PRESENTER INFORMATION

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Classroom Videos
Future Training Information
Compendium Bank
Chant Bank
Planning Tools
Publications

References


- Common Core State Standards for Mathematics.  
  http://www.corestandards.org/Math/


clarity or improve the arguments.

arguments of others, decide whether they make sense, and ask useful questions to
arguments of others, decide whether they make sense, and ask useful questions to
domains to which an argument applies. Students at all grades can listen or read the
generalized or made formal until later grades. Later, students learn to determine
actions. Such arguments can make sense and be correct, even though they are not
counterarguments using concrete referents such as objects, drawings, diagrams, and
and—if there is a flaw in an argument—explain what it is. Elementary students can
plausible arguments, distinguish correct logic or reasoning from that which is flawed,
Mathematically proficient students are also able to compare the effectiveness of two
plausible arguments that take into account the context from which the data arose.
Mathematically proficient students respond to the arguments of others. They reason inductively about data, making
use counterexamples. They justify their conclusions, communicate them to others, and
they are able to analyze situations by breaking them into cases, and can recognize and
and build a logical progression of statements to explore the truth of their conjectures.
Mathematically proficient students understand and use stated assumptions, definitions,
I can analyze the reasoning of others.

I can make and present a logical argument and critique the reasoning of others.

Relating to contexts
- using examples and non-examples
- using objects, drawings, diagrams
- actions

Mathematical Practice 3
Construct viable arguments and critique the reasoning of others.
Constructing Viable Arguments...: A Glimpse into our Unit on Volume

**Conceptual Understanding**
- Concrete examples
- Visual representation
- Physical manipulatives
- Real-world connection

**Minecraft Task**

In order to place your Minecraft building into our 5th grade Minecraft Village, you must complete the following:

1. **Construct a building using "unit cube" blocks.** Your building must have more than one level.
2. **On an index card (3x5)**
   A. Sketch your building
   B. Label all 3 dimensions
   C. Write the units for each dimension (height, length, width)
   D. Provide a title of your building name
   E. State the total units cubed and total centimeters (cm) cubed

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Constructing Viable Arguments...: A Glimpse into our Unit on Volume

**Planned Peer Interaction**
- Small group work
- Partner work
- Teacher to student, student to student feedback
- Sentence frames to support student discussion and report out

**Oral and written sentence frames**

* I think the answer is ____ because...
* I disagree with ____ because ...
* I agree with ____ but want to add...

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Deepening Understanding
- Number Talks
- Formative assessment tasks
- Respond to arguments
- Critique self and others
- Sentence frames to support discussion and report out
- Teacher to student, student to student feedback

Lesson Sequence
1) Work with your team to complete the task.
2) Critique your team's work on the task and score your work on the rubric.
3) Exchange your team's work with another team. Critique their work and score their work on the rubric.
4) Be prepared to explain your critique for your team's scores and the critique for the other team's scores.

Discussion Starters
Agreeing
Our solution is similar to ________ solution. We think ________
We agree with ________ solution and want to add ________

Disagreeing
We don't agree with ________ solution because ________
We have a different solution from ________ because ________

Clarifying
We need ________ team to explain ________
What did ________ team mean by ________

Critique
Team earned proficient because ________
Team earned nearing proficient because ________
Team earned beginning steps because ________

See handout: Rectangular Prism Task and Team Scoring Rubric
Rectangular Prism Task
You will be working with your team to complete the following task. Upon completion of this task, your team will critique your work using the rubric and then will critique the work of another team using the rubric. Be prepared to construct an argument for the scores given. Prepare your final product on another piece of paper with the following:

In this right rectangular prism, each small cube measures 1 unit on each side.

1. What is the volume of the prism?

2. Explain how you found the volume. Show your work in your explanation.

3. What would be the dimensions of a new right rectangular prism that has 20 fewer unit cubes than the original prism?

4. Explain how you determined the dimensions of the new right rectangular prism. Enter your answers and your explanations in the space provided.

You will need to decide how to present your information to the class. It must be clearly labeled and organized so that your product provides all the information without you having to explain it.
Team Scoring Rubric

Proficient

_____ We/they DETERMINED the volume of the prism.
_____ We/they EXPLAINED how we/they found the volume and DEMONSTRATED our/their work in our/their explanation.
_____ We/they DETERMINED the volume of the prism that has 20 fewer units than the original prism.
_____ We/they EXPLAINED how we/they found the dimensions of the new right rectangular prism.
_____ Our/their work is LABELED clearly and is ORGANIZED so that our/their product provides all the information without needing someone from our team to explain it.

Nearing Proficient

_____ We/they DETERMINED the volume of the prism.
_____ We/they mostly EXPLAINED how we/they found the volume and demonstrated some of our/their work in our/their explanation.
_____ We/they DETERMINED the volume of the prism that has 20 fewer units than the original prism.
_____ We/they mostly EXPLAINED how we/they found the dimensions of the new right rectangular prism.
_____ Our/their work is mostly LABELED clearly and is somewhat ORGANIZED so that our/their product doesn’t provide all the information without needing someone from our team to explain it.

Beginning Steps

_____ We/they didn’t DETERMINE the volume of the prism.
_____ We/they didn’t EXPLAIN how we/they found the volume and didn’t DEMONSTRATE our/their work in our/their explanation.
_____ We/they didn’t DETERMINE the volume of the prism that has 20 fewer units than the original prism.
_____ We/they didn’t EXPLAIN how we/they found the dimensions of the new right rectangular prism.
_____ Our/their work is not LABELED clearly and is not ORGANIZED so that our/their product provides all the information without needing someone from our team to explain it.