Non-negotiables describing Effective Assessment for Learning

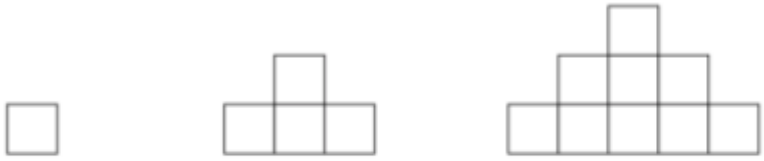
1. Clarify and share learning intentions and criteria for success with students.
2. Engineer effective classroom discussions, questions, and learning tasks.
3. Provide feedback that moves students forward.
4. Activate students as the owners of their own learning.
5. Encourage students to be instructional resources for one another**.**

Leahy, et al., *Classroom Assessment, Minute by Minute, Day by Day*. *Educational Leadership:* November 2005, Volume 63, Number 3. URL: http://bit.ly/Leahyarticle5nns

Student Hat: Play with the mathematics. Ask, "What more can I explore?"

Teacher Hat: Consider how to use this problem effectively for *all* your students to move forward in reaching your goals. What do you need to think about / prepare for?

Part a: brainstorm / quick exploration.



Step 1 Step 2 Step 3

As the step changes, _____ also changes.

Part b: Do the Math!

With a partner, one attribute in our list and investigate. Make a conjecture and try to justify/ prove your conjecture. Use whatever is convincing (graphs, tables, algebra, arguments). If time, explore a 2nd or 3rd property.

Use poster paper/whiteboard to display your work/progress on this problem. It can be messy!

Part c: Gallery Walk

(Post-its)
Explore the mathematics others saw in their problem. Read and consider their arguments. Provide specific, helpful feedback.

"I like that you …" (mention something specific about their work)

"I noticed that…" "I wonder if…" (mention something specific you are wondering about)"

"This leads me to think…" "Idea for next step:" (mention something the creator might do next to move forward)

… Then read / process your feedback when you get back to your poster.

Part d: (15 min) Exploring the mathematics in your work

Part I: What mathematical **topics** emerged in your work, and the work of others?

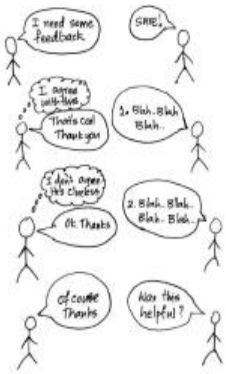
Part ii: What mathematical **practices** are demonstrated in doing this work? See the CCSS mathematical practices as inspiration

Part e (20 minutes): Preparing to implement a rich task with purpose.
Now you will discuss how to use this problem to help student learn something mathematically important. After your discussion, anyone in your group should be prepared to respond to the following.

Mathematical learning goals/Intentions: *By working of this task, what should your students be able to do better than before?*

Evidence: What does success *look* like, *sound* like? What do possible errors / misconceptions look and sound like?

Questions/Checkpoints: Plan at *one or two questions / checkpoints* to get good feedback about student progress on your goals. *Why will these decisions work?*



Feedback: How will students receive feedback about their progress? *Who will deliver the feedback? How can it be delivered?*

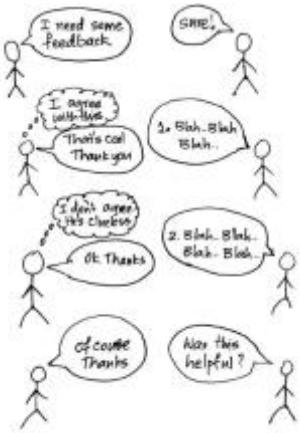
Use this & Leahy's 5 non-negotiables to focus your discussion.

Goals

Evidence of success

Checkpoints:

Feedback:



Activity f: Reflection

1. Name 2 or 3 things you are proud of in your teaching. What do you do well?

2. What observations or feelings do you currently have about implementing a wide-open task like this in your classroom?

Resources:
http://www.visualpatterns.org

*Leahy, et al., Classroom Assessment, Minute by Minute, Day by Day. Educational Leadership: November 2005 | Volume **63** | Number **3***

Original URL: http://www.ascd.org/publications/educational-leadership/nov05/vol63/num03/Classroom-Assessment@-Minute-by-Minute,-Day-by-Day.aspx

URL: http://bit.ly/Leahyarticle5nns

Common Core State Standards: Mathematical Practices
The eight core practices that students should understand and enact in doing and thinking about mathematics:

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