

Success Criteria for Math - A Framework for Discussion

Which type of criteria to use depends on what is being taught (ie. skills, concepts, strategies) *and* where the teacher is in the gradual release of responsibility.

Process A sequence of instructions	Product (Outcome) A recipe of ingredients	Protocol A support for strategies and routines
All:		

Success Criteria for Math - A Framework for Discussion
(with Marci's annotations)

I've been getting a lot of questions about what success criteria looks like in math classes beyond telling the process for a skill or procedure. I've done some research and think that we can package success criteria for math into three "buckets." (See examples of each on the following pages.)

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<i>Possible responses:</i> • <i>May work best for skills or algorithms</i> • <i>Following steps ensures success and often ensures quality</i> • <i>Helps teachers think through how to teach it</i> • <i>Serves as a scaffold</i> • <i>Differentiation tool</i> • <i>Causes student reliance</i> • <i>Discourages divergent thinking or approaches</i> • <i>Restrictive to students who don't need to do all steps</i> • <i>Teachers and students can identify where understanding breaks down</i> • <i>Provides paras with content support and fosters consistency of communication to students</i>	<i>Possible responses:</i> • <i>May work best for concepts, inquiry or problem-solving</i> • <i>Is a list or menu in no particular order</i> • <i>Were often once separate skills or things learned (process success criteria)</i> • <i>Communicates expectations for quality</i> • <i>Embeds Standards for Mathematical Practice</i>	<i>Possible responses:</i> • <i>Aids in establishing classroom culture</i> • <i>Fosters explicit teaching of routines or strategies</i> • <i>Allows students to independently use routines or strategies</i> • <i>Promotes working walls and visibility of work/thinking</i> • <i>Provides accessibility of content/resources</i> • <i>Leave "tracks of thinking" when they are class-created</i> • <i>Supports students in discipline-specific habits of thinking</i> • <i>Serves as scaffold</i>
All: • <i>Paints a picture of what quality is</i> • <i>Demystifies the learning</i> • <i>Helps teachers and students focus on learning versus work</i> • <i>Reminds students of aspects of the task they should focus on</i> • <i>Creates ownership when students generate SC (ie. using exemplars, modeled process, remembering key points)</i> • <i>Allows students to have a sense of control over their work and success</i> • <i>Positively impacts motivation and efficacy/self-esteem</i> • <i>Allows students to self-assess</i> • <i>Helps teachers and students provide focused, descriptive feedback</i> • <i>Fosters building time in for structured reflection and closure (ie. Find one example you're really proud of. Circle it and tell the person next to you why you are pleased with it; Decide with your talk partner which success criteria you were most successful with and which one needs help or could have been taken further; You have 5 minutes to find one place where you could improve. Write your improvement at the bottom of your paper; What approach did you take with the problems you were most successful with today?)</i>		

Process examples:

Objective:

To be able to round two-digit numbers to the nearest 10.

Process success criteria:

- Find the number on the number line
- Identify the multiple of 10 at either side of the number
- Count the jumps to the multiple of 10 before
- Count the jumps to the multiple of 10 after
- Round the number to whichever is nearest
- If the last digit is 5, round the number up to the next multiple of 10

Grid Method

Example

$13 \times 2 =$

1. Draw your grid

×		

2. Partition 13 into 10 and 3

3. Write your numbers in the grid

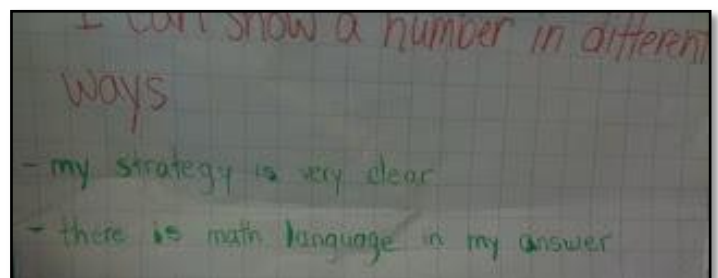
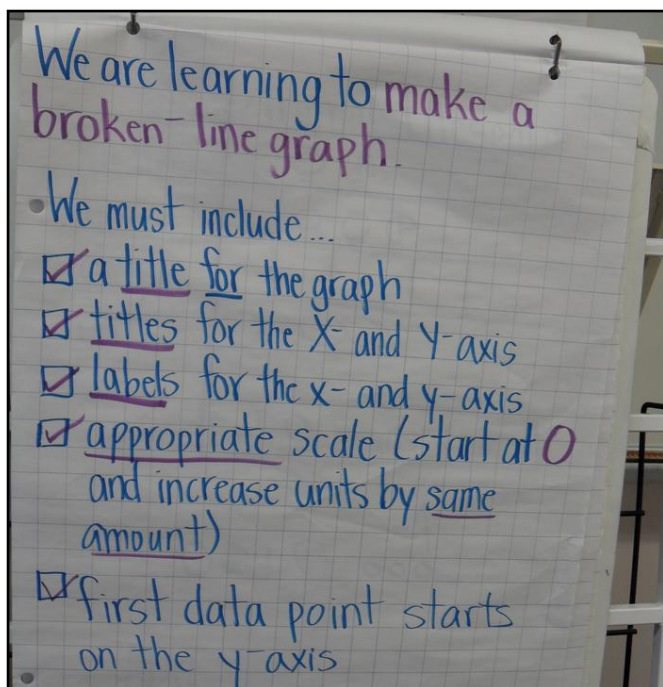
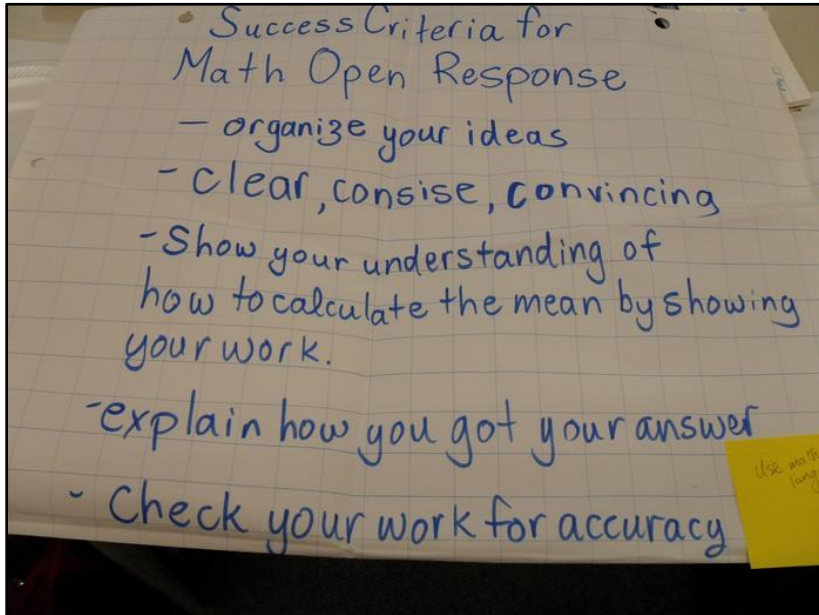
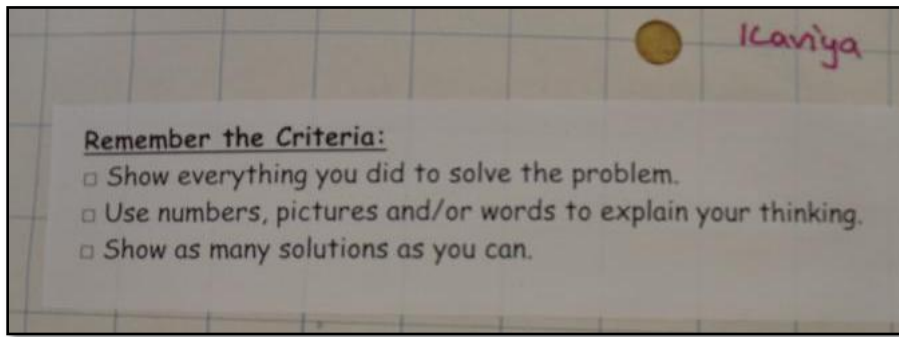
×	10	3
2		

4. Do the multiplication sums and write your answers in the grid.

×	10	3
2	20	6

Add the answers together $20 + 6 = 26$

Product (Outcome) examples:



Protocol examples:

See students:	Learning Goal and Success Criteria
	I know I am reflecting when I: • think about reasonableness • consider the implications of data collected • self-monitor my progress 

Group Problem Solving Success Criteria

Created by: The Students in 7B- 2010/2011

AM I?

1. **Being and Active Participant:** Am I helping out or am I just watching the work happen?
2. **Considering other people's ideas:** Am I considering other opinions or am I being a bossy pants?
3. **Taking turns writing with the marker.**
4. **Sharing Thoughts and opinions with group members:** Am I stepping out of my comfort zone or am I being super shy?

IS MY GROUP?

5. **Explaining our thinking:** Does our chart paper show the process our group used to get the answer?
6. **Listing "What we know" first**
7. **Showing a Logical Sequence or Steps:** Can I explain the steps that our group took to solve the problem?
8. **Demonstrating Problem Solving Strategies:** Work Backwards, Table, Graph, Pattern, BEDMAS, Guess and Check, Edit your work, Diagram, Solve an easier problem, Logical Reasoning
9. **Using Math Vocabulary:** Am I using Math Words?
10. **Using Word Answers for Word Problems**

(Charles H. Best Middle School/Grade 7B/Mr. Bruce Millard)

How To Solve A Problem

We are learning how to solve a math problem.
We will follow these 4 steps :

- ✓ **Understand the Problem**
 - make a K/W/C chart

K	W	C
What info do I know for sure?	What do I want or need to know/find out or do?	What conditions (rules or tricks) do I have to watch out for?
- ✓ **Make a Plan**
 - write out in sentences how you are going to solve the problem. (e.g. I will make a + - chart, make a model, find a pattern, draw a model, use words or numbers)
- ✓ **Carry Out The Plan**
 - Do the Plan!
 - Show your work!
 - What strategy/strategies did you use?
- ✓ **Double Check**
 - Go back and read the question again
 - Answer the question! (use words and numbers. write a sentence.)

