

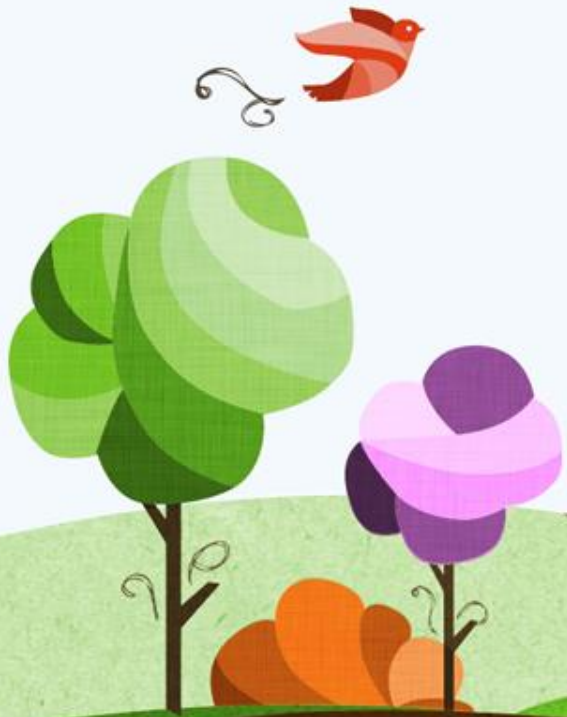
A stylized, colorful illustration of a landscape. In the foreground, there are rolling green hills with a dark brown path winding through them. On the left, there is a green tree, a purple flower, and some orange flowers. A small red bird is flying in the sky. The background features light blue and white wavy lines representing hills or clouds.

Writing to Engage Math Learners

MoMATYC Conference
March 30 – April 1, 2017
Poplar Bluff, Missouri

Part 1

Why Incorporate Writing



Why Incorporate Writing



You can find a good deal of research on this topic.

Some research is referenced at the end of this presentation.

Why Incorporate Writing



To name a Few Reasons...

- To engage students in their own learning experience
- To assess student understanding
- To improve problem-solving skills

A stylized, colorful illustration of a landscape. The foreground features rolling green hills with a dark brown path winding through them. On the left, there is a green tree, a purple flower, and some orange foliage. A small red bird is flying in the sky above the tree. The background consists of light blue and white wavy lines representing a sky or distant hills.

Part 2

Writing for Student
Success

Writing for Student Success



You can tell a student to
“think” and hope for the best...

But writing will push them to
show that they are thinking!

Writing for Student Success



Write a complete paragraph that answers these questions:

- What degree are you working towards?
- How will doing well in this class help you get to your degree goal?

Writing for Student Success



In Intermediate Algebra, I wanted to find a way to guide students toward the right “Math Pathway” course.

- What degree are you working towards?
- Where will you transfer to?
- What is your next math class?

Writing for Student Success



What are Three Things
you can do throughout
the next unit to improve
your test score?

Writing for Student Success



Write a complete paragraph that answers these questions:

- You have completed a third of the course! What is your current grade?
- What can you do to improve your grade?

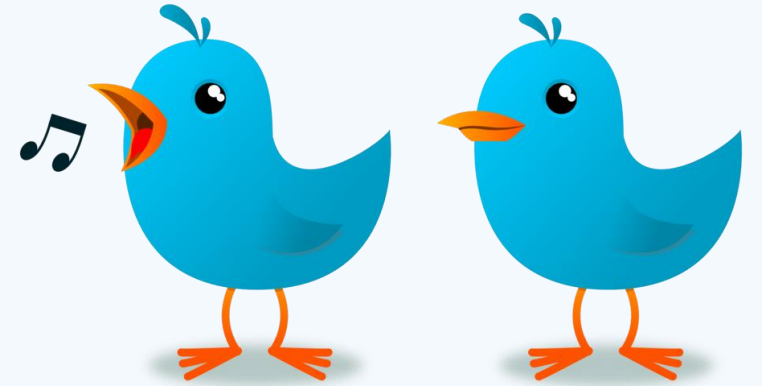
Writing for Student Success



Write a complete paragraph that answers these questions:

- You are almost finished with Intermediate Algebra. What will you do to celebrate if you complete the class?
- When will you make time to review for the final exam?

Writing for Student Success



What prompts will
YOU use?

A stylized landscape illustration featuring rolling green hills in the foreground and background. On the left, there is a green tree, a purple flower, and some orange foliage. A small red bird is flying in the sky above the tree. The sky is composed of horizontal bands of light blue and white. The text 'Part 3' is written in a brown, cursive font, and 'Writing to Grasp Concepts' is written in a red, cursive font with a shadow effect.

Part 3

Writing to Grasp
Concepts

Writing to Grasp Math Concepts



You can tell a student to
“think” and hope for the best...

But writing will push them to
show that they are thinking!

Writing to Grasp Math Concepts



Analyze

Describe

Evaluate

Narrate

Reflect

Summarize

Synthesize

Writing to Grasp Math Concepts



1. Expand then Evaluate -3^2

Example: $5^2 = (5)(5) = 25$

$$-3^2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2. Expand then Evaluate $(-3)^2$

$$(-3)^2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

3. Expand then Evaluate $-(3^2)$

$$-(3^2) = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

4. Which of the two problems above (1-3) are the same? and

Give a reason (other than the answers) **Why?**

Writing to Grasp Math Concepts



State the property in your own words

$$b^r \times b^s = b^{r+s}$$

$$(f + g)' = f' + g'$$

Writing these properties in words can help a student **remember** the property and help them **understand** it.

Writing to Grasp Math Concepts



Write a word problem that uses “_____”.

→ *I use this prompt to encourage students to participate in campus activities.*

Writing to Grasp Math Concepts



Write a word problem that uses “_____”.

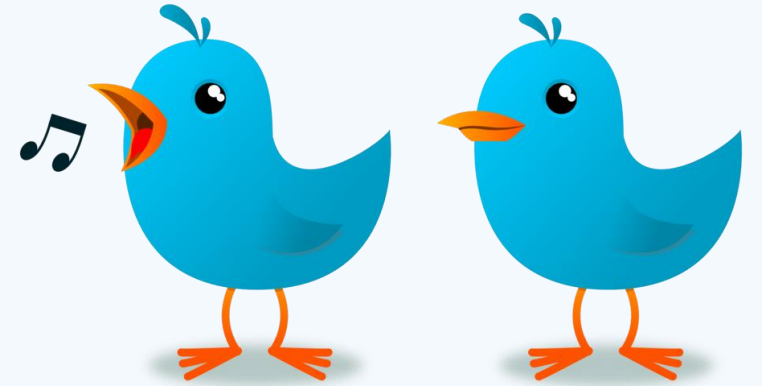
→ *This exercise helps build problem-solving skills.*

More about Students Writing Word Problems...



- Peer Edits
- Give a **Lot of Direction**
- Require students to solve their own problem
- Require students to have someone solve their problem
- Close the Loop: Give them **Feedback!**

Writing to Grasp Math Concepts



What will ***YOU*** use?

Part 4

What I learned from my Mistakes & Successes



What I learned from my Mistakes & Successes

- How will you *assess* the writing?
- Address *student perception* about “writing” affecting their grade.
- Respond to what students have shared!



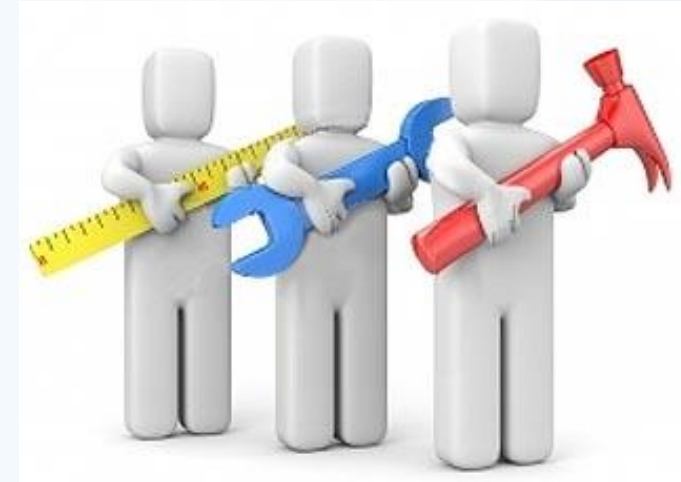
Questions

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Resources



- <http://www.mathwire.com/writing/writing1.html>
- 4 Tips: <https://www.edutopia.org/blog/four-tips-writing-math-classroom-heather-wolpert-gawron>
- McRel Article: <http://files.eric.ed.gov/fulltext/ED544239.pdf>
- A Guide to Writing in Mathematics Classes from Cornell University:
<http://www.math.cornell.edu/~projcalc/fall2001/projects/projguide.pdf>