Conquering the fear of . . . Word Problems

Let’s face it; students are afraid of word problems. Many of my students have admitted to me that they skip word problems whenever possible. When one appears on a multiple choice test, they simply make a wild guess and move along. When the students are working in their second language, the problem is magnified. By combining several strategies, you can combat this fear so students approach these problems with confidence!

Create a “Situation”
This is surprisingly easy to do. If you are even slightly savvy with a word processor, you can turn even the most annoying word-problem into a situation your students will enjoy!

Start with any word-problem
You don’t have to start from scratch. Make your life easy and use your textbook or other materials to make your life easy.

Tweak it!
Take a minute or two to make it less boring and more approachable.

Do something to make the page eye-catching!
Did this page seem approachable to read? When I want information, a page of text can seem a little bit daunting. Adding images and text boxes can make the same information seem more approachable.

Make it funny
Middle school students love to laugh. Is there something you can do to make the problem slightly silly?

Make it relevant
Can you make small changes to include music, movies, places, snacks, etc. that are part of your student’s everyday lives?

Make it personal
Can you change the names to include your students? Even better; if the situation is ridiculous make it about the Assistant Principal.

Remember, though we won’t admit it, we still really like to draw and color!

Outlaw the Term: “Word-Problem”
Try it. Tell your students you are going to work on some word problems. I can guarantee there will be a collective groan from the class. So banish the term and avoid the negative association. My students never do “word-problems.” Instead, they face “situations.”

Excerpt from: Breaking the Rules: Building Conceptual Understanding of Mathematical Principles
Let’s create a situation!

1. Travis built a vegetable garden in the shape of a rectangle. The length of the garden is four feet less than three times the width. Write a polynomial that represents the area of the garden.

If the width of the garden is 9 feet, what is the area of the garden?

| Rewrite the question with humor and familiar names. | Ms. Miller found a poorly behaved squirrel in her car and wants to keep it as a pet. She builds a rectangular pen for it. |
| Make drawing a picture a requirement. | Draw a pen around the squirrel! |
| Tell students exactly what you want them to do, but not how to do it. | The length of the pen is four feet less than three times the width. Label the sides of the squirrel pen. |
| Throw in some algebra. | Use the labeled picture to create an equation for the area of the pen. |
| Make it real. | If the width of the pen is 9 feet, what is the area? |
| Extend it. | How many feet of fence will she need? |
| Make it look fun! | See below ↓ |

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**The Situation**

Ms. Miller found a poorly behaved squirrel in her car and wants to keep it as a pet. She builds a rectangular pen for it.

Draw a pen around the squirrel!

The length of the pen is four feet less than three times the width.

Label the sides of the squirrel pen.

Use the labeled picture to create an equation for the area of the pen.

If the width of the pen is 9 feet, what is the area?

Area =

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Excerpt from: *Breaking the Rules: Building Conceptual Understanding of Mathematical Principles*
Why Bother Making Situations?

At first, the process is time consuming. Rewriting problems and putting them into textboxes may seem like a royal waste of time. However, the long-term benefits outweigh the initial annoyance.

- The “situation” has a visual appeal that draws students in and makes it seem less frightening.
- Every step is required. Students have to think through the entire process.
- A half-sheet of paper with one problem makes it impossible for students to skip over or guess on the word problems.
- The problem can easily be extended by adding numerous “think about it” boxes. Some possibilities might be:
  - Give a price for fence materials and have students calculate costs.
  - Offer several fencing and flooring options, each with a different cost. Give students a budget and have them design the squirrel pen. (systems practice)
  - Could they create a pen with the same area but less required fencing. (geometry)
- The problem exemplifies a real-world application.

Put Students in Charge

After the first few situations, release control to the students.

- Copy word problems from your teaching materials.
- Cut out individual questions and distribute them to partners or small groups.
- Have students create the situation, including pictures.
- Pick a few and copy them. Assign them to the entire class.

“Situation Creation” can also be an excellent activity for early finishers! Allow them to use a computer and create a file that you can use later.

Long-Term Effect

As students become comfortable with the process of creating a “situation,” they develop a deeper understanding of how to break down a traditional word problem. At this point, using more traditional methods to tackle problems may be sufficient. Students will be better able to pinpoint important information in the questions, and make more appropriate use of tools like highlighting or underlining. They will also be in the habit of drawing pictures and diagrams to build and demonstrate understanding. Over time, the fear and loathing often associated with word problems will begin to disappear.

Excerpt from: Breaking the Rules: Building Conceptual Understanding of Mathematical Principles
Situation Submission Form

Name:

Topic:

Situation:
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________

Show your procedure for solving this situation

<table>
<thead>
<tr>
<th>Four multiple choice responses</th>
<th>Why will this answer trick people?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
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</tbody>
</table>

(comic strip problems can be drawn on the back)