

“Key Words Help,” “Inquiry Won’t Work,” and Other Myths

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How will you change the world?

“This song bothers me... If he wants the world to change, he should go out and change it himself. Nothing is going to happen if everyone just waits...”

Jessica Dixon (7th grade)
- Alex’s sister

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Perspective... ..

“It took a stroke and a coma but now I like math...”

- Alex Dixon (March, 2011)

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Goals

- ▶ Make sense of learning mathematics with understanding through the eyes of a student with special needs.
- ▶ Explore strategies for supporting learners who struggle.
- ▶ Connect experiences from this session to opportunities in your own classrooms.

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Introducing Alex

- ▶ "Normal" child
- ▶ Part of a loving family
- ▶ Protective big sister
- ▶ Excellent student
- ▶ Artist
- ▶ Musician

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Things were different when I got sick...

- ▶ I was in pain
- ▶ I was physically disabled and in a wheelchair
- ▶ Then I had a stroke during surgery in February 2010
- ▶ I was physically and mentally disabled

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I was determined to get my life back!

- ▶ I had to relearn everything
- ▶ I have a great attitude
- ▶ I've come a long way!

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Reason Abstractly and Quantitatively

Consider the following problems:

Jessica has 8 key chains. Calvin has 9 key chains. How many key chains do they have all together?

Jessica has 8 key chains. Alex has 15 key chains. How many more key chains does Alex have than Jessica?

How would you help Alex with these?

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Reason Abstractly and Quantitatively

Now consider this problem:

Jessica has 8 key chains. How many more key chains does she need to have 13 key chains all together?

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Alex had a long way to go...

How to prioritize helped me to rethink RtI...

- ▶ What do you do when students are very far behind?
 - ▶ We have a few choices:
 - ▶ Focus on basic facts
 - ▶ Reteach everything
 - ▶ Focus on prerequisites and teach them for understanding

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Alex had a long way to go...

How to prioritize helped me to rethink RtI...

- ▶ What we did
 - ▶ Used context to make sense of operations
 - ▶ Focused on fact strategies
 - ▶ Used place value and strategies based on properties of operations constantly.

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Alex had a long way to go...

Solve $2,368 + 5,795$

- ▶ Eventually Alex needed to solve problems like this.
 - ▶ What would you do?
 - ▶ What would you expect Alex to do?
 - ▶ How does what she did compare?

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What happens when we get to multiplication?

Solve 4×127

- ▶ In what ways might Alex engage in the Standards for Mathematical Practice with this?
 - ▶ Consider SMP 7: Look for and make use of structure
 - ▶ Consider SMP 8: Look for and make use of regularity in repeated reasoning

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What happens when we get to high school?

What do students do when they don't remember?

- ▶ Alex was working on her summer math assignment before geometry and she couldn't remember. Notice how she made sense of the mathematics.

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Alex's 7th grade math class helped to change her world at school.

How will you help ignite the change you want to see in the world?

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