Tips for Working with English Learners in Mathematics

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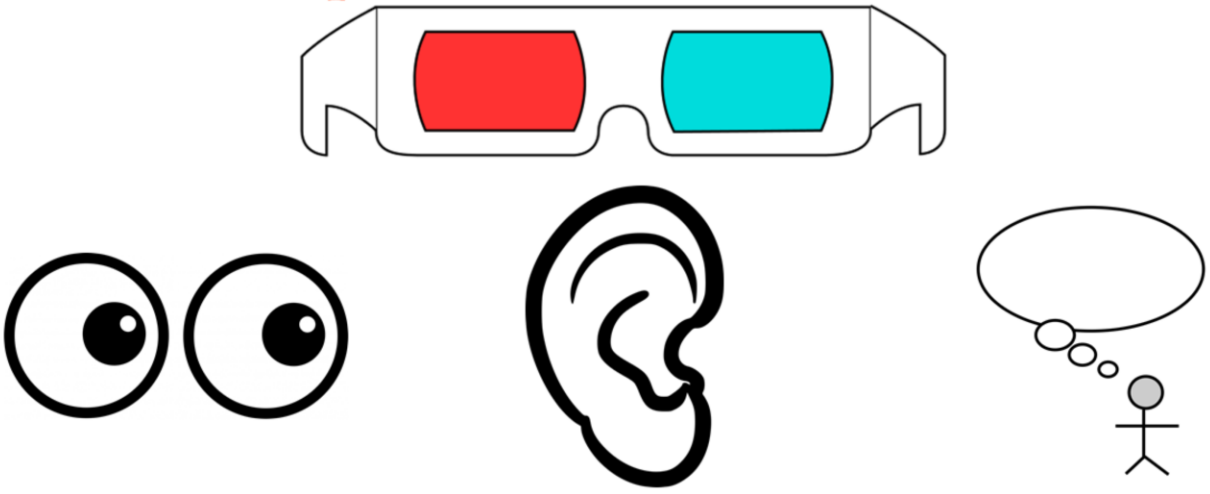
Both
Introduce yourselves and explain what you do
https://pixabay.com/en/dialog-tip-advice-hint-speaking-148815/
https://en.wikipedia.org/wiki/File:Basketball_Clipart.svg

Lesson Experience



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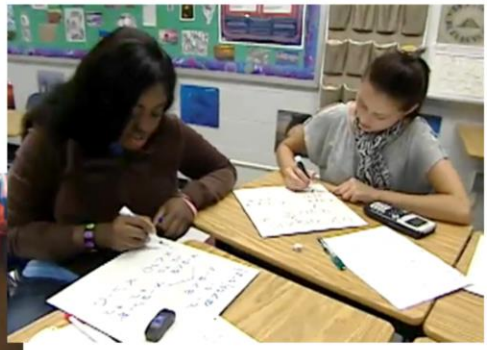
Just Like Me:

You will see a series of statements.

If the statement is true for you, stand up and say:

"Just like me"

I am a general education teacher.



I am an ESOL teacher.

I am a resource teacher or specialist.

I am an administrator.

I work with students in PreK, K, 1st and/or 2nd grade.

I work with students in 3rd, 4th, and/or 5th grade.

I work with students in 6th, 7th, and/or 8th grade.

I work with high school students.

I have watched a basketball game on TV.

I have been to a basketball game.

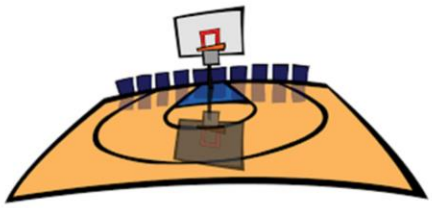
I have played in a basketball game.

On Tips chart: Connect to and building background knowledge

https://www.youtube.com/watch?v=l8Ro7iddOg0

Pythagoras Middle School is having their annual fundraiser, the student-teacher basketball game. A fundraiser is an event that raises money for a good cause. The fundraiser offers adult tickets for $10 and student tickets for $1. A parent donates $29. Donating means giving something (in this case money) to a good cause. Who can attend the basketball game for $29?

On tips chart: Modify the task, Amplify NOT simplify



Adult basketball tickets cost $10. Student basketball tickets cost $1. Who can go to the basketball game with $29?

Ask the participants to solve the problem and represent their thinking in at least 2 ways

Encourage the participants to use tools, drawings, numbers and/or words as part of their representation

Let them work independently at first

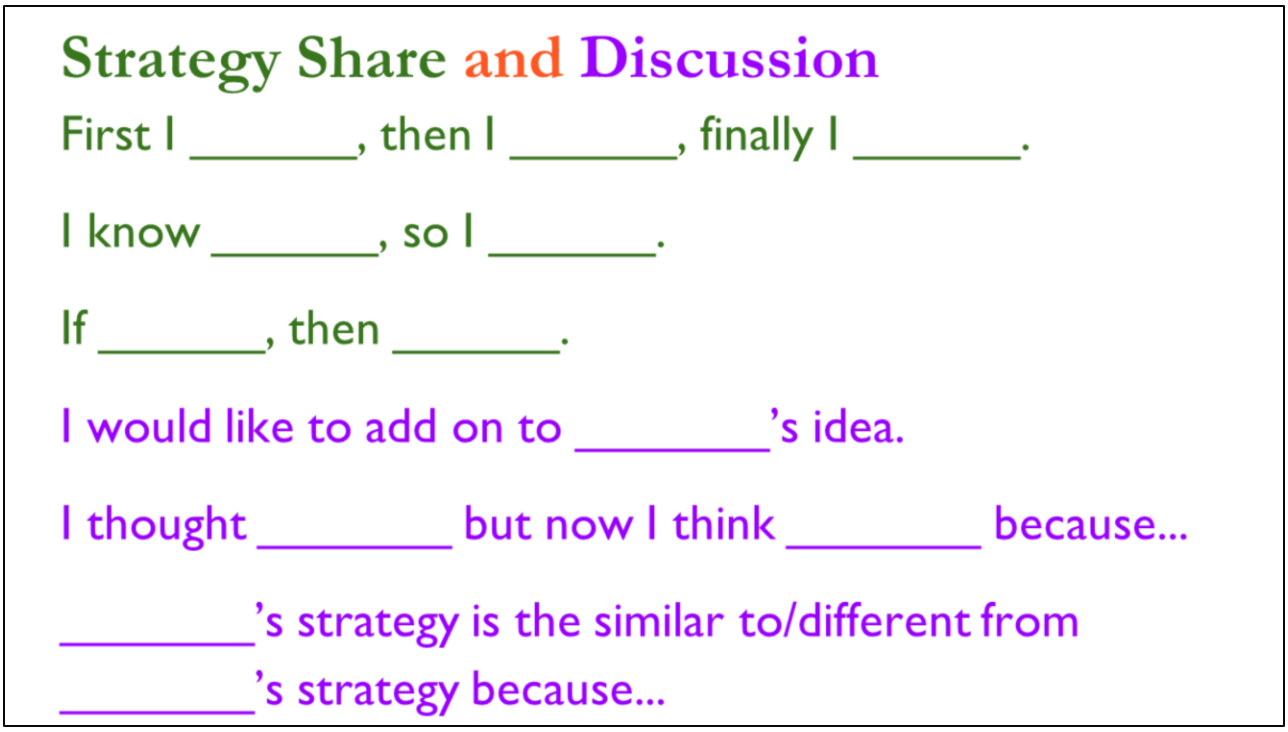
As participants are solving walk around with anticipated strategies, the goal is to find one concrete, one table or graph, and one algebraic

Ask questions as participants are working, when they are speaking keep in mind the word wall and how they might be encouraged to use some of the language from that resource:

- What are you thinking about as you represent the problem?
- Where are the students/teachers in your representation?
- Why did you…?
- How do you know your thinking is reasonable/accurate?

Have students share at their table their representations, or how they started to think about the problem

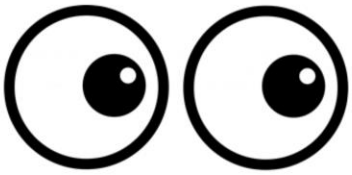
Confer and identify people to share, ask if they are willing



On tips chart: Use sentence frames/starters

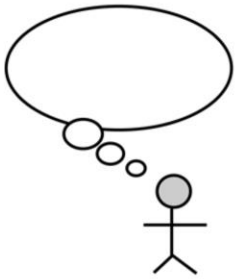
- Have participants share their strategies, encourage the use of the sentence frames/stems
- First share a concrete example using manipulatives or pictures
- Ask questions:
  - Where are the student/adult tickets in this strategy?
  - Where is the $29?
- Second share a table or graph
- Ask questions:
  - Where are the student/adult tickets in this strategy?
  - Where is the $29?
  - How is this strategy similar to or different from the first strategy?
- Third share an algebraic equation
- Ask questions:
  - Where are the student/adult tickets in this strategy?
  - Where is the $29?
  - How is this strategy similar to or different from the first/second strategy?
- Ask participants to think about their own strategies, what connections can they make from their representations and thinking, or the start of their thinking to representations that were shared.

Processing



I saw _____ and it would help students...

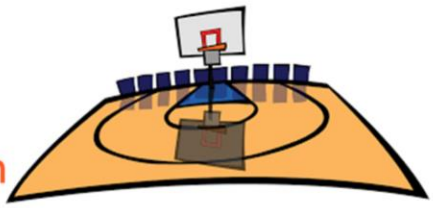
I heard _____ and it would help students...



Students would think about _____ because of ...

Ask participants to talk at their table, and share the things that they saw, heard, or thought about that supported access to the lesson

Pythagoras Middle School is having th annual fundraiser, the student-teacher basketball game. The fundraiser offers adult tickets for $10 and student tickets for $1. If a parent donates $29, who can attend the basketball game?



On Tip Chart: Build a bridge between grade level concepts and the needs of the students in your classroom

We changed the numbers to meet the need of students in the classroom, students were still working on the same concepts but the number choice was intentional to support some students, and can be used as a vehicle for connections to base ten understanding with that group of students during a small group lesson

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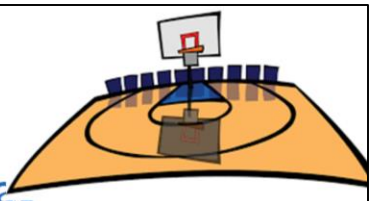
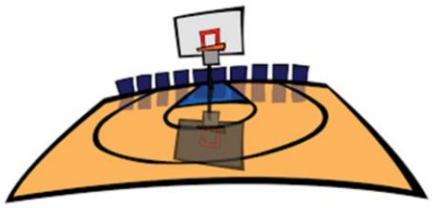


We don’t want to avoid words that students don’t know, we want to give them multiple opportunities to access and learn words



Adult basketball tickets cost $10. Student basketball tickets cost $1. Who can go to the basketball game with $29?

When students are working independently on a task or during an assessment, you want them to be able to focus on the mathematics so you might simplify the language in this instance

This should not be the only way that students see the problem, they should still have access to the original problem as well

This support should be given on a student by student basis and is not needed for every English learner

Open vs Closed Task

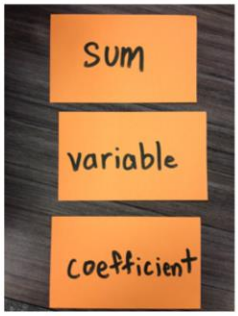
Pythagoras Middle School is having their annual fundraiser, the student-teacher basketball game. The fundraiser offers adult tickets for $10 and student tickets for $1.

If three adults and five students attended, how much would it cost?

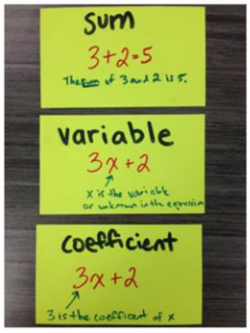
On tips chart: Use open tasks with a low floor and high ceiling

Word Walls

Good



Better



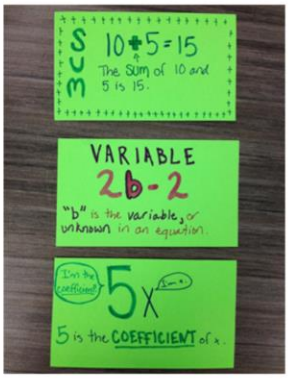
Words shouldn't be slapped on the wall by a teacher. Students need to have intentional interactions with the word wall on a regular basis

Having a word wall with words is better than having nothing at all

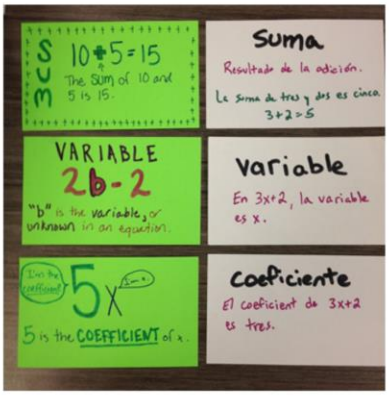
Having a word wall with pictures to go along with those words is better than just having words on the wall

Word Walls

Even Better



Best

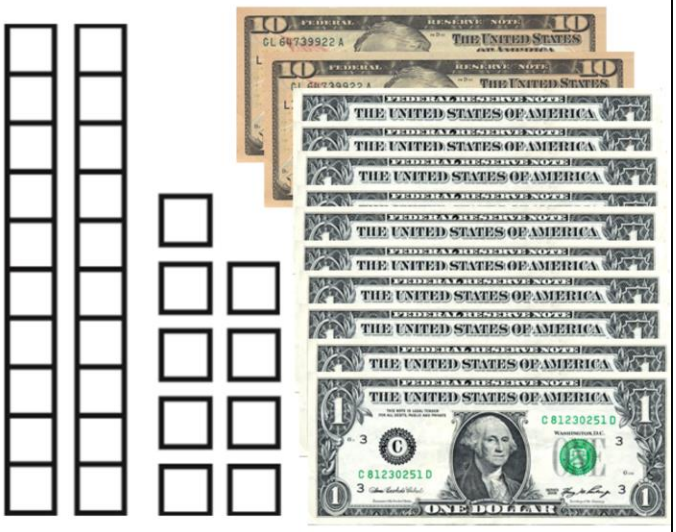


On tips chart: Use a word wall regularly

Words shouldn't just be posted on a wall for students to look at when they need to find a word to use. Students should have intentional interactions with the word walls on a regular basis. Students should be given engaging opportunities where words can be read and used in authentic contexts. For example, a student might use a word from the word wall in a sentence frame while they are playing a game, to reinforce the content they are learning.

Manipulatives and Visual Representations

Manipulatives help students connect the concrete models to abstract ideas.



On tips chart: Use manipulatives and visuals regularly

- Students should not only be given access to manipulatives but it should be in such a way that doesnt call attention to using them
- This can be done by encouraging the use on a regular basis
- Students can also have them accessible from their seats

Individual, Partner and Group Work

Students have more opportunities to learn when they engage with their peers.

On tips chart: Allow students to work individually and with others

Facilitate Discussion

The person, or people, who are doing the talking are the ones doing the thinking!

On tips chart: Facilitate student discussion

If we want our students to do the thinking they need to do the talking

Student talk gives them the opportunity to practice using the language as well as hearing the language being used by their peers, usually said in ways that make sense to them

5 Practices for Orchestrating Productive Mathematics Discussions

Anticipating - think about how students might solve a problem

Monitoring - pay attention to student thinking as they are working

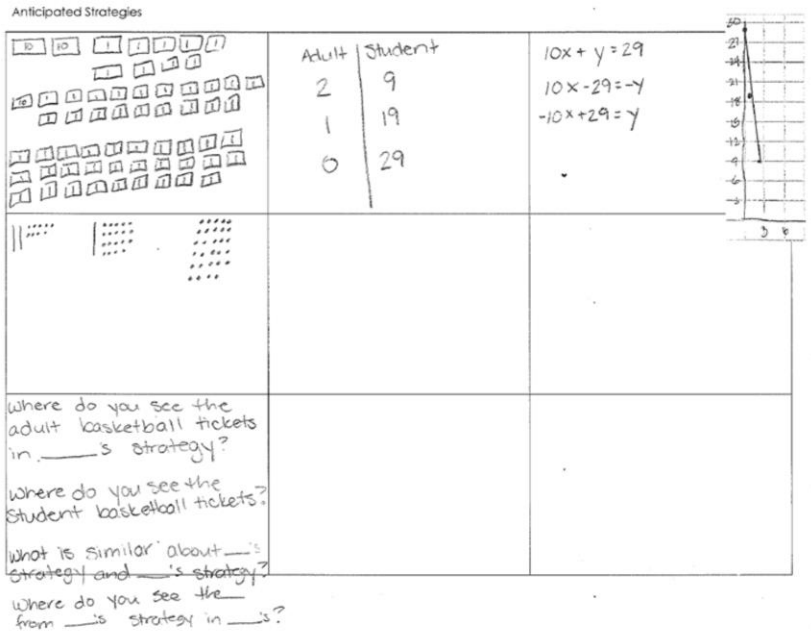
Selecting - choose students based on mathematical goals

Sequencing - have a purposeful order

Connecting - have students connect solutions and to other mathematical ideas

We used the 5 practices for orchestrating Productive mathematics discussions to help lead out conversation today

Anticipating & Sequencing



On tip chart: Anticipate language that students will process and produce
On tip chart: Use purposeful sequencing to support access

Anticipating student strategies makes sure we not only think about how they solve the problem, but also helps us anticipate how they will talk about their ideas. We can support their language use with intentional sentence frames and stems, as long as we aren't forcing students to solve it in a particular way, and words they might use to in their description

It helps us think about and plan for the words students are processing during their peers explanations, and the words they might produce when explaining to their peers

Intentionally sequencing strategies can also help with access. If we show the most abstract thinking first, many of our learners will disengage from the rest of the conversation. Showing the concrete examples first also gives use visuals to help learners connect to the language being used to explain the other, more abstract, ideas

Questioning, Connecting & Reflecting

Starting the Task

- What do you know?
- What information can you use to get started?

During the Task

- Where is the ___?
- Why did you…?
- How can you check your thinking?

Reflecting on the Task

- How is _____'s strategy similar to/different from _____'s strategy?
- Which strategies make sense to you?

On tips chart: Ask questions that encourage higher level thinking

- Facilitate and further student thinking with your questions
- This does not mean ask funneling questions that result in the student doing what the teacher is thinking but rather the teacher should ask focusing questions so that students talk through their own ideas, connect the ideas of other students, and connect to the ideas of others
- All learners can think deeply about mathematics

TESOL: The 6 Principles for Exemplary Teaching for English Learners

- Know your learners
- Create conditions for language learning
- Design high-quality lessons for language development
- Adapt lesson delivery as needed
- Monitor and assess student language development
- Engage and collaborate within a community of practice

http://www.tesol.org/the-6-principles/about

Follow me on Twitter:

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Thank You

Erin Sylves & Nichole Lindgren, FCPS

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