

Mathematical Objective:

SWBAT solve word problems that involve unit rate.

SWBAT compare multiple solving processes for a word problem that involves rate.

Classwork will include students working independently to solve:



A printer can print 250 business cards in 2 minutes.
At this rate, how many can it print in 5 minutes?

Identify a language objective that will support the Mathematical objectives:

Students will be able to...

What English Language Development Taught Me about Math Instruction



Vocabulary considerations:

Does the term add to:

- the students' understanding of the math concept or procedure?
- the students' ability to address the concept with precision?
- success in future areas of math?

Does the term allow for a flexible understanding of the concept? If not, should it be replaced or partnered with other terms?

-Is there a better term?

How will I support student understanding, meaningful use and ownership of the word?

Strategies that are good for many Math learners, including English language learners

This list is meant to be a starting point and is in no way exhaustive.

1. Limit teacher talk.
 - Use visuals
 - Increase student talk
 - Increase time to process
 - Listen to student language and process
 - Build on language the students know and use
 - Train tutors or volunteers to do the same
2. Support student talk/writing/ communication of ideas
 - Model use of visuals and physical objects (realia/manipulatives)
 - Offer sentence frames, model “think alouds”
 - Teachers, tutors and peers ask open ended questions (Fetter)
 - Encourage diverse ways to “show work” and “show answers”
 - Create structures to encourage student-to-student academic communication.
3. High Ceiling/Low Floor
 - Offer activities that allow students to engage at various levels
4. Lower affective filter (Increase joy/diffuse stress)
 - Start at an intuitive level of knowledge (Sharma)
 - Start with something that requires little math vocabulary and little literacy or language.
 - Foster a growth mindset.
 - Frame mistakes as key to learning
 - Opportunities for contextualized math / applications in context
 - Scaffolding
 - Routines and structures that foster risk taking, experimenting, mistake making and other behaviors essential to learning
5. Offer visuals, manipulatives and realia (real life stuff).
 - Move from familiar, concrete objects, to visuals to abstract (numbers and symbols). (Sharma)
 - If possible, make manipulatives and realia easily available to students.
 - Model use of manipulatives and visuals in think alouds and scaffold students using them in their own explanations.
6. Targeted and intentional vocabulary and language development
 - Word wall – ideally student made, supported by visuals
 - Limit the amount of vocabulary (narrow to most important)
 - Print-rich classroom
 - Labeling and writing activities

- Math Journals
- Interactive math notebooks

7. Offer multiple models for understanding a concept

- Beyond allowing students to demonstrate understanding in various ways, consider developing their ability to do this in varied ways.

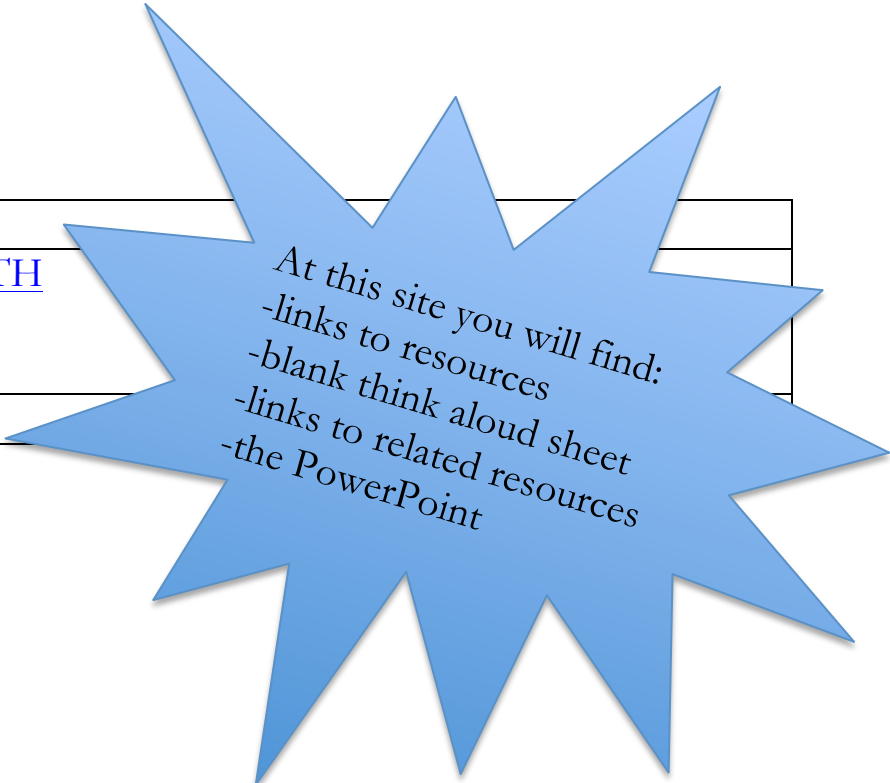
8. Build on prior knowledge and experience. Facilitate shared experiences.

- When possible, link new to concepts they already know.
- Shared learning experiences (making or doing something) can become a base on which to build knowledge and vocabulary. Videos can be a next best.

Resources available at:

<http://padlet.com/teach/ELDMATH>

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At this site you will find:
-links to resources
-blank think aloud sheet
-links to related resources
-the PowerPoint

Standards for Mathematical Practice

from the Common Core Standards and Career and College Readiness Standards

<http://www.corestandards.org/Math/Practice/>

1. Make sense of problems and persevere in solving them.
Seek to understand – try – check – adjust – try again
2. Reason abstractly and quantitatively
Work with content in and out of context.
3. Construct arguments and critique reasoning
Explain. Explore. Question. Justify.
4. Model with Math
See math in life and stories. Write mathematical representations of real life.
5. Use appropriate tools strategically
Which? How? When?
6. Attend to Precision
Precision in communication: write, label, draw, say
Efficiency and accuracy in calculation
7. Look for and Make Use of Structure
Patterns. Decompose numbers. Shift perspective - see parts and whole
8. Look for and express regularity in repeated reasoning.
Notice. Seek efficiency.

One thing mentioned today that I already do:

One thing that I do, but I want to do more of or do differently:

A new idea or an idea I want to learn more about:

Please add anything you want the presenter to know: