

Graphic Organizers.

EDSC 138A
Reading, Language & Instruction in Diverse Content are Classrooms
Prof. Aminy

Please see explanations and reasoning in the Notes section
of the slides!
Make sure you can see the Notes to this slide!

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Yes, this is the Notes section: If you can see it here, you'll see it on the other slides as well. EACH slide has notes to it.

Thoughts about literacy in the (Math) classroom.



It was like a roller-coaster for me: I really like reading, drawing, and using visual things in conjunction with Mathematical concepts. However, it is very hard to find the right approach to include it in the classroom: Too many things seem to be going on. And sometimes, you come in with the best of intentions, and it just doesn't fly... More often, you are just running out of time for this grandiose idea you had.

AND, the examples they give in the books and articles we read about how to include literature in the Math classroom seem to be tailored to the younger age... not for high-school students, going for the AP test.

So, to conclude: I like it, want to do it, but there are so many difficulties on the way, and moreover (see next slide!)

Literacy in the Math Classroom: After observing ~100hours !

(of many different teachers)

$$\text{Total} \left(\begin{array}{l} \text{Number of hours I've} \\ \text{observed of} \\ \text{"Literacy in the Math Classroom"} \end{array} \right)^2 = 0$$

Going over all the classes and teachers I observed, I did not see ANY use of literature in the classroom.

I did see little art-projects in Geometry classes, but that's it.

The reason? Too many things to deliver in class, and this is an 'extra', or the 'icing on the cake', so it is always left behind.

Is it indeed the icing?!? What about motivation, understanding the general picture, and self expression? The help you will get into word-problems?!?

Strangely enough, this relates very closely to the issue of dropping 'Problem Solving' practice from the classroom: It is much easier to stick to the technique, practice, and drilling, as means for preparing for the test. Solution? (see next slide)

The main reason: Planning!



Planning in advance might be the right solution!!

If you are able to plan upfront for literature activities, when making up your Unit-planning, than you are most likely to include those, and use them.

Maybe even setting a side, say, 1-day a week for Problem solving, and 1-day every other week for Literature (that's only 10% and 5% respectively). This way, you are guaranteed to have the time to do it, on a regular schedule, in the classroom!

Literacy (and Art, and Problem Solving) in the classroom: Graphic organizer

Unit Subject: _____

Core material:	Problem Solving:	Literacy and Art:
Time allocation:	Time allocation:	Time allocation:
Instruction: _____	Guided: _____	Instruction: _____
Group work: _____	Group work: _____	Group work: _____
Total Time: _____	Project: _____	Work in class: _____
Home time: _____	Total Time: _____	Total Time: _____
% of Grade: _____	Home Time: _____	Home time: _____
	% of Grade: _____	% of Grade: _____

So here is one solution to keep you true on your intentions, and also to see how it all worked-out in hindsight!

The audience for this GO: Teachers planning a unit.

The teacher will design the unit, and then will fill in this GO to see how things look like in terms of the different components. Then, the teacher can adjust the unit-plan accordingly to accommodate more time for one of the activities.

In addition, if this is printed on a regular paper-sheet, I can envision the teacher writing next to some items what they are (for example, what kind of art project they think of doing, or literacy piece, and so on). Due to the slide-structure, there is not much room left on this GO. However, when printed on a normal setting (not a 20pt font...), there's plenty of spare room to use.

Truthfully, I think there are many variants of this GO that can be more appropriate for specific teacher/unit/setting, however, the important thing is to have something like this before heading into the unit planning.

The next slide describes the complement of this GO.

Literacy and Art **helper** chart: _____

Literacy :

Resources:

plus.maths.org – Short stories, current events.

nrich.maths.org - Activities, reading.

Techniques:

Pre-reading

While-reading

Post-reading

Art :

Resources:

Techniques:

Drawing concepts.

Comic-strips.

3D structures.

Origami.

Music context.

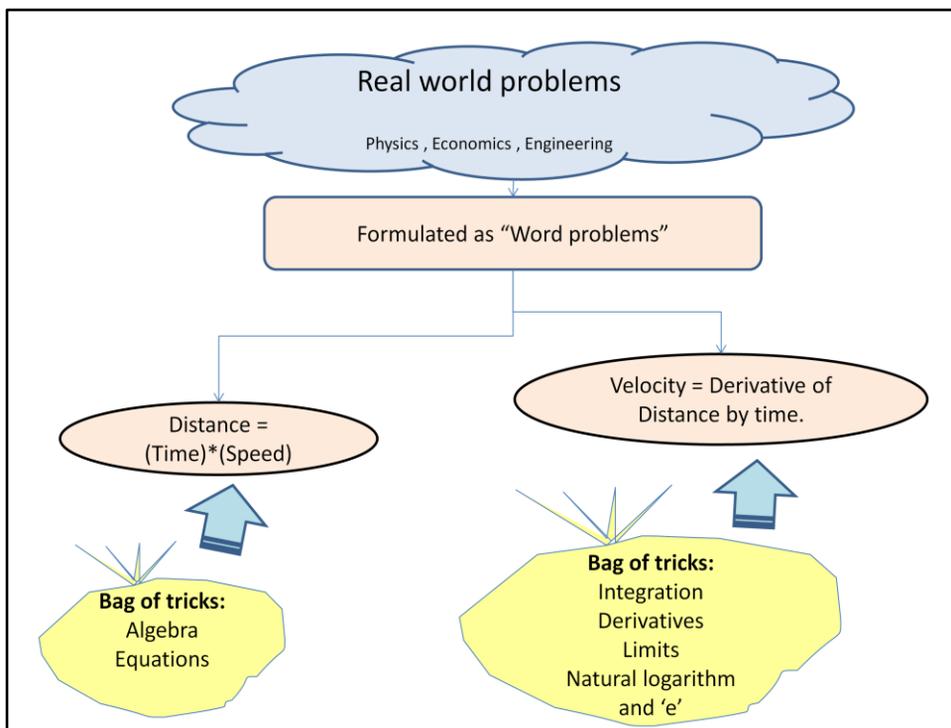
This GO complements the previous one, and is meant to serve as ‘bag-of-tricks’ (or resources) that one can draw upon when looking to include literacy or art in the math classroom.

I deliberately included some items, and left some open for the teacher to fill-in. This can be as an ongoing resource for the teacher. Maybe others can add to this as well, and one may have multiple copies of this.

So, my hope is that with the use of the last two GO’s, it will be easier for teachers to see how much time they indeed put into literacy and art in their classroom, and also help them doing it.

Two others which I used in class...

Now, to two GO's I used with my students.

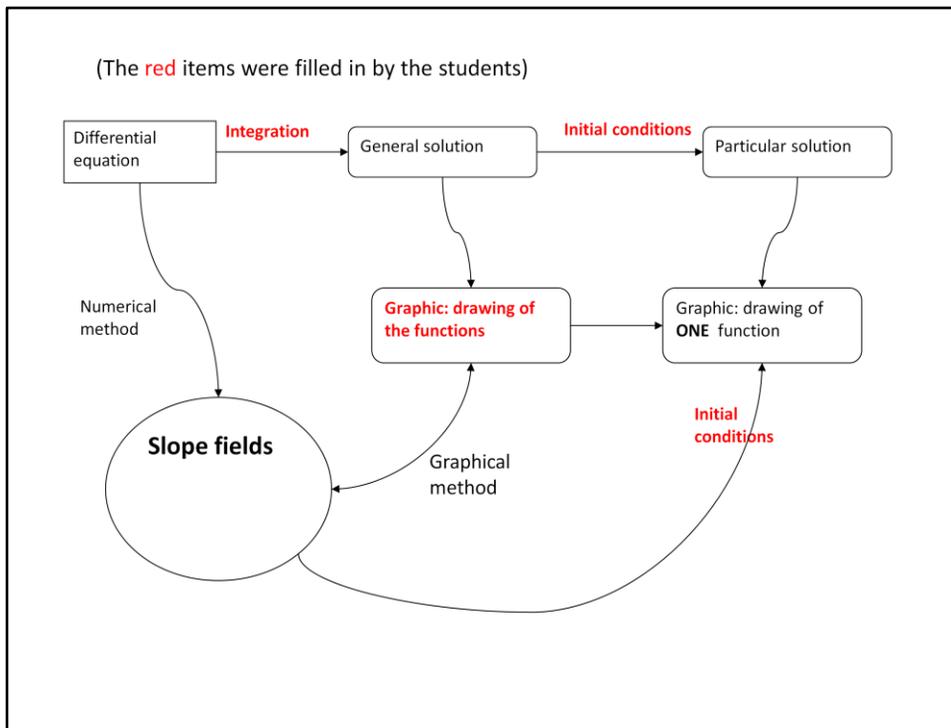


This was presented to Calculus AB class, at the beginning of the Differential Equations unit.

The students are juniors and seniors.

Initially, only the left side was presented, and then the right side was revealed. The purpose is to demonstrate how the new material (differential Equations) parallels things they did in the past in solving algebraic equations. It helps put things in context.

The students did NOT have to fill in anything in this organizer, but rather just understand the global picture.



In the same unit of Differential Equations, the students learned many different techniques.

This GO helps them see the connection between those different techniques, and especially the connection between the slope-fields and the rest of the methods used.

With this GO, I did leave the red-parts to be filled in by the students, and we checked it together with the whole class.

It helped the students make the connection, and see the whole picture and where things fit in.

A resource which I really liked for GO's: Math Default

(<http://www.sw-georgia.resa.k12.ga.us/Math.html>)

1. Explanation
2. Example
3. Now on your own!

Long Division Algorithm

Procedure

- 1st Divide first terms.
- 2nd Multiply times the divisor.
- 3rd Subtract by changing the signs and adding.
- 4th Bring down the next terms and begin the process again.

Example

$$\frac{4x^2 - 11x + 4}{2x - 3}$$

Your Turn

$$\frac{6x^2 + x^2 + 4x - 5}{3x - 2}$$

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Last but not the least: Wanted to point out to a site (just google 'Math Default') which contains many Go's for math.

They all contain the same structure, of a short explanation ('procedure' in this specific example), followed by an example (which is done as a teacher-directed class activity), and then an example for the student on his/her own ('Your Turn').

I found these to be a cool way to break from the note-taking routine, and have things organized well for the students.

