

What Makes Math Different? – Math Autobiography

As a homework assignment, ask students to prepare a brief “Math Autobiography”. This should include items such as

- Classes taken
- Positive experiences
- Negative experiences
- Overall attitude about math
- Strengths and weaknesses

Just getting these ideas on paper helps students to realize their situation, and gives you a quick snapshot into the mathematical background/baggage of your students.

Commonalities can be discussed in class, showing students that they are not the “only one”.

Math Anxiety – Assessment of Strengths and Weaknesses

During the last 5 minutes of class, have students list 3 reasons why they will pass the class, as well as completing the sentence "If I fail the class, it will most likely be because ..."

Collect all of the responses from students on their way out.

Prepare a summary list from both categories before the next class. Begin the next day with a discussion that will celebrate those strengths, and focus on how to overcome those potential shortcomings. Include your suggestions for overcoming math anxiety.

Time Management Weekly Calendar

Give a 1-week calendar and have students fill out commitments (classes, work, ...), travel time, sleep, meals, ...

Then have students pencil in time for studying and homework for each class.

Open discussion on whether this is enough time devoted to the course, is the plan realistic, etcetera.

Learning Styles #1

Brief Group Presentations

At the end of class, assign a particular problem to one group, based on the material covered that day. This can be selected from the homework exercises, or a problem of your own.

At the beginning of the next class they make a 5-minute presentation of their solution. The presentation should include auditory/visual components. Encourage them to use as much of the board as they can to present their work, and to make their explanations as clear and thorough as possible.

Learning Styles #2 - Pass the Pen

Instructor puts a problem on the board. This works best at the end of class, when you have time to sneak in that one extra example to make sure students truly understand before they leave.

A volunteer comes up to do 1 step, then passes the pen to another volunteer who does the next step, and so on.

Notetaking

"Building the Perfect Notes"

Give a carefully scripted 20-minute lecture. Include definitions, examples, and commentary.

After the 20 minutes, pair students together and have them compare their notes for 5 minutes. Give each pair 10 minutes to rewrite their notes based on their discussions.

Combine two pairs together and have each group of 4 compare their notes for 5 minutes. Give each group 10 minutes to rewrite their notes based on their discussions.

For homework, have each student supplement their notes with materials from the textbook.

On the next day of class, go over a list of things that students added to their notes.

Reading the Textbook #1

Think/Pair/Share

For homework have students read through several objectives or an entire section in the book. The earlier in the semester the better, while the material is on the “easier” side.

Students should summarize the main ideas and describe the types of examples covered.

At the beginning of class, put students in groups of 2-4 students. The students should compare what they have written with the rest of their group, looking for items or ideas they are missing.

Give the students a brief assignment, allowing them to use what they have written. This will allow the students to determine whether they got enough out of the reading.

Reading the Textbook #2

Main Features

Have students flip through 1 chapter in the textbook and make a listing of the different features in the book. This can be done individually, or in groups.

For each feature, discuss how it can be used to help the student learn and understand mathematics.

Doing Homework #1 Coping Strategies

Form groups of 2-4 students.

Have each group of students make a list of 5 coping strategies when stuck on a homework exercise. (5 minutes should be plenty of time.)

Collect the strategies on the board, 1 from a group at a time until all strategies are exhausted.

Comment/discuss the effectiveness/practicality of each.

Add any other strategies you can think of.

Doing Homework #2 - Note Cards

Assign homework near the end of the class period. Instruct students to check their answers after completing each of the exercises.

For any problem missed, the student should

- Write the problem, and what went wrong, on the front of the card.

- Work out the problem correctly on the back.

Collect the note cards to look them over. This will give you a snapshot of where your students are having trouble.

Briefly discuss how to use these note cards as part of an overall test preparation strategy, as well as the potential benefits of using these cards.

Memorization - Note Cards

Note cards are an effective tool for memorization. Here is a list of possible topics for which note cards would help students to memorize.

- Sign rules for integers
- Rules for arithmetic with fractions
- Formulas for factoring
- Set up for word problems
- First step for solving absolute value equations and inequalities
- Steps for graphing different types of functions/equations

Choose one topic early in the course, and make a set of note cards on the board. For example, in a prealgebra class covering multiplication and division of integers, the following would work.

Front	Back
Positive \times Positive Positive \div Positive	Positive
Positive \times Negative Positive \div Negative	Negative
Negative \times Positive Negative \div Positive	Negative
Negative \times Negative Negative \div Negative	Positive

As the course progresses, you can point out opportunities to create note cards.

Test Taking - Half Test

Write a varied test that will take half of a class period.

After the students have finished, give out a sheet with solutions.

Have students determine whether they are working quickly enough.

Have students determine which subjects/problems will require further study.

The main idea is to put students in a test-like situation prior to the test. This can be done before the first exam, and students can do this on their own prior to all subsequent exams.