Improving Reading of Developmental Mathematics
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These are the handouts we referenced in our presentation. They are designed to help your students:

- Use textbooks or online materials more effectively
- Take better lecture notes
- Create more useful study cards

We hope you enjoyed learning about the reading aspects of learning mathematics! Please contact either of us if you have questions.
ACTIVITY OUTLINE FOR TEXTBOOKS:

Objectives
1. Explain the meaning of text features such as section numbering, objectives, cautions.
2. Locate the Answers, Solutions, and Index sections.

A textbook can be very helpful. Find out what our book has to offer. First, let’s look at some general features that will help in all chapters. Explain what the feature is, list a page number showing one, and tell how you might use it. [Make a short activity in class for this, or assign it outside of class the first week. Students can work in pairs and turn in one paper, for example.]

Table of Contents

Section Numbering

Chapter Features
Four sample features that appear in the chapters in many books.

- Objectives.
- Periodic Check-Understanding Exercises.
- Cautions, Pointers, Notes, Calculator Tips, or other “Tips.”
- End-of-Chapter Features
  - Chapter Summary
  - Quick Review
  - Review Exercises. Make sure you do the Mixed Review Exercises to practice for tests.
  - Chapter Test
  - Cumulative Review

Answers

Flag the Answers Section with a sticky note or other device, so that you can turn to it quickly.

Solutions

Index
SAMPLE FOR ONLINE MATERIALS

Objectives
   1. Explore the features of the online materials; analyze when each part might be a useful exercise.
   2. Locate the practice quizzes and tests.

My Math Lab is one example of an online system and set of materials. It has many helpful features. What are they? When would students use them? [Many students ONLY use the “Homework” section because that is what their instructor assigns. How can you get them using the other ones?]

Homework (features inside this include “Ask My Instructor,” “Connect to a Tutor,” “Show me an example,” etc.)

Quizzes and Tests

Study Plan

Gradebook

Chapter Contents

Multimedia Library

Course Tools
Study Skills

Taking Lecture Notes

Objectives

1. Apply note taking strategies, such as writing problems as well as explanations.
2. Use appropriate abbreviations in notes.

Study the set of sample math notes in this section, and read the comments about them. Then try to incorporate the techniques into your own math note taking in class.

- The date and title of the day’s lecture topic are always at the top of every page. Always begin a new day with a new page.
- Note the definition of expression is written in and examples are included.
- Notice the labels on all parts.
- Skipping lines makes the notes easier to read
- See the box which reminds you about an important idea. Underlining is used for emphasis.
- See how the direction word (evaluating) is emphasized and explained.
- Notice the two columns, which allow for the example and its explanation to be close together. Whenever you know you’ll be given a series of steps to follow, try the two-column method.
- Also, notice the reminder comment about how the final answer should look.
- See the warning—Careful! This alerts you to a common point of confusion
Why are these notes brain friendly?

The notes are easy to look at, and you know that the brain responds to things that are visually pleasing. Other techniques that are visually memorable are the use of spacing (the two columns), stars, underlining, and circling. All of these methods allow your brain to take note of important concepts and steps.

The notes are also systematic, which means that they use certain techniques regularly. This way, your brain easily recognizes the topic of the day, the signals that show an important point, and steps to follow for procedures. When you develop a system that you always use in your notes, your notes are easy to understand later when you are reviewing for a test.

NOW TRY THIS:

Find one or two people in your math class to work with. Compare each other’s lecture notes over a period of a week or so. Ask yourself the following questions as you examine the notes.

1. What are you doing in your notes to show the main points or larger concepts? (Such as underlining, boxing, using stars, capital letters, etc)

2. In what ways do you set off the explanations for worked problems, examples, or smaller ideas (subpoints)? (Such as indenting, using arrows, circling or boxing)

3. What does your instructor do to show that he/she is moving from one idea to the next? (Such as saying “Next” or “any questions,” “now,” or erasing the board, etc.)

4. How do you mark that in your notes? (Such as skipping lines, using dashes or numbers, etc.)

5. What explanations (in words) do you give yourself in your notes, so when those new dendrites you grew in lecture are fading, you can read your notes and still remember the new concepts later when you try to do your homework?

6. What new ideas did you learn by examining your classmates’ notes?

7. What will you try in your own note taking? List four techniques that you will use next time you take notes in math.

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Study Skills

Using Study Cards

Objectives

1. Create study cards for all new terms.
2. Create study cards for new procedures.

You may have used “flash cards” in other classes before. In math, study cards can be helpful too. However, they are different because the main things to remember in math are not necessarily terms and definitions, they are *sets of steps to follow* to solve problems (and how to know which set of steps to follow), and *concepts about how math works* (principles). So, the cards will look different, but be just as useful. Look carefully at what kinds of information to put on them and where to put it. Then use them the way you would any flash card:

- to quickly review when you have a few minutes,
- to do daily reviews,
- to review before a test.

**But remember, the most helpful thing about study cards is making them.** It is in the making of them that you have to do the kind of thinking that is most brain friendly and will improve your neural network of dendrites. After each card description you will find an assignment to try. It is marked “NOW TRY THIS.”

New Vocabulary Cards

Put the word (spelled correctly) on the front of the card. On the back, write:

- the definition (in your own words if possible),
- an example, an exception (if there are any),
- any related words, and
- a sample problem (if appropriate).

<table>
<thead>
<tr>
<th>Front of Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>variable</td>
</tr>
<tr>
<td>p, 84</td>
</tr>
</tbody>
</table>
Back of Card

**Def:** A letter representing a number that varies (changes) depending on the situation.

**Example:** \( c + 5 \) where \( c \) represents the class limit \( \text{variable} \) \( \text{constant} \) \( \text{varies} \leftrightarrow \text{variable} \)

- Use any letter you like: \( a, b, c, d, h, k, m, n, p, x, y \) etc.
- Related words: constant, coefficient

**NOW TRY THIS:** List 4 new vocabulary words/concepts you need to learn right now. Make a card for each one.

Front of Card

**Evaluating an expression**

**Step 1:** Replace each variable with the value you are given.

**Step 2:** Do the calculations, following the order of operations.

Procedure ("Steps") cards

Write the name of the procedure at the top on the front of the card. Then write each step *in words*. If you need to know abbreviations for some words, include them along with the whole words written out. On the back, put an example of the procedure, showing each step you need to take. You can review by looking at the front and practicing a new worked example, or by looking at the back, and remembering what the procedure is called and what the steps are.
NOW TRY THIS: What procedure are you learning right now? Write below the steps that you will put on your study card.

Procedure: ____________________________________________
Step 1.________________________________________________
Step 2.________________________________________________
Step 3.________________________________________________
Step 4.________________________________________________
Step 5.________________________________________________

Example: Evaluate $3c - 5$ when $c$ is 20.

\[
\begin{align*}
3c - 5 & \quad \text{Replace } c \text{ with } 20. \\
3(20) - 5 & \quad \text{Do the calculations.} \\
60 - 5 & \quad \text{Follow order of operations; multiply first, then subtract.} \\
55 & \quad \text{No variables in final answer.}
\end{align*}
\]
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