

## AMP Math: Getting Ready for Instruction

### Introduction

This guide walks through the instructional plan for AMP Math and discusses how to teach Unit 1. Gather the AMP Math materials. This guide refers to different sections of the Teacher’s Edition and Student Guide.

It is important to become familiar with the components and how the program is organized. Be sure to watch the *Program Overview* tutorial on this Web site.

AMP Math is structured with the teacher in mind. Its layout provides step-by-step instructions and support throughout the program. This program is designed to support the veteran math teacher, the first-year teacher, and even those who teach a subject other than math.

The material discussed in this guide is from Level 1, Volume 1; however, what is covered applies to any level.

### Unit Structure

Each level is broken down into two volumes: Volume 1 covers Units 1–4 and Volume 2 covers Units 5–7. This guide focuses on the structure of the units, specifically Unit 1.

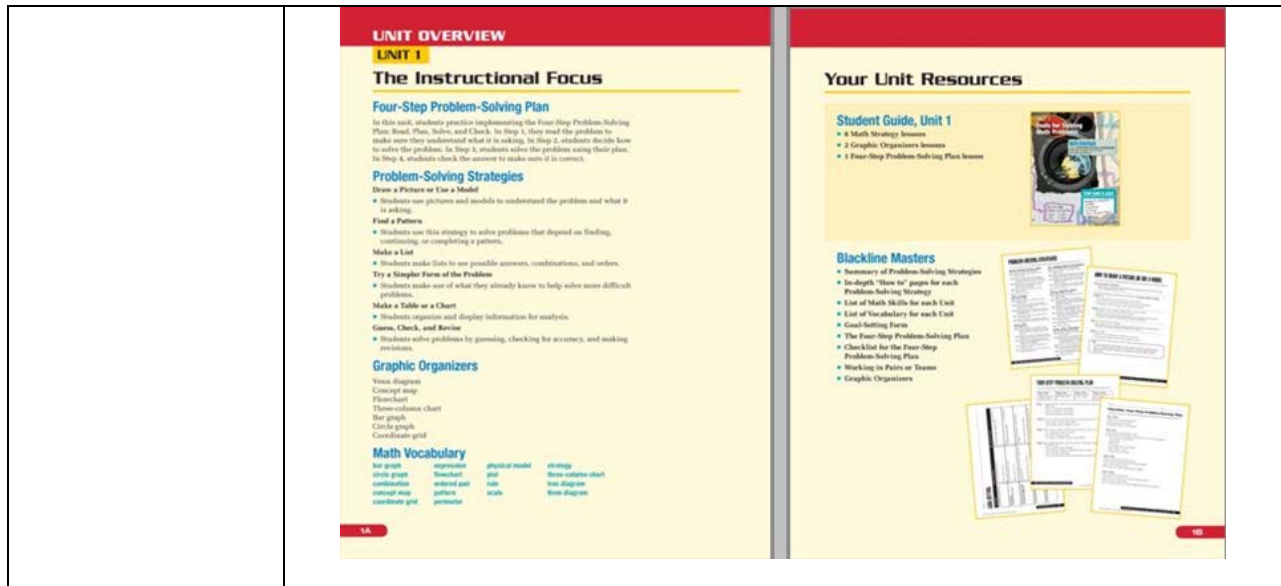
Turn to page T3 in the Teacher’s Edition. This page shows the Contents for the volume.



Before teaching a unit, it is important to know the objectives, materials, resources, and strategy used to teach the unit.

### Unit Overview

A Unit Overview is provided at the start of each unit in the Teacher’s Edition. The Unit Overview for Unit 1 is on page 1A. The instructional focus of the unit and the resources needed to teach it can be found on this page.



**Resources**

For Unit 1, the resources are listed on page 1B. The Student Guide and the blackline masters are listed as resources needed for this lesson.

**Objectives and Materials**

Turn to page 1C to find the Unit Preview.



Each Unit Preview begins with the objectives and materials needed.

### **Objectives**

- Introduce the unit theme
- Introduce the unit goals
- Reinforce the vocabulary of mathematics
- Help students set their own goals

### **Materials**

- Unit 1 Student Guide
- Goal-Setting Form, p. 297

Start by introducing the unit to the students and building the background for what is being taught. For each unit, do the following:

- Introduce the unit topics.
- Introduce the goals of the unit.
- Help students set goals for themselves.

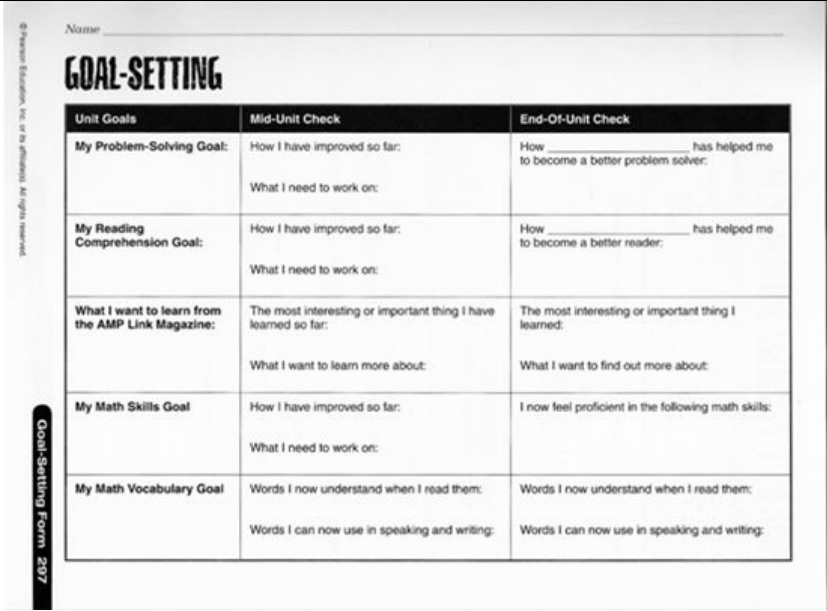
Questions to support this introduction are provided, including the following:

- What are tools used for?
- Can you give examples of some tools?

Using such open-ended questions for which there are no right or wrong answers helps build students' confidence because no matter what they say, it is right. Building students' confidence is very important in any intervention program.

The questions will tie into a mathematical concept later in the unit. In this example, tools are compared to the strategies students will use to solve problems.

This leads into the discussion of the unit goal, which is to learn the different types of problem-solving strategies. Setting goals is important for students. For each unit in AMP Math, students will fill out the Goal-Setting form on page 297.

	 <p>This will help them set goals and check along the way to see if they are meeting them.</p>
<p><b>Four-Step Plan</b></p>	<p>After introducing the unit and its goals, it is time to introduce the foundation of AMP Math: the four-step problem-solving plan.</p> <p>Turn to page 2 of the Teacher’s Edition. The Student Guide is on each page of the Teacher’s Edition, but what’s important is what appears all around it. What appears around it is the four-step problem-solving plan students will use throughout the program.</p> <p>The following is the four-step problem-solving plan:</p> <ol style="list-style-type: none"> <li>1. Read</li> <li>2. Plan</li> <li>3. Solve</li> <li>4. Check</li> </ol> <p>First, students will read the problem. Then, they’ll decide how to solve it. They’ll solve the problem using their plan, and then they’ll check the answer to make sure it’s correct.</p>
<p><b>Six-Step Problem-Solving Approach</b></p>	<p>In Step 3 of the problem-solving plan, students will solve the problem. In trying to solve the problem, they will need to decide which strategy to use. The six different problem-solving strategies in AMP Math are the following:</p> <ul style="list-style-type: none"> <li>• Draw a picture or use a model</li> <li>• Find a pattern</li> <li>• Make a list</li> <li>• Try a simpler form of the problem</li> <li>• Make a table or chart</li> <li>• Guess, check, and revise</li> </ul>

	<p style="text-align: center;"><b>Problem-Solving Strategies</b></p> <p><b>Draw a Picture or Use a Model</b></p> <ul style="list-style-type: none"> <li>• Students use pictures and models to understand the problem and what it is asking.</li> </ul> <p><b>Find a Pattern</b></p> <ul style="list-style-type: none"> <li>• Students use this strategy to solve problems that depend on finding, continuing, or completing a pattern.</li> </ul> <p><b>Make a List</b></p> <ul style="list-style-type: none"> <li>• Students make lists to see possible answers, combinations, and orders.</li> </ul> <p><b>Try a Simpler Form of the Problem</b></p> <ul style="list-style-type: none"> <li>• Students make use of what they already know to help solve more difficult problems.</li> </ul> <p><b>Make a Table or a Chart</b></p> <ul style="list-style-type: none"> <li>• Students organize and display information for analysis.</li> </ul> <p><b>Guess, Check, and Revise</b></p> <ul style="list-style-type: none"> <li>• Students solve problems by guessing, checking for accuracy, and making revisions.</li> </ul> <p>These problem-solving strategies will be used throughout all of the units in the AMP Math System, so it's very important that students understand them.</p>
<p><b>Unit 1</b></p>	<p>Unit 1 is focused on teaching students the six different problem-solving strategies they'll use throughout the program when they use the four-step problem-solving plan. In Units 2-7, they'll apply these six problem-solving strategies.</p> <p>To learn how to teach one of these units, please watch the AMP Math tutorial <i>Teaching a Lesson</i> on this Web site.</p>
<p><b>Lesson 1</b></p>	<p>Turn to page 2 of the Teacher's Edition. The objective and materials needed appear on the top left-hand corner of the page.</p> <p>In some lessons, there are even helpful notes, such as the FYI.</p> <div data-bbox="678 1285 1214 1713" data-label="Image"> <p><b>FYI</b> This lesson introduces the Four-Step Problem-Solving Plan. This plan is a method students can use to solve math problems step-by-step. Students learn to read and understand the problem, make a plan to solve it, solve the problem using that plan, and check their answer. By breaking the problem into simpler stages, the Four-Step Problem-Solving Plan provides a structure for approaching and solving problems. It gives students an outline to follow, thereby limiting confusion.</p> </div> <p>Throughout the units common errors students may make are shown, such as the one on page 9. AMP Math makes teaching this program easy by providing step-by-step instructions and helpful resources like the FYI and common error boxes.</p>

<p><b>Step 1</b></p>	<p>Look at the program from a student's perspective. Take out the Student Guide and turn to page 2. The four-step problem-solving plan is shown:</p> <ol style="list-style-type: none"> <li>1. Read</li> <li>2. Plan</li> <li>3. Solve</li> <li>4. Check</li> </ol> <p>Start Lesson 1 by engaging students and asking them what kinds of activities follow a set of steps. (This is another open-ended question with no right or wrong answer.)</p> <p>Now introduce the four steps. Following Step 1, read Problem 1 aloud and ask students what they are trying to find out: Sam works twenty hours a week and earns \$9 an hour. How much will he earn in two weeks?</p>
<p><b>Step 2</b></p>	<p>Following Step 2, have the students make their plan. Ask them what operation they will use. They are trying to find out how much Sam earns in two weeks: he worked twenty hours and earns \$9 an hour. The operation they will use is multiplication. Next, ask how many times they will multiply and what numbers will they be multiplying.</p>
<p><b>Step 3</b></p>	<p>After students have written their plan in Step 2, they are ready to move on to Step 3: solving the problem. They will solve the problem by multiplying <math>20 \times 9</math> and multiplying their answer by 2 for a total of \$360 for two weeks.</p>
<p><b>Step 4</b></p>	<p>The last step, Step 4, is to check their answer. After they've solved the problem and checked their answer, have students pair up and solve another problem to reinforce what they just learned. Be sure to emphasize the four-step problem-solving approach for solving the problem.</p> <p>After they complete it, have them share their answers with the entire class, and ask them to walk through the four steps.</p>
<p><b>Lessons 2–9</b></p>	<p>Unit 1 is focused on teaching the strategies students will use throughout the AMP Math program. Within Unit 1, there are nine lessons. These nine lessons introduce the problem-solving strategies and how to use them.</p> <p>Turn to page 4 of the Student Guide. Notice the vocabulary called out in a yellow box on the top right-hand side of the page. Vocabulary becomes an integral part of the lesson. Calling it out in the box and then highlighting it throughout the text reinforces the vocabulary to students.</p> <p>The read, plan, solve, and check process is used in every problem. In this lesson, students are introduced to the concept that sometimes drawing a picture can help them better understand the problem.</p> <p>The example on page 4, which students should look at before they start</p>

	<p>trying to solve a problem, shows red and blue bumper cars. Students are asked to count the total number of cars shown, which is nine.</p> <p>After students look at the example they are given about bumper cars, they are ready to move on to the first problem. Remember, follow the four-step problem-solving approach:</p> <ol style="list-style-type: none"> <li>1. Read</li> <li>2. Plan</li> <li>3. Solve</li> <li>4. Check</li> </ol> <p>First, have students read the problem: Pam had eight fish in her fish tank. Then she added nine more fish to the tank. How many fish are in the tank now? Use the draw a picture or use a model strategy to solve this problem.</p> <p>Next, they'll make their plan. Ask them, "What do you know?" They know that Pam has eight fish and is adding nine more. The plan is to draw a group of eight fish and a group of nine fish, and then count them.</p> <p>Now it's time to solve the problem. Once they have their drawing complete from the planning phase, it's time to count the fish and solve the problem.</p> <p>They solve the problem; the answer is seventeen fish. Then they'll check their answer by writing <math>8 + 9 = 17</math></p> <p>The other five problem-solving strategies are introduced as follows:</p> <ul style="list-style-type: none"> <li>• Lesson 3: Find a pattern</li> <li>• Lesson 4: Make a list</li> <li>• Lesson 6: Try a simpler form of the problem</li> <li>• Lesson 7: Make a table or chart</li> <li>• Lesson 8: Guess, check, and revise</li> <li>• Lessons 5 and 9 introduce graphic organizer skills</li> </ul>
<p><b>Review</b></p>	<p>This guide examined the instructional plan for AMP Math. It discussed Unit 1 and the four-step problem-solving plan that involves the steps read, plan, solve, and check. Finally, it looked at the six problem-solving strategies students will use to solve math problems.</p> <p>The <i>Teaching a Lesson</i> tutorial walks through teaching another lesson in Unit 2, including how to use the AMP Link Magazine and Skills Workbook with it. It shows how Unit 1 builds the base for the other units.</p> <p>To learn more about AMP Math, please watch the other AMP Math tutorials on this Web site.</p>