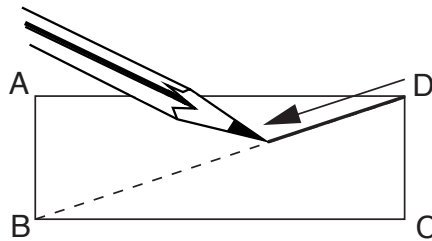
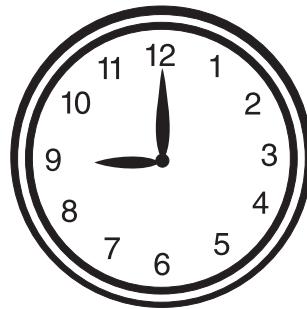
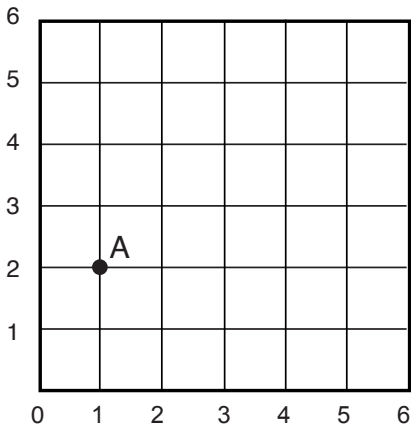


Arithmetic

SECOND EDITION

2



$$\begin{array}{c} \text{6 pencils} \\ \div 2 = \text{3 pencils} \end{array} \quad \text{3 IN A GROUP}$$

TEACHER'S MANUAL

Second Edition
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Introduction

Teaching your child arithmetic need not be frightening, and it need not be dull. You can make all the difference in how your child perceives numerical realities, and you are most qualified for the task. Why? No person has the intense interest in your child's education, the intimate knowledge of your child's abilities and personality, or the "everyday-life" teaching opportunities that you, as his parent, possess.

Remember, too, that in leading your child into these truths, you are leading him into an understanding of some of the aspects of the very nature of God Himself! The God of the Bible reveals Himself as one God in three Persons; His is a numerical nature. The mathematical aspects of His creation are reflections of the mathematical aspects of His nature. Scripture also insists (Colossians 2:2–3) that in Christ Himself are hidden all the treasures of wisdom and knowledge, and in Him all things hold together (Colossians 1:17).

Education is, therefore, fundamentally and uniquely a Christian adventure! Lift your heart to the Savior for His strength, His perseverance, and His wisdom as you undertake this singularly Christian endeavor.

It will be repeated throughout this teacher's manual that your *Arithmetic 2, 2nd Edition* workbook is only one small part of your student's study. In fact, we have prepared this teaching guide to help you understand the educational objectives of your second grade arithmetic course, the components of an arithmetic lesson, and the exact role of the *Arithmetic 2* workbook in your teaching. We also provide you with specific help in preparing your arithmetic lesson plans and with ideas and strategies for teaching various concepts included in this course. May the Lord be with you as you follow Him in teaching your child.

Section I

Components of the Arithmetic 2 Daily Lesson

We mention throughout this manual that the workbook for this course represents only a small part of your work with your student. It is essentially the “last stop” at the end of each arithmetic lesson. The concepts and skills to be taught in this course are listed in detail, according to workbook chapter, in the section entitled “Details of Learning Objectives—Listed by Chapter” (see page 3 of this manual). The objectives listed in that section will be important in developing your lesson plans.

Each day’s lesson should consist of the five major components listed below. The relationship between these components of your daily lesson and your student’s success on the workbook pages and tests is much like the relationship between phonics and reading. Just as basic phonics drills and exercises lay the foundation for reading, so do the rehearsal of counting drills, the memorization of addition and subtraction facts and families, and the memorization of multiplication and division tables prepare the student for successful completion of the workbook pages and corresponding tests.

◆ Component 1—Counting Exercises

Have the student count by ones, by twos, by fives, by tens, by twenty-fives, by fifties, by hundreds, by thousands, and so on. This can be accomplished in many ways, such as, counting a jar of pennies or bag of marbles, counting via the hundred chart or a number line, and oral recital of sequences.¹ Counting exercises are especially helpful in preparing students to count money and to memorize the multiplication tables. For example, the “times 2” facts follow readily once the student can count by twos. Two or three weeks before teaching the “times 5” (or “times 10”) facts, make sure your student has practiced counting by fives (or by tens).

◆ Component 2—Number Families and Tables

The term “family” is used in this course for the organization of addition and subtraction facts, even as multiplication and division facts are organized into “tables.” Rehearsing the facts may be accomplished in different formats: reciting the facts, writing the facts, singing the facts, demonstrating the facts with manipulatives, answering random quiz questions on the facts, working with flash cards, posing “missing number” problems.² Be creative, but be thorough and consistent. The Families and Tables are a core part of this course, and they need to be rehearsed each day. All are provided for you at the end of this manual.³

◆ Component 3—Chapter Topics

The list of topics given under a chapter heading⁴ will set your goals for what you are to teach while studying that chapter. Not every topic must be (or can be) discussed every day, but a systematic and thorough tour through the list is necessary. If *place value*, for example, is one

1 See Section IV “Ideas and Strategies for Teaching,” p. 16.

2 See Section IV “Ideas and Strategies for Teaching,” p. 16.

3 See Section V “Addition and Subtraction Families,” p. 28 and Section VI “Multiplication and Division Tables,” p. 36.

4 See Section II “Details of Learning Objectives—Listed by Chapter,” p. 3.

learning objective for your chapter, then exercises and activities on this topic should be a part of your teaching time for several days while you are progressing through that chapter.

◆ Component 4—Workbook Page Topics

The final checkpoint in planning a day's arithmetic lesson will need to be an inspection of the problems and questions appearing on your child's workbook pages for that day. Should you discover any concepts there that you have not already covered in structuring the earlier lesson components, then make these a part of your teaching plan also.

Interspersed throughout the workbook (e.g., exercises 6 & 7 on page 22), you will find problems that require your direct involvement. Some, such as exercise 6, simply call for you to audibly select an option from the list presented. Others, however, (e.g., exercise 7) require you to choose which problems to present. If your student is having difficulty with a particular number or concept, focus some of your exercises on those. Otherwise, randomly choose problems that represent what has recently been studied.

◆ Component 5—Workbook Assignment

When you have worked through the first four components with your student, she should now be equipped to complete the workbook pages. Initially, it will probably be necessary to sit beside your child as she works through the problems, reading the questions and giving general guidance. The goal, however, is to eventually permit her to do this part of the work independently. When she has completed the assignment, read over her work and discuss any errors. Allow her the opportunity to correct her work before closing the arithmetic lesson.

Remarks

Lesson plans, then, are constructed with these five components in view. Lesson plans answer the questions: what will I teach my student(s), in what order, and how will I teach? In the next section of this manual, we have included a breakdown of the concepts and skills to be taught for each chapter of the workbook. This section should be of great help to you in planning your teaching schedule.

In Section III, we demonstrate the process of composing lesson plans by creating sample lesson plans for the first week of *Arithmetic 2* (see page 9 in this manual). Most parent-teachers create lesson plans for a week at a time, though some write lesson plans for a month at a time. Others plan out their lessons for a chapter at a time, and a few write lesson plans for the entire course ahead of time. We recommend planning at least a week in advance. This keeps the project a manageable one, assures continuity of ideas through the school week, and permits flexibility and adjustment of your lessons as you discover those concepts your child learns quickly and those that take longer to grasp.⁵

⁵ The *CLASS Lesson Planner*, published by Christian Liberty Press, is another excellent resource for organizing and writing weekly lesson plans.