



SHELL
EDUCATION

PRACTICE - ASSESS - DIAGNOSE

Grade

6

180 Days of MATH

for Sixth Grade

$A = \frac{1}{2}bh$

$\frac{1}{2} \div \frac{3}{x}$

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INTRODUCTION AND RESEARCH

The Need for Practice

In order to be successful in today’s mathematics classroom, students must deeply understand both concepts and procedures so that they can discuss and demonstrate their understanding. Demonstrating understanding is a process that must be continually practiced in order for students to be successful. According to Marzano (2010, 83), “practice has always been, and will always be, a necessary ingredient to learning procedural knowledge at a level at which students execute it independently.” Practice is especially important to help students apply their concrete, conceptual understanding to a particular procedural skill.

Understanding Assessment

In addition to providing opportunities for frequent practice, teachers must be able to assess students’ understanding of mathematical procedures, terms, concepts, and reasoning (Kilpatrick, Swafford, and Findell 2001). This is important so that teachers can adequately address students’ misconceptions, build on their current understanding, and challenge them appropriately.

Assessment is a long-term process that often involves careful analysis of student responses from a lesson discussion, project, practice sheet, or test. When analyzing the data, it is important for teachers to reflect on how their teaching practices may have influenced students’ responses and to identify those areas where additional instruction may be required. In short, the data gathered from assessments should be used to inform instruction: slow down, speed up, or reteach. This type of assessment is called *formative assessment* and is used to provide a seamless connection between instruction and assessment (McIntosh 1997).

HOW TO USE THIS BOOK

180 Days of Math for Sixth Grade offers teachers and parents a full page of daily mathematics practice activities for each day of the school year.

Easy to Use and Standards-Based

These activities reinforce grade-level skills across a variety of mathematical concepts. The questions are provided as a full practice page, making them easy to prepare and implement as part of a classroom morning routine, at the beginning of each mathematics lesson, or as homework.

Every sixth-grade practice page provides 12 questions, each tied to a specific mathematical concept. Students are given the opportunity for regular practice in each mathematical concept, allowing them to build confidence through these quick standards-based activities.

Question	Mathematics Concept	NCTM Standards
1	Addition or Subtraction	Understands numbers, ways of representing numbers, relationships among numbers, and number systems; Understands the meanings of operations and how they relate to one another; Computes events and makes reasonable estimates
2	Multiplication	
3	Division	
4	Place Value or Number Sense	
5	Fractions, Decimals, and Percents	Works flexibly with fractions, decimals, and percents to solve problems; Compares and orders fractions, decimals, and percents efficiently; Understands the meaning and effects of arithmetic operations with fractions and decimals
6	Order of Operations and Patterns	Understands the meanings of operations and how they relate to one another
7	Algebra and Algebraic Thinking	Understands patterns, relations, and functions; Represents and analyzes mathematical situations and structures using algebraic symbols
8		
9	Measurement	Understands measurable attributes of objects and the units, systems, and processes of measurement; Applies appropriate techniques and formulas to determine measurements
10	Geometry	Uses visualization and spatial reasoning to solve problems; Analyzes characteristics and properties of two- and three-dimensional geometric shapes
11	Data Analysis/Probability	Selects and uses appropriate statistical methods to analyze data; Understands and applies basic concepts of probability
12	Word Problem/Logic Problem or Mathematical Reasoning	Solves problems that arise in mathematics and in other contexts; Applies and adapts a variety of appropriate strategies to solve problems

Standards are listed with the permission of the National Council of Teachers of Mathematics (NCTM). NCTM does not endorse the content or validity of these alignments.

HOW TO USE THIS BOOK *(cont.)*

Using the Practice Pages

As outlined on page 4, every question is aligned to a mathematics concept and standard.

Practice pages provide instruction and assessment opportunities for each day of the school year.

Each question ties student practice to a specific mathematics concept.

DAY 26 NAME: _____

DIRECTIONS Solve each problem.

SCORE

1. Y N 1. $\begin{array}{r} 19 \\ + 24 \\ \hline \end{array}$

2. Y N 2. $7 \cdot 9 = \underline{\quad}$

3. Y N 3. Divide -48 by 8 .

4. Y N 4. Is $9,642$ greater than $9,462$?

5. Y N 5. Write $4\frac{1}{2}$ as an improper fraction.

6. Y N 6. Write the rule for the pattern.
100, 81, 64, 49, 36

7. Y N 7. Find k .
 $3k = 159$

8. Y N 8. $45 \square 8 = 5,625$

9. Calculate the area of the shape.

10. Draw a top view of the cube.

11. **Birds Seen**

Bird Type	Count
finches	1
darlings	1
mudlarks	1
other	1
parrots	1
sparrows	1
magpies	4

Were more magpies seen than mudlarks?

12. Mia has a bag full of \$0.10 and \$0.25 coins. In how many different ways can she pay for a drink that costs \$1.50?

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Using the Scoring Guide

Use the scoring guide along the side of each practice page to check answers and see at a glance which skills may need more reinforcement.

Fill in the appropriate circle for each problem to indicate correct (Y) or incorrect (N) responses. You might wish to indicate only incorrect responses to focus on those skills. (For example, if students consistently miss numbers 2 and 6, they may need additional help with those concepts as outlined in the table on page 4.) Use the answer key at the back of the book to score the problems, or you may call out answers to have students self-score or peer-score their work.

HOW TO USE THIS BOOK *(cont.)*

Diagnostic Assessment

Teachers can use the practice pages as diagnostic assessments. The data analysis tools included with the book enable teachers or parents to quickly score students' work and monitor their progress. Teachers and parents can see at a glance which mathematics concepts or skills students may need to target in order to develop proficiency.

After students complete a practice page, grade each page using the answer key (pages 191–206). Then, complete the *Practice Page Item Analysis* (page 7, or *pageitem.pdf*) for the whole class, or the *Student Item Analysis* (page 8, or *studentitem.pdf*) for individual students. These charts are also provided as both *Microsoft Word*® files (*pageitem.doc* and *studentitem.doc*) and as *Microsoft Excel*® files (*pageitem.xls* and *studentitem.xls*). Teachers can input data into the electronic files directly on the computer, or they can print the pages and analyze students' work using paper and pencil.

To complete the Practice Page Item Analysis:

- Write or type students' names in the far-left column. Depending on the number of students, more than one copy of the form may be needed or you may need to add rows.
- The question numbers are included across the top of the chart. Each item correlates with the matching question number from the practice page.
- For each student, record an *X* in the column if the student has the item incorrect. If the item is correct, leave the item blank.
- If you are using the *Excel* file, totals will be automatically generated. If you are using the *Word* file or if you have printed the PDF, you will need to compute the totals. Count the *Xs* in each row and column and fill in the correct boxes.

To complete the Student Item Analysis:

- Write or type the student's name on the top row. This form tracks the ongoing progress of each student, so one copy per student is necessary.
- The question numbers are included across the top of the chart. Each item correlates with the matching question number from the practice page.
- For each day, record an *X* in the column if the student has the item incorrect. If the item is correct, leave the item blank.
- If you are using the *Excel* file, totals will be automatically generated. If you are using the *Word* file or if you have printed the PDF, you will need to compute the totals. Count the *Xs* in each row and column and fill in the correct boxes.

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