PRACTICE

Practicing computational skills is an important component in developing procedural fluency. The goal is for students to be able to execute procedures automatically without conscious thought. Hiebert (1990) describes this as automaticity.

While the availability of calculators and computers has made practice of computation with very large numbers unnecessary, research strongly supports the necessity of practice for procedures that are regularly required to complete other tasks.

Basic multiplication combinations such as $4 \times 6 = 24$ and $6 \times 7 = 42$ are needed for estimation, multidigit multiplication, single-digit division, multidigit division, and addition and multiplication of fractions, to name a few. Therefore multiplication combinations need to be practiced until they can be produced quickly and effortlessly (NRC, 2001, p. 351).

The role of practice in Houghton Mifflin Math is in line with this research. Students learn computational skills, but are regularly encouraged to use calculators when working with larger numbers.

The practice in Houghton Mifflin Math is of two types: practice on the lesson topic and practice on topics studied earlier during the year.

...mastery is achieved gradually and once achieved is maintained through regular practice (NRC, 2001, p. 351).
In the primary grade levels of *Houghton Mifflin Math*, a feature called Key Topic Review provides opportunities for students to maintain previously taught skills. In grades 3–6, Daily Review serves a similar purpose.

In *Houghton Mifflin Math*, computational skills are also practiced by solving problems. This, too, is justified by research. Several studies (Carpenter et al., 1989; Cobb et al., 1991; Fennema et al., 1996; Hiebert and Wearne, 1993) showed that when a group of primary teachers shifted their emphasis from skills to problem solving, there was no overall change in students’ computational performance.

Homework can be an effective tool for helping students practice their skills.

Several useful purposes that homework can serve have been identified, including providing practice, preparing students for the next class, fostering traits such as responsibility and independence, and communicating with the home (NRC, 2001, p. 352).

Homework...must be coordinated with your instructional objectives and reflect what happens in your classroom (Van de Walle, 2001).
Two components of *Houghton Mifflin Math* provide homework. For grades K–2, family letters (Math at Home) provide activities for parents, guardians, or caretakers to do with their children at home. Suggestions for story books about relevant mathematical topics are also included. Homework masters geared specifically to text lessons are provided for grades 1–6.

As a site for practice, homework can be used to increase procedural fluency and maintain skill....Students, however, need to be able to perform procedures correctly before they undertake practice without supervision. Otherwise the practice can automatize incorrect procedures, which are then difficult to correct (NRC, 2001, p. 352).

Because Homework sheets are included in the *Houghton Mifflin Math* program, the exercises in the textbook can be done in class. That way teachers can be sure students understand the concepts and procedures before they venture out on their own. At the top of each Homework sheet, there is a short review of the lesson for students who may need that.

Students can be assigned tasks for homework...to engage the class in an enrichment activity (NRC, 2001, p. 352).

Enrichment sheets are provided for every lesson. These also are appropriate for homework.