Preface for Educators and Learners

*Math Basics for the Health Care Professional* was written to serve a large population of learners preparing for careers within health occupations as well as those working toward employment upgrades in the field. Suggested specific applications of this work text are high school vocational programs; adult education programs that prepare students for health fields; self-study by individuals preparing for workplace transitions, upgrades, or changes; pre-nursing studies; in-house or on-the-job training programs; and a general brush-up for work in the health care professions. The work text was designed with student success in mind. The context is geared toward allied health students, and this contextualization helps students appreciate the value of learning math for success in their future health care careers.

The text begins with a comprehensive pre-test to gauge students’ abilities and areas where remediation is required. The 15 units in the text cover the following topics: whole number review; fractions; decimals; metric measurement; ratio and proportion; measurement conversions; percents; combined applications; pre-algebra basics; reading drug labels, medicine cups, syringes, and intravenous fluid administration bags; apothecary measurement and conversion; dosage calculations; parenteral dosages; basic intravenous fluid administration; and basic dosage by body weight. Each unit provides a 15-question pre-test for additional practice in self-assessment, followed by a concept review and instruction, examples, practice problems, critical thinking questions, and a post-test. Students will find the answers to the odd-numbered practice problems in Appendix C. In addition, extra practice units are included in Appendix B, and Appendix A contains a comprehensive post-test.

A Focus on Adult Learners

The materials in this work text have been successfully applied to help students prepare for a wide variety of health care training fields at a technical college. Students’ feedback and input have played a prominent role in the design and sequencing of the content, teaching methods, and presentation. Thus, the text’s organization is central to students’ success. The students who have worked through these materials have been successful in their vocational training and workplace upgrading because they have reached a mastery level in the fundamental concepts, making them ready to learn the additional concepts and applications of their specific training areas.

This work text focuses on the needs of adult learners and features the following learner-based tools for success:

- Sequential skill building on basic math skills
- Ties between the application of the skill and each math concept
- Mnemonic devices to build memory of the basic skills
- A variety of practice opportunities with occupation-based examples and problems
- Mixed applications to build on basic skills and promote critical thinking
PREFACE FOR EDUCATORS AND LEARNERS

• Post-tests to promote confidence and skill building
• Critical thinking applications to increase application and skill building
• White space in the design for thinking and working through the problems

New to This Edition

This fifth edition continues to provide a basic mathematics approach as well as dimensional analysis for all the application units. An appendix that is focused exclusively on dimensional analysis provides students further instruction on and examples of this sometimes challenging concept. Another appendix includes student resources, such as graphic organizers and other tools that provide additional support and strategies for learning and working in math.

The fifth edition of this work text has been updated to include the following features and changes:

• Updated unit (chapter) organization now places metric measurement content after decimal content for improved flow
• New information on the different classes or schedules of drugs
• Reduced use of apothecary measurements such as minimis and units
• Large illustrations to help students visualize and solve problems
• New location of the metric conversions and additional graphics to assist in memorizing the conversions
• New unit on measurement conversions
• Updated drug labels to meet industry standards and changes
• Addition of Clark’s, Young’s and Fried’s Rules to the Basic Dosage by Body Weight unit
• Full-color design that includes room for students to work out math problems

About the Author

Michele Benjamin Lesmeister has more than 40 years of experience teaching a wide variety of adults including second-language learners, industry experts, college preparatory students, public agency personnel, and other faculty. She embraces the attitude that all students can learn math. Furthermore, she believes that a student’s success is often tied to the presentation of materials. Therefore, the colloquial quality of this text’s explanations of math processes creates a can-do approach to and image of math. In health care, math is a necessary job skill; math proficiency, in turn, will lead to more job opportunities.

Supplements

The Instructor’s Resource Manual has reproducible tests that accompany the work text as a ready test bank on which instructors can rely. The unit tests (two per unit) ask the student to perform math calculations similar to those in the units. These unit tests each require 25 answers; thus, the tests do not overwhelm the student, but promote self-reliance and confidence-building in math.
Two post-tests, which ask students to supply a total of 50 answers, are included.

Pearson’s MyLab for Health Professions (access code required) is a comprehensive online program that gives the student the opportunity to test his or her understanding of information and concepts and allows the instructor to see how well the student knows the material. From the test results, MyLab builds a self-paced, personalized study plan unique to the student’s needs. The student can work through the program until the study plan is complete and he or she has mastered the content.

TestGen allows instructors to design customized quizzes and exams. The TestGen wizard guides instructors through the steps to create a simple test with drag-and-drop or point-and-click transfer. Instructors can select test questions either manually or randomly and use online spell-checking and other tools to quickly polish the test content and presentation. Instructors can save the test in a variety of formats both locally and on a network, print up to 25 variations of a single test, and publish the tests in an online course.

PowerPoint lectures contain key discussion points, along with color images, for each chapter. This feature provides dynamic, fully designed, integrated lectures that are ready to use and allows instructors to customize the materials to meet their specific course needs. These ready-made lectures will save instructors time and ease the transition into use of this resource.