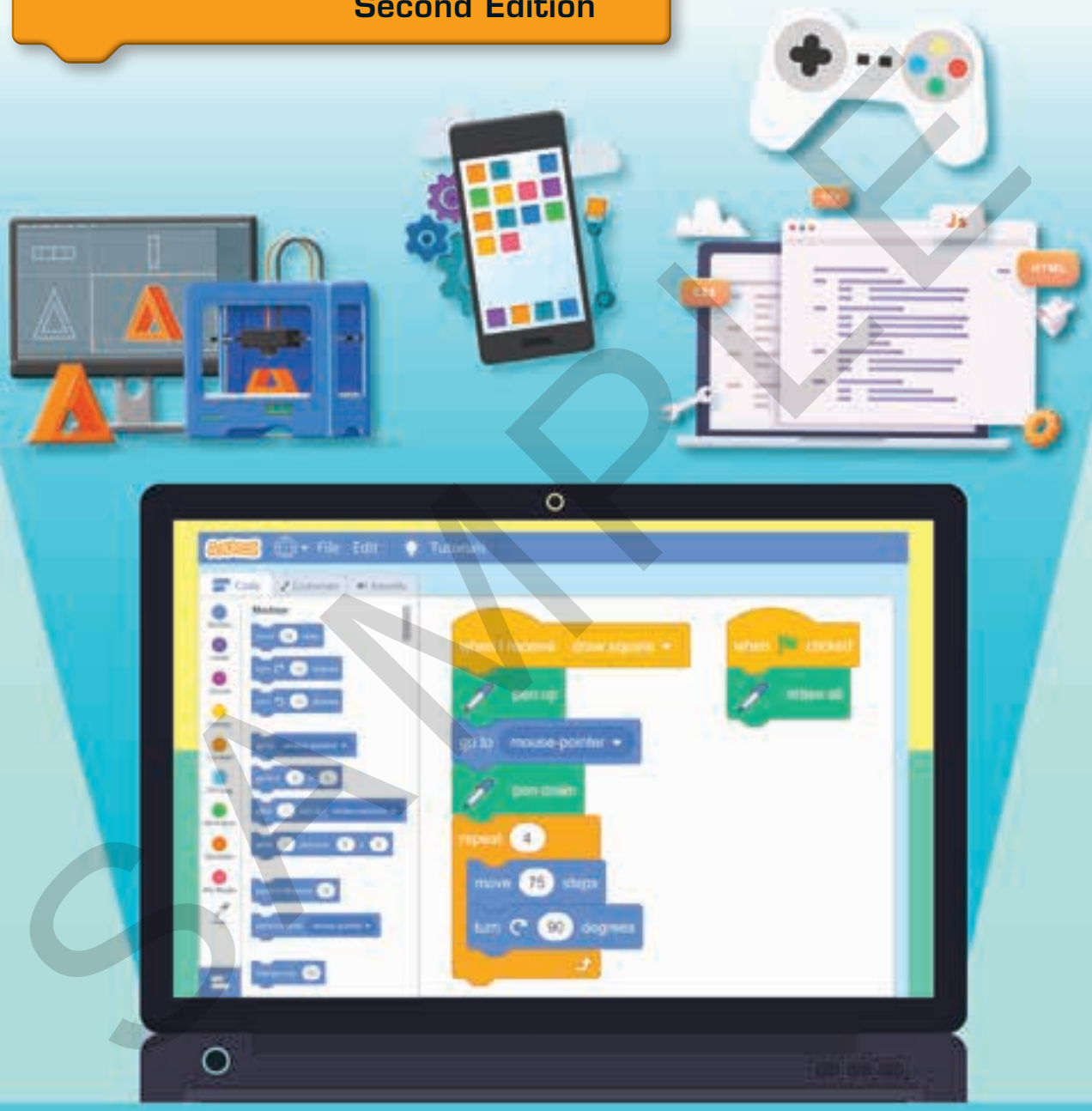
Introduction to Computer Science Coding

Second Edition



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Preface

Introduction to Computer Science: Coding is a one-of-a-kind text that introduces you to the exciting world of computer coding. It provides a foundation in the concepts of programming using easy-to-learn, free software such as Scratch, MIT App Inventor, OpenSCAD, and HTML. You will explore, you will experiment, and you will learn. This will open the window to the possibilities that lie ahead of you in the field of computer programming.

In addition to learning programming, you will make cross-curricular connections with *Math and Coding* and *Science and Coding* features along with language arts activities at the end of each chapter. Team-based activities, *Cooperative Coding* features, encourage teamwork while creating coding projects. In addition, problem-solving skills are developed through *Coding Conundrum* features, which present you with code that must be analyzed and fixed.

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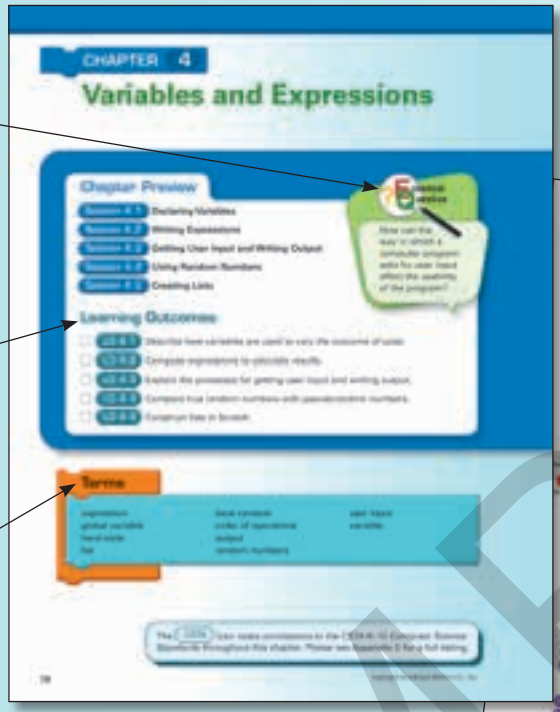
About the Authors

Kathleen M. Austin was a senior lecturer in the School of Information Arts and Technologies at the University of Baltimore. She has participated in the development of many educational multimedia projects. She has authored, co-authored, or contributed to several textbooks, including *Consumer Mathematics* and *Mathematics of the World of Work*. She holds a Master of Science degree in Computer Science from Johns Hopkins University and a Doctor of Communications Design from the University of Baltimore, as well as IC3 certification.

Lorraine N. Bergkvist was an Adjunct Professor at the University of Baltimore providing instruction in Visual Basic programming, database implementation, and web-page creation. She is also the owner of the Kingsville Résumé Center, which provides professional résumé-writing services as well as consulting and editing in the information technology field. She developed the curriculum and taught the Introduction to Technology and Programming courses at the University of Baltimore and the College of Notre Dame of Maryland. She holds a Bachelor of Science degree from Trinity University, a Master of Education degree from Towson University, and IC3 certification. She has received several scholarships and grants in the technology field.

Guided Tour

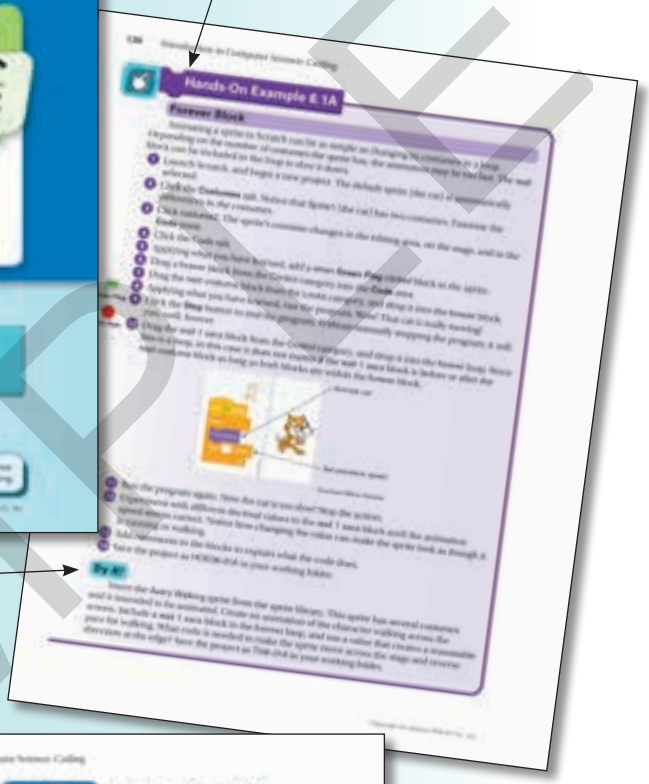
The instructional design includes student-focused learning tools to help students succeed. This visual guide highlights the features designed for the textbook.



Essential Questions at the beginning of each chapter will engage you to uncover the important points presented in the content.

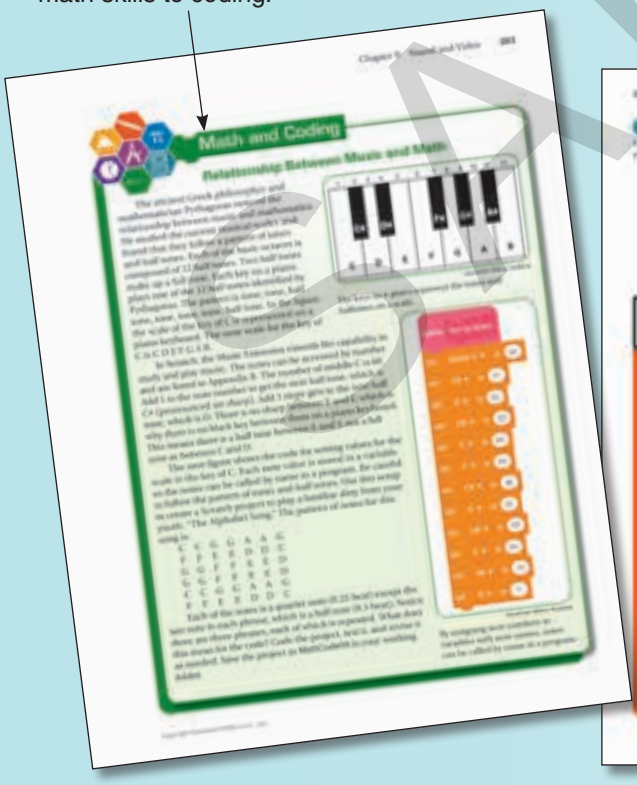
Learning Outcomes clearly identify the knowledge and skills to be obtained when the chapter is completed.

Terms list the key vocabulary terms to be learned in the chapter.

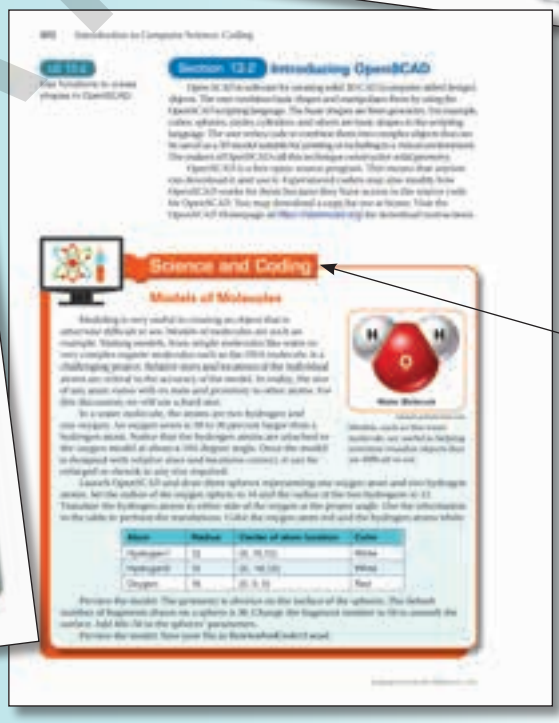


Hands-On Example activities walk you through coding examples so you learn by doing.

Try It! activities follow the Hands-On Examples so you can apply the coding on your own.



Math and Coding features allow you to apply your math skills to coding.



Science and Coding features show you how coding can be applied to a science project.

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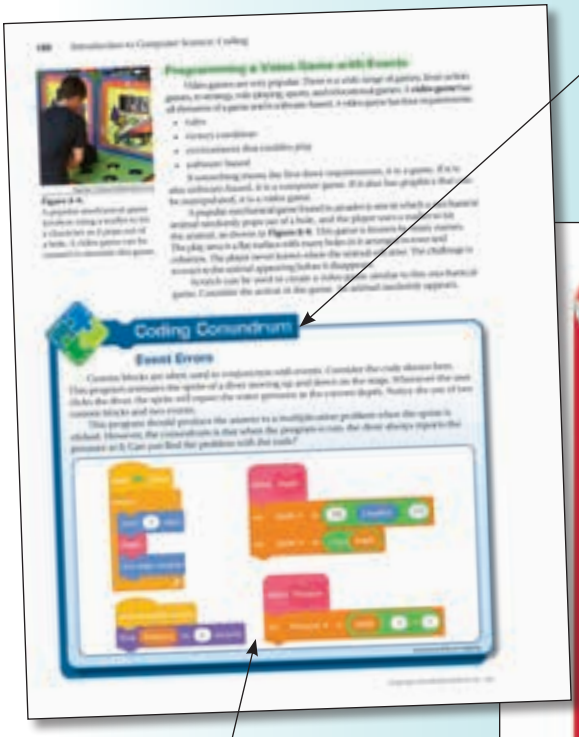


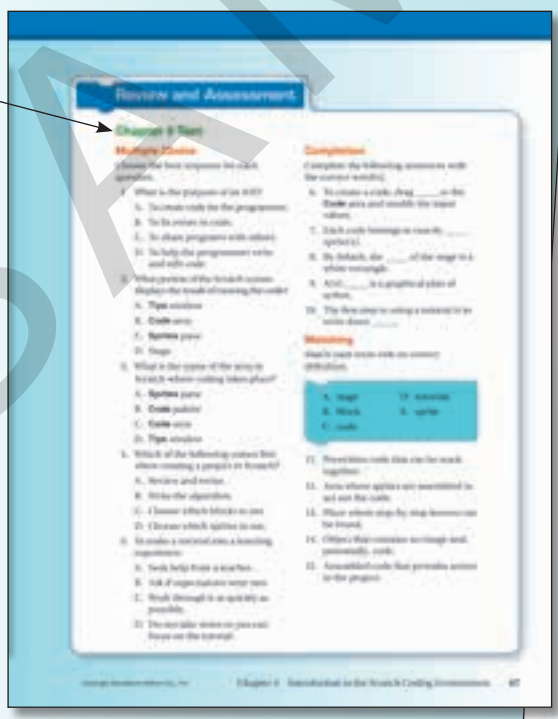
Coding Conundrum features present the challenge of finding the error in code to improve your ability to solve problems.

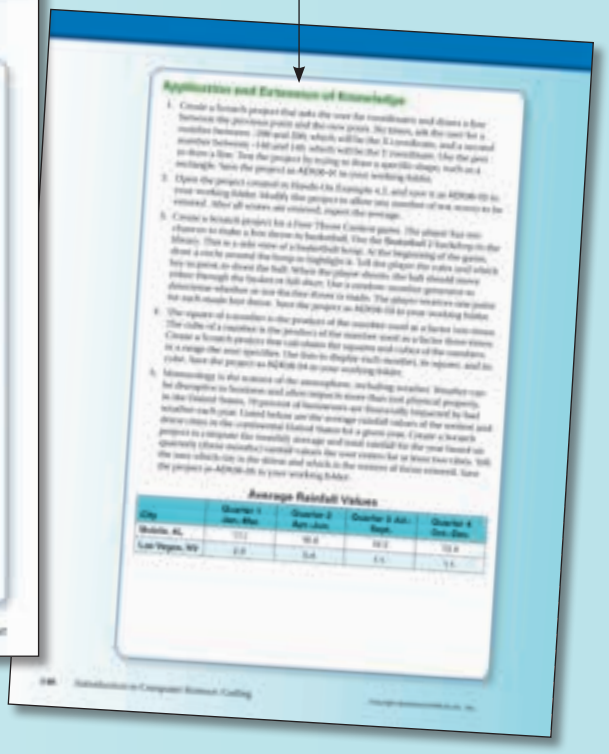
Illustrations clearly show the code being applied. Coding illustrations have been completely updated for this edition.

Cooperative Coding features allow you to blend your skills with those of others for improved teamwork.

Application and Extension of Knowledge activities challenge you to relate what you learned in the chapter to your own ideas and projects.

Chapter tests allow you to evaluate your understanding of the chapter material.





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TOOLS FOR STUDENT AND INSTRUCTOR SUCCESS

Student Tools

Student Text

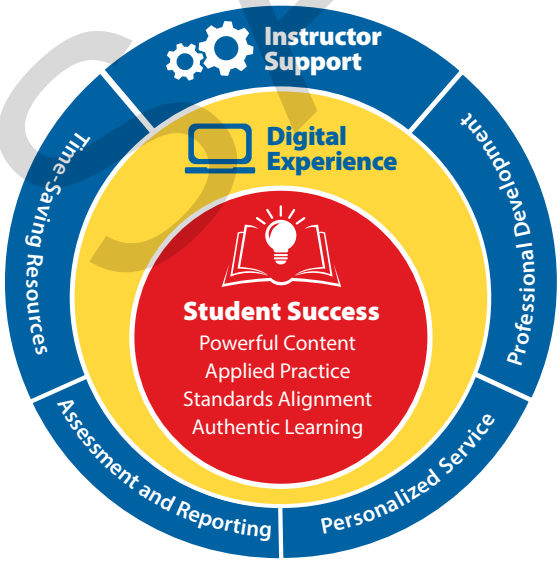
Introduction to Computer Science: Coding introduces students to basic computer coding concepts using software that is easy to learn and easy to use.

G-W Companion Website

- For digital users, e-flash cards and vocabulary exercises allow interaction with content to create opportunities to increase achievement.
- Digital files and Extension Exercises provide support and practice opportunities to reinforce concepts.

Online Textbook

Online student text, along with rich supplemental content, brings digital learning to the classroom.



Instructor Tools

LMS Integration

Integrate Goodheart-Willcox content within your Learning Management System for a seamless user experience for both you and your students. LMS–ready content in Common Cartridge® format facilitates single sign-on integration and gives you control of student enrollment and data. With a Common Cartridge integration, you can access the LMS features and tools you are accustomed to using and G-W course resources in one convenient location—your LMS.

G-W Common Cartridge provides a complete learning package for you and your students. The included digital resources help your students remain engaged and learn effectively:

- **Digital Textbook**
- **Data Files**
- **Extension Exercises**
- **Drill and Practice** vocabulary activities

When you incorporate G-W content into your courses via Common Cartridge, you have the flexibility to customize and structure the content to meet the educational needs of your students. You may also choose to add your own content to the course.

For instructors, the Common Cartridge includes the Online Instructor Resources. QTI® question banks are available within the Online Instructor Resources for import into your LMS. These prebuilt assessments help you measure student knowledge and track results in your LMS gradebook. Questions and tests can be customized to meet your assessment needs.

Online Instructor Resources (OIR)

- The **Instructor Resources** provide instructors with time-saving preparation tools such as answer keys, editable lesson plans, and other teaching aids.
- **Instructor's Presentations for PowerPoint®** are fully customizable, richly illustrated slides that help you teach and visually reinforce the key concepts from each chapter.
- Administer and manage assessments to meet your classroom needs using **Assessment Software with Question Banks**, which include matching, completion, and multiple choice questions to assess student knowledge of the content in each chapter.

See www.g-w.com/introduction-computer-science-coding-2024 for a list of all available resources.

Professional Development

- Expert content specialists
- Research-based pedagogy and instructional practices
- Options for virtual and in-person Professional Development

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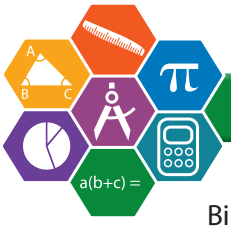

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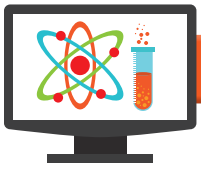

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