Welcome to Third Grade Computer Science!

Course Description:

Step up your coding game! This course introduces third graders to more advanced computational thinking and problem-solving concepts, including variables, events, and more complex algorithms. Through interactive lessons, hands-on coding projects, and creative challenges, students will design games, animations, and programs using beginner-friendly platforms. They will also explore real-world applications of technology, work collaboratively on projects, and continue developing their digital literacy and ethical technology use. This course builds confidence, creativity, and curiosity while laying a strong foundation for future tech exploration.

Learning Outcomes:

By the end of this course, students will be able to:

1. Define and apply key coding concepts, including variables, events, and algorithms.
2. Design and debug more complex projects, including interactive stories and games.
3. Analyze and solve computational problems using logical thinking.
4. Create projects that incorporate user interaction and dynamic elements.
5. Work collaboratively to brainstorm, plan, and execute coding challenges.
6. Reflect on the role of technology in society and practice ethical digital citizenship.

Syllabus:

Unit 1: Getting Started with Advanced Coding Concepts

- Reviewing sequences, loops, and conditionals.
- Introduction to variables: What they are and how they work.
- Exploring events: Connecting user actions to program responses.

Unit 2: Algorithm Design and Problem Solving

- Understanding algorithms in real-world contexts.
- Breaking down problems into manageable steps.
- Writing, testing, and improving simple algorithms.

Unit 3: Exploring Variables and Events in Depth

- Using variables to store and change data in projects.
- Applying events to make programs interactive.
- Practicing these concepts through creative coding challenges.

Unit 4: Debugging Complex Projects

- Identifying and fixing errors in multi-step programs.
- Practicing debugging with peers to encourage collaboration.
- Developing perseverance and confidence in solving problems.

Unit 5: Game Design Fundamentals

- Introduction to designing user-friendly games.
- Using variables, loops, and conditionals to build game mechanics.
- Testing and refining games through peer feedback.

Unit 6: Creating Interactive Stories and Animations

- Planning and coding a dynamic story or animation.
- Incorporating interactivity, such as user choices or clicks.
- Sharing projects with the class for feedback and celebration.

Unit 7: Technology in the Real World

- Exploring real-life applications of coding and technology.
- Discussing how coding impacts various careers and industries.
- Reflecting on personal goals and interests in computer science.

Final Unit: Showcase and Reflection

- Students present their final projects to peers or family.
- Reflecting on learning experiences, challenges, and successes.
- Celebrating achievements with certificates and feedback.

This course encourages students to think critically, create boldly, and explore enthusiastically, preparing them for future tech adventures and fostering a lifelong interest in computer science.

This course is meticulously designed to align with state standards and targeted learning objectives, ensuring comprehensive coverage of essential knowledge and skills required for student success.