

**SPRINGFIELD PUBLIC SCHOOLS
ADVANCED COMPUTER PROGRAMMING**

Course Description

This course is a continuation of Introduction to Computer Programming. This class will introduce students to text files, sorting/searching, multi-dimensional arrays, elementary data structures, data-types and strings, recursion, object-orientated programming, and graphics. This course may be taken for Math or Practical Arts credit. Prerequisite: Introduction to Computer Programming.

Course Rationale

This course is designed to give the student who has an interest in programming or related fields to build a stronger foundation for college or vocational pursuits. An understanding of computer programming is a prerequisite for many jobs.

Major Instructional Goals

The intent of the Springfield R-12 Secondary Mathematics Program is to explore, investigate, and understand the importance of mathematics through real-world experiences. In mathematics, students will acquire the knowledge and skills to problem solve, communicate, reason, create models, and make connections.

Grade Level Expectations are addressed throughout this course, and may be cross-referenced with the Missouri Show-Me Standards listed below.

Major Instructional Goals	MO Show-Me Standards
1. The student will investigate the application of recursion in programming.	1.4, 1.5, 1.6, 1.8, 1.10, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 4.8
2. The student will apply multi-dimensional arrays in structured programs.	1.4, 1.5, 1.6, 1.8, 1.10, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 4.8
3. The student will apply various sorting and searching techniques.	1.4, 1.5, 1.6, 1.8, 1.10, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 4.8
4. The student will explore the implementation of text files.	1.4, 1.5, 1.6, 1.8, 1.10, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 4.8
5. The student will investigate elementary data structures.	1.4, 1.5, 1.6, 1.8, 1.10, 2.2, 2.3, 2.7, 3.1, 3.2, 3.3, 4.8