School District of Menomonee Falls
Computer Science Curriculum

H Computer Science 1

Visual Basic
Grades 9-12 1st Semester

Prerequisite: Algebra 1

Computer Science 2

App Inventor & Intro to Java
Grades 9-12 2nd Semester

Prerequisite: Computer Science 1

AP Computer Science - Principles

Internet, Data, JavaScript, Digital Information
Grades 10-12 Full Year

Prerequisite: Algebra 1
Recommendation: Computer Science 1

AP Computer Science - Java

College-level Java
Grades 11-12 Full Year

Prerequisite: Computer Science 1 & 2

H Advanced Programming

Mobile Apps, Game Design, Adv. Programming
Grades 11-12 One Semester

Prerequisite: Computer Science 1 & 2

Computer Science

Mission Statement:
The Computer Science Department's mission is to provide students with a strong foundation in the core concepts of computer science and equip them with problem solving skills to help them develop into knowledgeable innovators in information technology. We provide a comprehensive curriculum that prepares students for a variety of careers in computer science, engineering, and information technology and a commitment to lifelong learning.

Course Title	Course Number	Length	Year Taken
Computer Science 1 – Honors AS	MA255	Semester-First Semester Only	9-12
Computer Science 2	MA256	Semester-Second Semester Only	9-12
AP Computer Science Java – Honors*	MA221/MA222	Year	11-12
AP Computer Science Principles - Honors	MA223/MA224	Year	10-12
Advanced Programming – Honors	MA257	Semester	11-12

*By request, this course may be used to complete credits toward the Math Graduation Requirement.

COMPUTER SCIENCE 1 – HONORS
First Semester Course Only
Grades 9-12
Prerequisite: Algebra 1
Course Number: MA255

WCTC
Advanced Standing

This course is an introduction to the Visual Basic programming language and environment using hands-on real-world exercises. Visual Basic is a programming language that enables you to create state-of-the art software applications for Microsoft Windows using traditional programming commands. Students are introduced to an object-oriented programming language, control structures, loops, procedures, and methods. These programming skills along with form and menu design and graphic interfacing will assist the students in creating functional programs. ***This course also offers the students Advanced Standing credit through WCTC.***

COMPUTER SCIENCE 2
Second Semester Course Only
Grades 9-12
Prerequisite: Computer Science 1
Course Number: MA256

In the first part of the course, students will use MIT App Inventor, a development platform that makes it easy to build apps. They will learn to create entertaining and socially useful apps that can be shared with friends and family. In addition to learning to program and how to become better problem solvers, students will also explore the exciting world of computer science from the perspective of mobile computing and its increasingly important effect on society.

The second half of the course will be an introduction to Java programming. Students will learn fundamental programming concepts including simple control structures, methods, algorithms, classes and objects. These topics will set the foundation needed for future courses including AP Computer Science – Java.

AP COMPUTER SCIENCE - JAVA
One Year Course
Grades 11-12
Prerequisite: Computer Science 1 & 2 and Department Approval
Course Number: MA221/MA222

In this class, students will be programming in Java, an object-oriented programming language. The course content will be similar to that offered in an introductory computer science class at most universities. Students will be learning all levels of the Java language including: basic syntax, if-else statements, for and while loops, classes, interfaces, arrays, inheritance and GUI (graphical user interface) tools. This course will be especially helpful to students contemplating careers in computer science, business, engineering, and information technology. Students may earn college credit by successfully taking the AP Computer Science - A Exam in May.

By request, this course is eligible to fulfill 2 credits of the Math Graduation Requirement. Please see your counselor for complete information.

AP COMPUTER SCIENCE - PRINCIPLES
One Year Course
Grades 10-12
Prerequisite: Algebra 1
Recommendation: Computer Science 1
Course Number: MA223/MA224

This course introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. This course will introduce students to the creative aspects of programming, algorithms, large data sets, the Internet, cyber security concerns, web page development, and computing impacts. AP Computer Science Principles will give students the opportunity to use technology to address real-world problems and build relevant solutions. Students may earn college credit by successfully taking the AP Computer Science - Principles Exam in May.

ADVANCED PROGRAMMING – HONORS
Semester Course
Grades 11-12
Prerequisite: Computer Science 1 & 2
Course Number: MA257

This course is designed to further prepare students for careers in technology-related fields. The goal is to introduce students to a variety of programming languages such as C++, Python, C#, Java, XML, etc. Students will then use these languages to design and create programs, video games, and mobile apps. We will use programs such as Unity, GameMaker, Visual Studio, Eclipse, and Android Studio. Students will be asked to complete a culminating final project using one of the languages taught.