# 11th Grade American Online School

# MEDIA & COMPUTER SCIENCE CURRICULUM

# Digital Literacy, Programming, and Ethical Use of Technology

Version Mar/2025

## 1. Introduction

### The Role of Media and Computer Science in 11th Grade

In 11th grade, students advance their computer proficiency, digital literacy, and media analysis skills. This curriculum prepares students for the digital economy, ethical technology use, and problem-solving with computational thinking. It also fosters critical evaluation of media and online communication.

By the end of this course, students will:

✓ **Demonstrate proficiency in computer applications, coding, and data analysis**.

✓ **Understand digital ethics, cybersecurity, and responsible online behavior**.

✓ **Analyze media messages and their impact on society**.

✓ **Develop computational thinking and problem-solving skills**.

✓ **Utilize technology for academic and professional purposes**.

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# 2. Core Competence Areas

## CS.1 Computer Proficiency and Digital Literacy

### Learning Outcomes

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

✓ **Use advanced word processing, spreadsheet, and presentation software**.

✓ **Understand data management, cloud computing, and file organization**.

✓ **Apply digital communication tools effectively and professionally**.

### Competencies

#### CS.1.A.1 – Mastering essential computer applications.

- Learn advanced word processing for reports and research.
- Use spreadsheets for data analysis and visualization.
- Create multimedia presentations using advanced design techniques.

#### CS.1.A.2 – Understanding file organization and cloud computing.

- Organize files efficiently using folders and cloud storage.
- Explore collaborative tools such as, for example, Google Drive or OneDrive.
- Learn file security practices, including encryption and backups.

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## CS.2 Computational Thinking and Programming

### Learning Outcomes

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

✓ **Understand basic programming concepts and logic**.

✓ **Apply computational thinking to problem-solving**.

✓ **Write simple programs using coding languages**.

## Competencies

### CS.2.A.1 – Understanding programming logic and syntax.

- Learn variables, loops, conditionals, and functions.
- Apply basic debugging and troubleshooting techniques.
- Understand the logic behind algorithms and automation.

### CS.2.A.2 – Developing real-world coding applications.

- Write basic scripts for automating tasks.
- Explore game development, web design, or data analysis.
- Work on collaborative coding projects using GitHub or similar platforms.

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# CS.3 Cybersecurity and Ethical Use of Technology

## Learning Outcomes

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

✓ **Understand online privacy and cybersecurity risks**.

✓ **Analyze digital ethics, misinformation, and responsible media consumption**.

✓ **Recognize and prevent cyber threats such as hacking and phishing**.

## Competencies

### CS.3.A.1 – Practicing cybersecurity and digital responsibility.

- Learn password security, two-factor authentication, and data encryption.
- Understand safe browsing practices and how to detect cyber threats.
- Study privacy policies and how companies collect user data.

### CS.3.A.2 – Evaluating digital ethics and online behavior.

- Discuss fake news, deepfakes, and media bias.
- Explore the impact of social media on public opinion and democracy.
- Learn about cyberbullying, harassment, and digital citizenship.

# CS.4 Media Studies and Information Literacy

## Learning Outcomes

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

✓ **Analyze media messages and their influence on society**.

✓ **Understand the role of journalism, advertising, and entertainment media**.

✓ **Develop media production skills for digital storytelling and content creation**.

## Competencies

### CS.4.A.1 – Understanding media influence and persuasive techniques.

- Study advertising strategies and consumer psychology.
- Analyze political propaganda and media framing techniques.
- Discuss the ethics of journalism and media regulation.

### CS.4.A.2 – Creating digital content responsibly.

- Learn the basics of video production, blogging, and social media branding.
- Explore photo and video editing tools.
- Understand intellectual property and copyright laws.

# CS.5 Emerging Technologies and Future Trends

## Learning Outcomes

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

✓ **Understand how artificial intelligence, robotics, and automation shape industries**.

✓ **Explore careers in technology and the digital economy**.

✓ **Evaluate the ethical implications of emerging technologies**.

## Competencies

### CS.5.A.1 – Investigating innovations in technology.

- Learn about artificial intelligence and machine learning.
- Explore blockchain, virtual reality, and quantum computing.
- Understand how automation is changing the workforce.

### CS.5.A.2 – Considering the ethical and social impact of technology.

- Discuss AI bias and the risks of surveillance technology.
- Analyze ethical dilemmas in biotechnology and genetic engineering.
- Explore the role of technology in climate change and sustainability.

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# 3. Assessment and Evaluation

### Formative Assessments – Checking Progress Through Interactive Learning

✓ **Coding challenges and programming assignments**.
✓ **Cybersecurity quizzes and online safety assessments**.
✓ **Media literacy projects analyzing news and digital content**.

### Summative Assessments – Final Projects and Exams

✓ **Project on a tech-related innovation**.
✓ **Presentation on ethical dilemmas in technology**.
✓ **Final exam covering key topics in computer science and media studies**.

### Authentic Assessment – Real-World Applications

✓ **Students create a professional digital portfolio showcasing their skills**.
✓ **Cybersecurity awareness campaign for a community**.
✓ **Develop digital marketing projects**.

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# 4. Instructional Strategies for Online Learning

## Inquiry-Based and Problem-Based Learning

✓ **Case studies on cybersecurity breaches and ethical dilemmas in tech**.
✓ **Hands-on coding projects and real-world problem-solving**.

## Project-Based Learning (PBL)

✓ **Students develop a small business website or mobile app**.
✓ **Group projects on misinformation and media bias analysis**.

## Technology-Integrated Learning

✓ **Use of AI-driven coding platforms like, for example, GitHub**.
✓ **Video editing and content creation tools like, for example, Canva or iMovie**.
✓ **Interactive media simulations for understanding social media algorithms**.