

NEW YORK STATE EDUCATION DEPARTMENT
MIDDLE LEVEL CAREER AND TECHNICAL EDUCATION
COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
DATA COLLECTION AND MANAGEMENT CONTENT MODULE
UPDATED ~~IN~~ MAY 2023

MODULE DESCRIPTION

Data drives decision

3. MANAGEMENT OF DATA

STUDENTS WILL:

- a) Discover the multiple layers of data protection including encryption.
- b) Identify the data protocols involved in sharing data like email, across and within networks, and with peripheral devices.
- c) Compare and contrast data storage options and sizes (e.g., local, server or cloud storage).
- d) Utilize a database to report data in multiple ways, including mapping and other visual tools.

4. CRYPTOGRAPHY

STUDENTS WILL:

- a) Demonstrate an understanding of the uses of cryptography
- b) Describe the limitations of cryptographic methods

5. CAREERS INVOLVING DATA COLLECTION AND MANAGEMENT

STUDENTS WILL:

- a) Explain roles and functions of individuals engaged in careers involving data collection and management
- b) Investigate education, training requirements, and opportunities for career paths in data collection and management.
- c) Assess personal employability skills for careers in data collection and management and evaluate personal suitability for such careers

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COMMUNICATION AND INTERPERSONAL RELATIONSHIPS

IMPROVING SCHOOL CULTURE AND CLIMATE

Students will design a form to collect data about their school culture/climate. Students will use the data to communicate the results of the survey and will propose changes or activities for improvement.

FINANCIAL AND CONSUMER LITERACY

TRACKING FINANCIAL DATA

Students will use a spreadsheet to input data involving either a job with a salary and financial responsibilities to manage their budget, or to access stock market data on a chosen company over a period of time. They will then use the gathered data to track spending or stock price trends and present their findings using visual representations (graphs and charts).

HEALTH, SAFETY, AND WELLNESS

MY WELLNESS PLAN

Students will choose a personal habit to track such as step count, screen time, or social media use and collect the data over a period of time using a digital tool. Students will compare their results with national averages and trends. Then students will reflect on their behavior and develop a personal wellness plan to address any found concerns or needs.

PROBLEM SOLVING AND INNOVATION

IDENTIFYING BIASES IN DATA

Students will identify and discuss problems and issues related with limited scope and error in data gathering. This could include problems such as facial recognition failures, bias, and data set inconsistencies. After gathering relevant data and/or information, students will propose solutions to mitigate the problem or issue.

SUSTAINABILITY

CLIMATE CHANGE

over time. Students will persuade an audience about the implications of what the data set shows.

STANDARDS ADDRESSED

NEW YORK STATE CAREER DEVELOPMENT AND TECHNICAL STUDIES (CDOS) STANDARDS

STANDARD 1: CAREER DEVELOPMENT

Students will be knowledgeable about the world of work, explore career options, and relate personal skills, aptitudes, and abilities to future career decisions

STANDARD 2: INTEGRATED LEARNING

Students will demonstrate how academic knowledge and skills are applied in the workplace and other settings

STANDARD 3A: UNIVERSAL FOUNDATION SKILLS

Students will demonstrate mastery of the foundation skills and competencies essential for success in the workplace

COMMON CAREER TECHNICAL CORE STANDARDS

CAREER READY PRACTICES

1. Act as a responsible and contributing citizen and employee
2. Apply appropriate academic and technical skills
3. Attend to personal health and financial well-being
4. Communicate clearly and effectively with reason
5. Consider the environmental, social, and economic impacts of decisions
6. Demonstrate creativity and innovation
7. Employ valid and reliable research strategies
8. Utilize critical thinking to make sense of problems and persevere in solving them
9. Model integrity, ethical leadership, and effective management
10. Plan education and career paths aligned to personal goals
11. Use technology to enhance productivity
12. Work productively in teams while using cultural global competence

NYS COMPUTER SCIENCE AND DIGITAL FLUENCY STANDARDS

IMPACTS OF COMPUTING

4-6.IC.4 Explain who has access to data in different digital spaces.

7-8.IC.4 Identify and discuss issues related to the collection and use of public and private data.

4-6.IC5: Explain how computer systems play a role in human decision making.

7-8.IC.5: Analyze potential sources of bias that could be introduced to complex

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RESOURCES

Disclaimer:

mission of improving the quality, access, and delivery of career and technical education through research-based methods and strategies resulting in broader CTE opportunities for all students.

SAMPLE DATA SETS

The following free data sets have been included in this module as examples of free, publicly available data that may be used in developing learning experiences for students.

U.S. CENSUS BUREAU

<https://www.census.gov/programs-surveys/sis/resources/data-tools/teach-with-data-tools.html>