1 Orientation to IT Professions

Content Area: **Technology**
Course(s): **Computer Systems & Networking I**
Time Period: **September**
Length: **20 class periods**
Status: **Published**

Unit Overview:

This unit will introduce students to the many career opportunities in the Information Technology profession.

Essential Questions:

- What are some of the job titles associated with IT?
- What is the difference between IT and Computer Science and Information Systems?
- What are the demands for different IT jobs?

Enduring Understandings:

- Information technology is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data.
- IT refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies.
- Computer science is the study of computers, their design, and their use for computation, data processing, and systems control.
- Before exploring careers in Information technology, it is a good idea to identify your strengths and weaknesses.
- Several industries are associated with information technology, including computer hardware, software, electronics, semiconductors, internet, telecom equipment,engineering, healthcare, e-commerce and computer services.
- IT jobs include technical support specialist, helpdesk professionals, network administration, computer programming, information security specialist and many other related occupations.
- The more knowledge a student has about online job search resources the higher the probability of finding a perfect job.
- Understanding what employers are looking for is one of the most important aspects of job hunting.

Standards/Indicators/Student Learning Objectives (SLOs):

- Students will learn the difference between IT and Computer Science and Information Systems
- Students will be able to identify their strengths and weaknesses before exploring careers in information technology.

- Students will be able to determine which IT jobs are in highest demand.
- Students will be able to use several different web-based tools to search for jobs and find salaries.
- Students will be able to disect a job posting for essential details.

12.9.3.IT.5	Explain the implications of IT on business development.
12.9.3.IT.6	Describe trends in emerging and evolving computer technologies and their influence on IT practices.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP10.1	Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).

Lesson Titles:

- Welcome to Information Technology
- IT Versus Computer Science
- Matching Your Talents and Interest
- IT Employment Opportunities
- Career Interest and Job Search Toolkit
- Salary Calculator
- US Department of Labor - Occupational Outlook Handbook
- IT Workforce Salary and Hiring Trends
- Utilizing Job Search Resources
- Dissecting a Job Posting

- IT Workforce Credentials
- Understanding the IT Industry Certifications
- Industry Certifications
- Advanced Certifications
- Preparing to Take Industry Certifications

- Creating an Academic Plan
- What is a Career Pathway?
- Career Clusters
- Exploring College Degrees and Certificates
- Building Skills in High School
- Internships & Job Shadowing
- KSAs
- Developing your Knowledge, Skills and Abilities

- Knowledge, Skills, and Abilities in the Job Posting

- Developing Career Goals and Study Plan
- Building your Academic Plan
- College Transfer and Articulation Programs
- Workforce Experience - Benefits of Internships
- Identify and Plan Industry Credentials
- Using Social Media to Explore and Apply for IT Jobs

Career Readiness, Life Literacies, & Key Skills:

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.7	Plan education and career paths aligned to personal goals.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.
TECH.9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.DC.7	Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).

Inter-Disciplinary Connections:

LA.RST.9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.
LA.RST.9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
LA.WHST.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Equity Considerations:

Holocaust Mandate

Topic: Herman Hollerith (February 29, 1860-November 17, 1929) was a German-American statistician, inventor, and businessman who developed an electromechanical tabulating machine for punched cards to assist in summarizing information and, later, in accounting. His invention of the punched card tabulating

machine, patented in 1884, marks the beginning of the era of mechanized binary code and semiautomatic data processing systems, and his concept dominated that landscape for nearly a century.

Hollerith founded a company that was amalgamated in 1911 with several other companies to form the Computing-Tabulating-Recording Company. In 1924, the company was renamed "International Business Machines" (IBM) and became one of the largest and most successful companies of the 20th century.

Investigative journalist and historian Edwin Black documents the strategic technology services rendered by American-based multinational corporation International Business Machines (IBM) and its German and other European subsidiaries for the Nazi government of Adolf Hitler. Black outlines the key role of IBM's technology in the Nazi genocide, by facilitating the regime's generation and tabulation of punch cards for national census data, military logistics, ghetto statistics, train traffic management, and concentration camp capacity.

Materials Used: Black, E. (2012). *IBM and the Holocaust: The strategic alliance between Nazi Germany and America's most powerful corporation*. Dialog Press.

Addresses the Following Component of the Mandate:

- Holocaust Studies, Prejudice

LGBTQ and Disabilities Mandate

Topic: Chris Hughes, cofounder of Facebook (Hughes was one of the four Facebook cofounders)

Materials Used: https://en.wikipedia.org/wiki/Chris_Hughes and Leskin, P. (2019, June 2). The 23 most powerful LGBTQ+ people in Tech. Business Insider. Retrieved July 20, 2022, from https://www.businessinsider.com/most-powerful-lgbtq-people-in-tech-2019-2

Addresses the Following Component of the Mandate:

- Social, Political, Economic

Climate Change

Topic: Reduction of the carbon footprint

Materials Used: https://news.mit.edu/2022/how-can-we-reduce-carbon-footprint-global-computing-0428

Addresses the Following Component of the Mandate:

	understand real world phenomena, including climate change.
TECH.9.4.12.DC.8	Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection.

Asian American Pacific Islander Mandate

Topic: Ajay Bhatt, Indian & American computer architect (1957-) -- helped create USB technology

Materials Used: Delgado, C. M. (2021, May 27). 8 Asian Americans and Pacific Islanders whose innovations have changed your life (really!). ideas.ted.com. Retrieved July 20, 2022, from https://ideas.ted.com/8-asian-americans-and-pacific-islanders-whose-innovations-have-changed-your-life-really/

Addresses the Following Component of the Mandate:

- Social, Political, Economic

Resources & Materials:

- career posters
- job postings
- sample resumes

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

Learning Activities:

- Interest assessment at https://www.careeronestop.org/Toolkit/Careers/interest-assessment.aspx
- IT job comparison at https://myfuture.com/
- Salary calculator at https://www.roberthalf.com/salary-guide/technology
- Exploration of social media job search tools
- Dissecting a Job Posting exercise
- Lab 1 - Job Search Exercise

Instructional Strategies:

- Summarizing & Note Taking
- Direct Instruction
- Provide opportunities for student practice
- KWL Chart
- Chapter study guide
- Large group discussion

Blooms/DOK:

- Level 1: recall/remember vocabulary
- Level 2: categorize job salaries based on level of education
- Level 3: compare and contrast various post-secondary paths

- Level 4: students weigh their options and defend their personal path decision

Summative Assessment:

- Final Exam
- Lab - Job Search Exercise
- Marking Period Assessments
- Quiz 1 - Exploring Information Technology Related Jobs

Formative Assessment:

- Anticipatory set
- Closure
- Exit tickets
- Graphic organizers
- Pop-quizzes (not graded)
- Questioning
- Think-pair-share
- Warm-up

Benchmark Assessments

Skills-based assessment
Reading response
Writing prompt
Lab practical

Alternative Assessments

Performance tasks
Project-based assignments
Problem-based assignments
Presentations
Reflective pieces
Concept maps
Case-based scenarios
Portfolios

Modifications

ELL Modifications:

- Allow alternate responses
- Frequent breaks
- Give advanced notes
- Give extended time
- Model instructions
- Simplify instructions

IEP & 504 Modifications:

- Give additional time
- Pair with other students
- Preferential seating
- Print out the text in hardcopy
- Read instructions aloud

G&T Modifications:

- Competitions and collaborative projects
- Curriculum acceleration
- Enrichment activities
- Extracurricular activities
- High expectations
- Independent projects
- Multi-level differentiated curriculum
- Set individual goals
- Special projects (e.g. newsletter)

At Risk Modifications

- Continue to repeat and rephrase the major point(s) of the unit or lesson
- Elicit prior knowledge

- Give very basic introduction
- Include hands-on experiences and manipulatives whenever possible
- Insert meanings of vocabulary continuously throughout the lesson
- Offer copies of lecture notes
- Provide study guides for tests well in advance
- Schedule field trips at the beginning of the unit
- Use graphic organizers

Technology Materials and Standards:

- https://www.bls.gov/ooh/computer-and-information-technology/home.htm
- https://www.developmentworker.com/dissecting-a-job-advertisement/
- https://www.netacad.com
- https://www.roberthalf.com/salary-guide/technology?lobId=roberthalftechnology
- https://www.youtube.com/watch?v=9gqsnA2Lk-0
- https://www.youtube.com/watch?v=S3iz3yl8Wfc
- https://www.youtube.com/watch?v=wOszJVUbvLY
- https://www.youtube.com/watch?v=Yn2sUskO5N4

TECH.8.1.12.D.5	Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs.
TECH.8.1.12.D.CS2	Demonstrate personal responsibility for lifelong learning.
TECH.8.2.12.D.4	Assess the impacts of emerging technologies on developing countries.
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).

Computer Science and Design Thinking Standards:

CS.9-12.8.1.12.IC.1	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
CS.9-12.8.1.12.IC.3	Predict the potential impacts and implications of emerging technologies on larger social, economic, and political structures, using evidence from credible sources.
CS.K-12.2.a	Cultivate working relationships with individuals possessing diverse perspectives, skills, and personalities.
CS.K-12.2.c	Solicit and incorporate feedback from, and provide constructive feedback to, team members and other stakeholders.