

Unit	Unit Title	Recommended Instructional Days
1	Computer Science: Artificial Intelligence & Machine Learning	Trimester 1
Disciplinary Concept:	Practice:	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLC-CSDT within Unit
CS IC AP DA ED	Fostering an Inclusive Computing and Design Culture Collaborating Around Computing and Design Recognizing and Defining Computational Problems Developing and Using Abstractions Testing and Refining Computational Artifacts Communicating About Computing and Design	
Core Idea:	Performance Expectation/s:	
<p>Programs use procedures to organize code and hide implementation details. Procedures can be repurposed in new programs. Defining parameters for procedures can generalize behavior and increase reusability.</p> <p>Programmers create variables to store data values of different types and perform appropriate operations on their values.</p>	<p>8.1.8.AP.4: Decompose problems and sub-problems into parts to facilitate the design, implementation, and review of programs.</p> <p>8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.</p> <p>8.1.8.DA.1: Organize and transform data collected using computational</p>	<p>Essential Question/s:</p> <ol style="list-style-type: none"> 1. How can we use the Problem-Solving Process to solve a problem with machine learning? 2. What are the different types of machine learning? 3. How is AI helping to solve problems around the world? 4. What strategies do computer models use to make decisions? 5. How do computers learn to classify data?

<p>People use digital devices and tools to automate the collection, use, and transformation of data.</p> <p>Troubleshooting a problem is more effective when knowledge of the specific device along with a systematic process is used to identify the source of a problem.</p> <p>Computer models can be used to simulate events, examine theories and inferences, or make predictions.</p> <p>Technological disparities have consequences for public health and prosperity.</p>	<p>tools to make it usable for a specific purpose.</p> <p>8.1.8.CS.4: Systematically apply troubleshooting strategies to identify and resolve hardware and software problems in computing systems.</p> <p>8.1.8.DA.5: Test, analyze, and refine computational models.</p> <p>8.2.8.EC.1: Explain ethical issues that may arise from the use of new technologies.</p>	<p>6. How can we use machine learning to make recommendations?</p> <p>7. How can I create an app using machine learning?</p> <p>8. How can we evaluate machine learning models once they've been trained?</p> <p>9. How can I use Model Cards to document my decisions when training a machine learning model?</p> <p>10. How can I use a Model Card to improve my app?</p> <p><u>Activity Description:</u></p> <p>1. Students are introduced to a form of artificial intelligence called machine learning and how they can use the Problem-Solving Process to help train a robot to solve problems.</p> <p>2. Students will consider how they create “mental” models when learning new concepts, and how those can be similar to a “machine learning” model.</p> <p>3. Students will explore an application of AI called Seeing AI and examine how it is supporting people with visual impairments. Then, students research other examples of how AI is impacting society, focusing on users who are impacted by the examples they find.</p> <p>4. Students will examine several apps that make decisions about what shoes to wear, ultimately building up to an understanding of how machine learning can help make this decision.</p> <p>5. Students will participate in an unplugged activity simulating one of the machine learning algorithms computers use to separate data into groups to help make decisions.</p>
<p>Social and Emotional Learning: <i>Competencies</i></p>	<p>Social and Emotional Learning: <i>Sub-Competencies</i></p>	
<p>Self Awareness</p> <p>Self-Management</p> <p>Social Awareness</p> <p>Responsible-Decision Making</p> <p>Relationship Skills</p>	<ul style="list-style-type: none"> ● Recognize one’s feelings and thoughts ● Recognize the importance of self-confidence in handling daily tasks and challenges. ● Recognize the skills needed to establish and achieve personal and educational goals. ● Recognize and identify the thoughts, feelings, and perspectives of others. ● Demonstrate an awareness of the differences among 	

	<p>individuals, groups, and other cultural backgrounds</p> <ul style="list-style-type: none"> • Develop, implement, and model effective problem-solving and critical thinking skills • Evaluate personal, ethical, safety and civic impact of decisions. • Utilize positive communication and social skills to interact effectively with others • Identify who, when, where, or how to seek help for oneself or others when needed 	<p>6. Students will learn to use the AI Lab tool, where they select features to train a model that predicts a given label.</p> <p>7. Students are introduced to importing their models into App Lab and linking their models to their screens.</p> <p>8. Students will investigate a model for bias and be introduced to a Model Card, which is a way of representing important information about a trained model that could help uncover bias</p> <p>9. Students complete the full process of training and saving a model, then import it into App Lab.</p> <p>10. Students practice importing their models into App Lab, this time including models that have numerical data and using model cards to help improve the user experience of filling out their form.</p> <p>Interdisciplinary Connections:</p> <p>ELA W7, W.8.7., W.8.2. ELA RI.8.7., NJLSA.SL2., NJLSA.SL5., NJSLSA SL.8.2., NJSLSA SL.8.5, NJLSA.R7, NJLSA.SL2, SL.8.2., NJLSA.SL4., NJLSA.SL5., NJLSA.SL6., SL.8.5.</p>
<p>Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>	<p>Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p><u>Formative Assessments:</u></p> <ul style="list-style-type: none"> • Exit Slips • Quizzes • Lesson Activity Worksheets • Presentations / videos 	<p><u>Benchmark:</u></p> <ul style="list-style-type: none"> • Performance Assessment • Unit Assessments • Projects <p><u>Summative Assessments:</u></p> <ul style="list-style-type: none"> • District/Department Assessments 	

Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> ● Code.org ● App Lab ● AI Lab 	<ul style="list-style-type: none"> ● Reteaching worksheets ● Spanish version of lesson activities 	<ul style="list-style-type: none"> ● Dictionary for native language ● Google Translate ● Translation by classroom Paraprofessional 	<ul style="list-style-type: none"> ● Enrichment/Extension activities
Supplemental Resources			
<p>Technology:</p> <ul style="list-style-type: none"> ● Chromebooks, MacBook ● Interactive board/projector ● YouTube ● Clever ● https://studio.code.org/courses/aiml-2025/units/1 <p>Other:</p> <ul style="list-style-type: none"> ● Google Classroom ● Google Meet Conferencing Tool ● GAFE (Docs, Sheets, Slides, Drawings, Sites) ● Pens, Pencils, Paper, Markers, Crayons, chart paper, envelopes 			
Differentiated Student Access to Content: Recommended Strategies & Techniques			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when	Provide extension activities related to the topic being discussed. Create an enhanced set of introductory activities, integrate active

<p>assessments and/or rubrics, repeat instructions as needed.</p>	<p>(repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.</p>	<p>necessary, supplemental materials including use of online or paper bilingual dictionaries, and modified assessment and/or rubric.</p>	<p>teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related talent development opportunities.</p>
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<p>NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept:</p>	
	<p><i>Core Ideas:</i></p>	<ul style="list-style-type: none"> • An individual's strengths, lifestyle goals, choices, and interests affect employment and income • An individual's strengths, lifestyle goals, choices, and interests affect employment and income • Communication skills and responsible behavior in addition to education, experience, certifications, and skills are all factors that affect employment and income.
	<p><i>Performance Expectation/s:</i></p>	<p>9.1.8.PB.5, 9.2.8.CAP.2, 9.2.8.CAP.4:, 9.2.8.CAP.18,</p>
	<p>Career Readiness, Life Literacies, & Key Skills Practices</p>	
	<p>Consider the environmental, social, and economic impacts of decisions</p> <p>Demonstrate creativity and innovation Utilize critical thinking to make sense of problems and persevere in solving them</p> <p>Use technology to enhance productivity, increase collaboration and communicate effectively</p> <p>Work productively in a team while using cultural/global competence</p>	

New Jersey Legislative Statutes and Administrative Code
(place an "X" before each law/statute if/when present within the curriculum map)

	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	X	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>		Standards in Action: <i>Climate Change</i>
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