



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21st-Century GLOBAL SKILLS

Springfield Public Schools Springfield, New Jersey 07081

Intro to Cybersecurity

Curriculum Guide

2024

**This curriculum may be modified through varying materials, techniques, and strategies
as per an individual student's IEP.**

Springfield Board of Education
Approved on August 26, 2024



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**Springfield Public Schools
Springfield, New Jersey**

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Unit Overview Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Introduction to Security

Unit Summary: This unit will provide students with a foundational understanding of cybersecurity principles and practices essential in today's digital landscape. The unit covers fundamental concepts such as threat landscapes, types of cyber threats (including malware, phishing, and social engineering), and basic risk management strategies. Students explore the importance of data confidentiality, integrity, and availability, learning about encryption, authentication methods, and access control mechanisms. Practical skills in identifying common vulnerabilities in systems and networks are developed through hands-on exercises and case studies. By the end of the unit, students gain a comprehensive overview of cybersecurity fundamentals, preparing them to navigate and contribute to a secure digital environment effectively.

Primary Interdisciplinary Connections: *Science and Engineering*

21st-Century Themes ☑ Creativity and Innovation ☑ Critical Thinking and Problem Solving ☑ ICT Literacy
☑ Information Literacy ☑ Life and Career Skills ☑ Communication and Collaboration ☑ Media Literacy

Unit Rationale: This unit will equip students with foundational knowledge and practical skills in cybersecurity, enabling them to understand, identify, and mitigate digital threats in today's interconnected world.

Career Readiness (Standard 9):

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas.

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).

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice.

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S.ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).

Learning Targets

Standards: CS, NI

Content Statements: The usability, dependability, security, and accessibility of devices within integrated systems are important considerations in their design as they evolve. The needs of users and the sensitivity of data determine



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the level of security implemented. Advanced attacks take advantage of common security vulnerabilities. How and where data is organized and stored affects cost, speed, reliability, accessibility, privacy, and integrity.

CPI#:	Cumulative Progress Indicator (CPI):
8.1.12.CS.1	Describe ways in which integrated systems hide underlying implementation details to simplify user experiences.
8.1.12.CS.2	Model interactions between application software, system software, and hardware.
8.1.12.CS.3	Compare the functions of application software, system software, and hardware.
8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
8.1.12.NI.2	Evaluate security measures to address various common security threats.
8.1.12.NI.3	Explain how the needs of users and the sensitivity of data determine the level of security implemented.
8.1.12.NI.4	Explain how decisions on methods to protect data are influenced by whether the data is at rest, in transit, or in use.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Unit Essential Questions:

- What are the primary cybersecurity threats facing individuals and organizations today?
- How do encryption and authentication methods contribute to data security?
- What strategies can be implemented to mitigate cybersecurity risks and protect digital assets?

Unit Enduring Understandings:

- Cybersecurity is essential for safeguarding digital information against a wide range of threats, including malware, phishing, and social engineering.
- Effective cybersecurity involves a combination of technical solutions (e.g., encryption, firewalls) and behavioral practices (e.g., awareness training, access control).
- Understanding the ethical and legal implications of cybersecurity breaches is crucial for responsible digital citizenship and organizational governance.

Unit Learning Targets:

- Students will be able to identify and describe common types of cyber threats and their potential impacts.



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- Students will demonstrate proficiency in using encryption tools and authentication methods to enhance data security.
- Students will apply risk management strategies to assess vulnerabilities in systems and develop mitigation plans to protect against cyber attacks.
- Students will be able to analyze and evaluate security issues.
- Students will be able to examine preventative security measures.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Teacher Resources: Laptop, textbook, Google Sheets, Google Docs

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure activity



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Lesson Plans

Lesson	Time Frame
Lesson 1 Challenges of Securing Information	1 day
Lesson 2 Information Security	1 day
Lesson 3 Sources of Threats	1 day

Teacher Notes:

Frequently break students into small groups to work on problem-solving. During this time, meet with groups for conferences, mini-lessons, and formative assessments.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.khanacademy.org/>

<https://codehs.com/course/3433/overview>

<https://cs4nj.org/garden-state-cyber/>

<https://www.ncyte.net/faculty/cybersecurity-curriculum>



Lesson Plan 1 Template

Content Area: Computer Science Lesson Title: Challenges of Securing Information Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine risk management concepts - Examine types of security attacks - Examine reasons for successful attacks - Examine difficulties in defending against attacks	Lesson Sequence - Homework check/review. - Students will work in pairs to examine types of attacks of linear equations. - The students then work in small groups to determine weaknesses that allow for security attacks. - Students then work on a practice activity. - Students use the Raspberry Pis to work on the introductory security activity.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation: Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.		



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Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



Lesson Plan 2 Template

Content Area: Computer Science Lesson Title: Information Security Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine the risk management process - Examine types of security attacks - Examine reasons for successful attacks - Examine difficulties in defending against attacks	Lesson Sequence - Homework check/review. - Students will work in pairs to examine types of security attacks. - The students then work in small groups to determine weaknesses that allowed for security attacks - Students then work on a practice activity. - Students work through the CodeHS information activity.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation: Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.		



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The Desmos activity provides reinforcement or enrichment based on students' needs.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



Lesson Plan 3 Template

Content Area: Computer Science Lesson Title: Sources of Threats Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine sources of attacks - Examine coordination and spread of attacks - Examine protection against identity theft	Lesson Sequence - Homework check/review. - Student pairs will examine sources of attack. - Student pairs will volunteer summaries of observations. - Students create their own threats for an “unplugged” data set. Then, combine pairs together to solve each other’s threats. - Students will work on a pair closure activity about coordinated attacks.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation:		



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Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st-Century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☐	☒	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☒	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☒	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☒	☐	☐

Curriculum Design Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Introduction to Security

Created: 2024

Board Approved on:



Unit Overview Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Securing Data and Information

Unit Summary: This unit delves into advanced concepts essential for safeguarding digital assets. This unit explores encryption methods, data privacy laws, secure communication protocols, and techniques for securing data at rest and in transit. Students learn to analyze and mitigate risks associated with data breaches and unauthorized access, employing hands-on exercises to reinforce their understanding of access controls, encryption algorithms, and secure storage practices. By the end of the unit, students will have acquired practical skills in data protection and a comprehensive understanding of the ethical and legal considerations crucial to maintaining the integrity and confidentiality of digital information.

Primary Interdisciplinary Connections: *Science and Engineering*

21st-Century Themes ☑ Creativity and Innovation ☑ Critical Thinking and Problem Solving ☑ ICT Literacy
☑ Information Literacy ☑ Life and Career Skills ☑ Communication and Collaboration ☑ Media Literacy

Unit Rationale: This unit aims to empower students with comprehensive knowledge and practical skills in advanced cybersecurity measures, preparing them to effectively protect sensitive data against evolving digital threats in today's interconnected world.

Career Readiness (Standard 9):

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas.

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).

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice.

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S.ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).

Learning Targets

Standards: CS, NI

Content Statements: The usability, dependability, security, and accessibility of devices within integrated systems are important considerations in their design as they evolve. The needs of users and the sensitivity of data determine the level of security implemented. Advanced attacks take advantage of common security vulnerabilities. How and



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where data is organized and stored affects cost, speed, reliability, accessibility, privacy, and integrity.

CPI#:	Cumulative Progress Indicator (CPI):
8.1.12.CS.1	Describe ways in which integrated systems hide underlying implementation details to simplify user experiences.
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8.1.12.CS.3	Compare the functions of application software, system software, and hardware.
8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
8.1.12.NI.2	Evaluate security measures to address various common security threats.
8.1.12.NI.3	Explain how the needs of users and the sensitivity of data determine the level of security implemented.
8.1.12.NI.4	Explain how decisions on methods to protect data are influenced by whether the data is at rest, in transit, or in use.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Unit Essential Questions:

- How can encryption technologies be utilized to secure data at rest and in transit?
- What are the legal and ethical considerations regarding data privacy and protection?
- How can organizations effectively implement secure communication protocols to safeguard sensitive information?

Unit Enduring Understandings:

- Encryption methods and secure communication protocols are essential tools for protecting data integrity and confidentiality in digital environments.
- Compliance with data privacy laws and ethical guidelines is critical to maintaining trust and accountability in handling sensitive information.
- Implementing robust access controls and secure storage practices helps mitigate risks associated with unauthorized data access and breaches.

Unit Learning Targets:

- Students will demonstrate proficiency in selecting and applying appropriate encryption techniques to protect data across various digital platforms.
- Students will analyze and evaluate legal and ethical implications related to data privacy laws and develop strategies to ensure compliance.
- Students will design and implement secure communication protocols and access controls to safeguard sensitive information from unauthorized access and cyber threats.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Laptop, iPad, textbook, Google Sheets, Google Docs

Teacher Resources: Laptop, textbook, Google Sheets, Google Docs

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure activity



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Lesson Plans

Lesson	Time Frame
Lesson 1 Challenges of Securing Information	1 day
Lesson 2 Information Security	1 day
Lesson 3 Threat Actors	1 day

Teacher Notes:

Frequently break students into small groups to work on problem-solving. During this time, meet with groups for mini-lessons and formative assessments.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.khanacademy.org/>

<https://codehs.com/course/3433/overview>

<https://cs4nj.org/garden-state-cyber/>

<https://www.ncyte.net/faculty/cybersecurity-curriculum>



Lesson Plan 1 Template

Content Area: Computer Science Lesson Title: Challenges of Securing Information Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine types of security attacks - Examine reasons for successful attacks - Examine difficulties in defending against attacks	Lesson Sequence - Homework check/review. - Students will work in pairs to examine types of attacks of linear equations. - The students then work in small groups to determine weaknesses that allow for security attacks. - Students then work on a practice activity with facilitation. - Students will begin to develop a security protocol and implement it on the Raspberry Pi.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation:		



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Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



Lesson Plan 2 Template

Content Area: Computer Science Lesson Title: Information Security Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine types of security attacks - Examine reasons for successful attacks - Examine difficulties in defending against attacks	Lesson Sequence - Homework check/review. - Students will work in pairs to examine types of attacks of linear equations. - The students then work in small groups to determine weaknesses that allow for security attacks. - Students then work on a practice activity with facilitation. - Students will begin to develop a network-wide ad blocker using the Raspberry Pi. - Once completed, students will evaluate each other's designs.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity



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Differentiation:

Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



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Lesson Plan 3 Template

Content Area: Computer Science

Lesson Title: Threat Actors

Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine sources of attacks - Examine reasons for attacks	Lesson Sequence - Lesson opener identifying recorded malware attacks. - Student pairs will examine examples. - The groups will identify the purpose of the attacks examined. - Students will work on examples with facilitation. - Students will analyze Retro Games on the Raspberry Pi and look for vulnerabilities a threat actor can take.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation: Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.		



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Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st-Century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☐	☒	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☒	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☒	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☒	☐	☐

Curriculum Design Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Securing Data and Information

Created: 2024

Board Approved on:



Unit Overview Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Malware and Social Engineering Attacks

Unit Summary: This unit is the culminating unit, focusing on understanding and defense against two prevalent threats in the digital realm. Students explore the intricacies of various malware types such as viruses, worms, and ransomware, alongside the techniques used in social engineering attacks like phishing and pretexting. The unit emphasizes hands-on activities and case studies to illustrate real-world scenarios, enabling students to recognize, analyze, and mitigate these threats effectively. By the end of the unit, students will have developed critical thinking skills in identifying suspicious activities, implementing preventive measures, and promoting cybersecurity awareness to safeguard both personal and organizational data against malicious actors.

Primary Interdisciplinary Connections: *Science and Engineering*

21st-Century Themes ☑ Creativity and Innovation ☑ Critical Thinking and Problem Solving ☑ ICT Literacy
☑ Information Literacy ☑ Life and Career Skills ☑ Communication and Collaboration ☑ Media Literacy

Unit Rationale: This unit aims to educate students about the types, behaviors, and prevention methods of malware, as well as the psychological manipulation techniques used in social engineering attacks, preparing them to recognize and mitigate these prevalent cybersecurity threats effectively.

Career Readiness (Standard 9):

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas.

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).

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice.

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S.ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).

Learning Targets

Standards: CS, NI

Content Statements: The usability, dependability, security, and accessibility of devices within integrated systems



are important considerations in their design as they evolve. The needs of users and the sensitivity of data determine the level of security implemented. Advanced attacks take advantage of common security vulnerabilities. How and where data is organized and stored affects cost, speed, reliability, accessibility, privacy, and integrity.

CPI#:	Cumulative Progress Indicator (CPI):
8.1.12.CS.1	Describe ways in which integrated systems hide underlying implementation details to simplify user experiences.
8.1.12.CS.2	Model interactions between application software, system software, and hardware.
8.1.12.CS.3	Compare the functions of application software, system software, and hardware.
8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
8.1.12.NI.2	Evaluate security measures to address various common security threats.
8.1.12.NI.3	Explain how the needs of users and the sensitivity of data determine the level of security implemented.
8.1.12.NI.4	Explain how decisions on methods to protect data are influenced by whether the data is at rest, in transit, or in use.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Unit Essential Questions:

- What are indicators of compromised security?
- What is malware?
- What damage can be caused by malware attacks?
- What are the distinguishing characteristics and behaviors of different types of malware, such as viruses, worms, and ransomware?
- How do social engineering techniques like phishing and pretexting exploit human behavior to compromise security?
- What strategies and tools can individuals and organizations use to detect, prevent, and respond to malware and social engineering attacks effectively?

Unit Enduring Understandings:

- Computer security protects ideas and information.
- The understanding of possible attacks allows for preparedness and protection.
- Malware encompasses a variety of malicious software designed to disrupt, damage, or gain unauthorized access to computer systems, requiring proactive defense measures.



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- Social engineering exploits human psychology and trust to manipulate individuals into divulging confidential information or performing actions that compromise security.
- Effective cybersecurity practices involve continuous awareness, education, and implementation of defense mechanisms to mitigate the risks posed by malware and social engineering.

Unit Learning Targets:

- Students will be able to analyze weaknesses that might permit attacks.
- Students will be able to analyze models and effects of system attacks.
- Students will analyze and classify different types of malware based on their behaviors, propagation methods, and impacts on digital systems.
- Students will simulate and evaluate scenarios involving social engineering techniques to recognize indicators and formulate responses to potential threats.
- Students will develop and implement strategies to protect against malware infections and social engineering attacks, including deploying antivirus software, conducting phishing simulations, and educating users on cybersecurity best practices.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Raspberry Pi, laptop, iPad, textbook, Google Sheets, Google Docs

Teacher Resources: Raspberry Pi, laptop, textbook, Google Sheets, Google Docs

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure activity



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Lesson Plans

Lesson	Time Frame
Lesson 1 Circulation of Malware	1 day
Lesson 2 Infections by Malware	1 day
Lesson 3 Concealment of Malware	1 day

Teacher Notes:

Frequently break students into small groups to work on problem-solving. During this time, meet with groups for conferences, mini-lessons, and formative assessments.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.khanacademy.org/>

<https://codehs.com/course/3433/overview>

<https://cs4nj.org/garden-state-cyber/>

<https://www.ncyte.net/faculty/cybersecurity-curriculum>

<https://www.pbs.org/wgbh/nova/labs/lab/cyber/>



Lesson Plan 1 Template

Content Area: Computer Science Lesson Title: Circulation of Malware Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine types of malware attacks - Examine how malware is spread - Examine reasons for successful circulation of malware - Examine defending against malware attacks	Lesson Sequence - Homework check/review. - Students will work in pairs to examine how malware is spread. - Discuss and examine permit malware attacks. - Students work on an activity to understand defending against malware attacks. - Students will investigate malware attacks on the Raspberry Pi and compare those to Windows and Mac computers and tablets.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity
Differentiation: Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.		



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Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



Lesson Plan 2 Template

Content Area: Computer Science Lesson Title: Infections by Malware Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine damage by malware - Examine the costs of malware damage - Examine how malware enters systems	Lesson Sequence - Homework check/review - Students will work in pairs to examine types of attacks. - The students then work in small groups to determine weaknesses that allow for security attacks. - Students then work on a practice activity. - Students will investigate how different types of malware affect different computing systems and potential ways to mitigate this.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity



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Differentiation:

Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



Lesson Plan 3 Template

Content Area: Computer Science Lesson Title: Concealment of Malware Time Frame: 1 day

Lesson Components

21st-Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st-Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☒ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Laptop, iPad, Raspberry Pi, Google Sheets, Google Docs

Equipment Needed:

Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine executable malware - Examine malware in macros - Examine macro scripting	Lesson Sequence - Homework check/review - Small groups will examine malware in various forms. - The groups respond with their observations. - The students then work in small groups to examine malware and its effects with facilitation. - The teacher then gives a student group an SD card with a set of instructions. The first group then disseminates this “attack” on other student Raspberry Pis, until a group either realizes and stops the attack or all groups are “infected.”	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure activity



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6. Groups discuss how the attack could have been concealed.

Differentiation:

Students can check their work with samples. Assign students additional CodeHS review activities. The teacher meets with small groups based on the formative assessment.

Resources Provided:

- Laptop, iPad, Raspberry Pi, textbook, Google Sheets, Google Docs



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st-Century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☐	☒	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☒	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☒	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☒	☐	☐

Curriculum Design Template

Content Area: Computer Science **Grade Level:** 9-12 **Unit Title:** Malware and Social Engineering Attacks

Created: 2024

Board Approved on:



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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

IEP AND 504 ACCOMMODATIONS AND MODIFICATIONS FOR EARLY CHILDHOOD AND ELEMENTARY SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
Review of directions
Use of mnemonics
Have student restate information
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Use of a study carrel
Assistance in maintaining uncluttered space
Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Use of manipulatives
No penalty for spelling errors or sloppy handwriting
Follow a routine/schedule
Alternate quiet and active time
Teach time management skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Adjusted assignment timelines
Visual daily schedule



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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Untimed tests
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book tests
Read test and directions to student
Provide study outline prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator and/or number line for math tests
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS MODIFICATIONS:



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GLOBAL SKILLS**

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Have parent sign behavior chart
Set and post class rules
Chart progress and maintain data



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GLOBAL SKILLS

IEP AND 504 ACCOMODATIONS AND MODIFICATIONS FOR MIDDLE AND HIGH SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
A locker with adapted lock
Review of directions
Review sessions
Use of mnemonics
Have student restate information
Provision of notes or outlines
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Weekly or bi-weekly home-school communication
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Lab and math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of tape recorder for lectures
Use of Interactive notebook
Use of a scribe
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Ability to type all assignments
Follow a routine/schedule
Teach time management and organizational skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Daily check-in with case manager or special education teacher
Adjusted assignment timelines
Visual daily schedule



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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book or open-note tests
Read test and directions to student
Provide study guides prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Pace long-term projects
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Allow outlining, instead of writing for an essay or major project
Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator for math tests
Film or video supplements in place of reading text
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands



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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Pass/no pass option
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS FOR STUDENTS:

- Breaks between tasks
- Cue expected behavior
- Daily feedback to student
- Have contingency plans
- Use de-escalating strategies
- Use positive reinforcement
- Use proximity/touch control
- Use peer supports and mentoring
- Model expected behavior by adults
- Have parent sign homework
- Set and post class rules
- Chart progress and maintain data



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ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

Accommodations and Modifications for ESL Students

- Give tests orally
- Give instructions/directions in writing and orally
- Assign a peer tutor, same language or English speaking
- Allow use of bilingual/translation dictionary
- Provide summaries of text or study guides of particular chapters
- Allow errors in speaking
- Allow errors in writing
- Accept writing in first language
- Highlight key vocabulary
- Reduce amount of work required
- Assess comprehension through demonstration or other alternative means (gestures, drawings)
- Rephrase questions, directions, and explanations
- Reduce multiple choices on assessments
- Provide study guides and/ or outlines
- Shorten reading assignments
- Allow extended time for test/project completion
- Use of audio books
- Use of graphic organizers
- Use reduced text, so that print is not dense
- Use visuals/pictures throughout lesson/unit/assignment
- Adapt homework to reflect language proficiency/home support
- Adapt homework to reflect home support
- Provide hands-on activities and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Use of translation dictionaries to locate words in the native language
- Use anecdotal records and portfolio of work as forms of assessment
- Use story retellings to assess comprehension

What Does the Gifted and Talented Experience Look Like? *Springfield Public Schools*

Mission Statement

The Gifted and Talented Program of the Springfield Public Schools aims to provide a meaningful and rigorous education that instills the value of lifelong learning and empowers all students to reach their full potential and become self-fulfilled creative leaders in accordance with the comprehensive standards of our state. We accomplish this by offering challenging, real-world experiences in a student-centered environment.

We recognize that students come from diverse socioeconomic, cultural, and ethnic backgrounds, and the mission of the gifted and talented program is to provide opportunities for students to explore their intellectual, creative, and artistic gifts and talents within the classroom and with beyond-the-classroom experiences. It is essential to provide diverse, appropriate, and ongoing learning experiences and environments that incorporate students' academic, psychological, and social needs. Our responsibility is to provide students with educational alternatives that teach, challenge, and expand their knowledge, while simultaneously stressing the development of independent and self-directed learners who continuously generate questions, analyze, synthesize, and evaluate information and ideas.

New Jersey Administrative Code 6A:8-3.1 defines students who are gifted and talented as those students who possess or demonstrate high levels of ability in one or more content areas when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Goals:

To support our mission, we have established the following goals to guide our work:

- To infuse into the general education program a broad range of activities for high-level learning that will challenge all students to perform at advanced levels, and provide extended opportunities, resources, and support in particular areas where student interest or talent is demonstrated.
- To provide a continuum of gifted education services that will strengthen the total school program, offer enriching and challenging learning opportunities for all students, and provide specialized learning experiences
- To promote achievement of students' best potentials and increased ability.

Through a productive and collaborative relationship among the building principals, classroom teachers, and the Gifted and Talented teacher, our schools can create programming that will enhance the learning experience for every student and serve the unique and specialized needs of students currently demonstrating gifted behaviors.

Elements of the Schoolwide Enrichment Model, W.I.N (What I Need), differentiated instruction, advanced classes, or individual programs into a student's regular instruction program are integral to this overarching framework for gifted education in the Springfield School District.

Reference Board Policy and Regulation 2464 – Gifted and Talented Pupils (M)

Early Childhood Center **Edward V. Walton**

Schoolwide Virtual Enrichment

All first and second grade students have access to the [Gifted and Talented Virtual Classroom](#). This virtual classroom is a space for students to complete various challenges and enrichment opportunities at their own pace. Students can receive feedback and additional adaptable resources to meet their individual learning needs. The virtual classroom design expands accessibility to enrichment resources and allows students to choose learning activities according to their unique interests and abilities. The purpose of the activities is to encourage problem-solving, develop critical thinking

skills, and expand curiosity and imagination. Activities are aligned to the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

The Gifted and Talented teacher serves as a resource to all teachers within Edward V. Walton School. Teachers seeking resources for their high-ability learners will receive additional support from the Gifted and Talented teacher in various ways. This support may include additional units of study, challenging resources, and student projects.

Elementary Schools **James Caldwell** **Thelma L. Sandmeier**

The goal is to engage small groups of students in intensive learning experiences through standards-based, rigorous, and relevant units of study that supplement, not supplant, the grade-level curriculum and support students' unique learning needs.

Enrichment Experience Grade 3

Beginning in third grade, the G&T teacher will cycle through all classrooms to work on problem-solving and enrichment tasks with students. Driven by assessment data, academic performance, student interest, and teacher observation, small groups of students will meet with the G&T teacher during W.I.N. (What I Need) periods throughout the week that the teacher is assigned to their classroom teacher. Groupings will be flexible and monitored to best meet each student's needs throughout the school year. Activities will include brain teasers, puzzles, strategic thinking, problem-solving, and STEM challenges.

Targeted Gifted and Talented Programing Grades 4-5

Students may become identified as Gifted and Talented in fourth grade. Students that are identified may receive support from the G&T Teacher for up to five periods (200 minutes) a week during W.I.N. (What I Need) periods. Identified students will meet to explore grade-level content while incorporating depth and complexity in a student-centered, problem-based environment. The Gifted and Talented Program aims to provide students with various advanced and challenging learning experiences across content areas to promote independent thinking skills, refine critical thinking and communication skills, cultivate joy in learning, and expand student interests through problem-solving. The instruction that students receive incorporates 21st Century Skills and advanced content that is challenging, hands-on, and relevant to the real world.

Strategies and Practices that Support Gifted and Talented Students

- Adjusted Pace of Lessons
- Inquiry-Based Instruction
- Higher-Order Thinking Activities
- Interest-Based Content
- Real World Problem Solving/Problem Based Learning
- Independent Study/Passion Projects
- Units of Study with Like-Minded Peers

Schoolwide Virtual Enrichment

All JCS and TLS students have access to grade level-specific [Gifted and Talented Virtual Classrooms](#). These virtual classrooms are a space for students to complete various challenges and enrichment opportunities at their own pace. Students are able to receive feedback and additional opportunities based on their needs. The virtual classrooms have expanded the accessibility of enrichment resources directly to the students and allows for students to choose opportunities according to their interests and abilities. The purpose of the activities is to encourage problem solving, develop critical thinking skills, and expand curiosity and imagination in conjunction with the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

In addition to classroom support, the Gifted and Talented teacher also serves as a resource to all teachers in the building. Teachers that are seeking resources for their high ability learners will receive additional support from the Gifted and Talented teacher in various ways. This may include additional units of study, challenging resources, student projects, and meeting with the G&T teacher as needed.

Additional Enrichment Opportunities

Across all grade levels 3-5, as recommended by the classroom teacher, students exhibiting a need for additional enrichment may have the opportunity to meet with the G&T teacher as the schedule allows. Groupings will be flexible and monitored to best meet the students' needs throughout the school year. Activities will include, brain teasers, puzzles, strategic thinking activities, problem-solving challenges, and STEM challenges. Students engage in an extended process of asking questions, using resources, and developing answers that lead to thinking about what and how they are learning. Students are held accountable for how they work and use their time by demonstrating their learning through products or presentations.

Students self-select to participate in individual and/or group projects based on interest and commitment. The classroom teacher and/or the enrichment teacher will help guide and monitor student exploration of chosen topics, facilitating their learning with resources and teaching of needed skills.

Secondary Schools
Florence M. Gaudineer Middle School
Jonathan Dayton High School

Grades 6-12: Access to specific content programs with higher levels of academic challenges (i.e. Pre-Algebra, Accelerated Communication Arts, and Advanced Placement Classes)

Dual Credit Courses provide students the opportunity to obtain high school credit, and college credit, simultaneously through partnerships with several institutions.

Project Lead the Way (PLTW) students become builders of technology by engaging in real world activities. Students are empowered as design thinkers collaborating on real world projects.

Gifted and Talented Identification Criteria

The Springfield Schools Gifted and Talented Program recognizes that students require differentiated learning experiences beyond the core curriculum being taught because of their advanced abilities in one or more content areas. These students may also have other cognitive qualities such as curiosity, creativity, motivation, leadership, and passion that require modifications to their academic experience.

Multiple Measures of Eligibility

Kindergarten through grade twelve identification process for gifted and talented students includes multiple measures. Multiple measures may include but are not limited to: achievement test scores; grades; student performance or products; intelligence testing; parent, student, and/or teacher recommendation; and other appropriate measures. The identification methodology is developmentally appropriate, non-discriminatory, and related to the programs and services offered by the Springfield School District. The identification procedures are reviewed annually.

According to N.J.A.C. 6A:8-3.1, all public school districts must have a board-approved gifted and talented identification process and provide services for identified students enrolled in the grades of that school district. The regulations require that identification and services be made available to students in grades K-12.

When students are recommended for the Gifted and Talented Program there are multiple measures that are considered to determine if services are necessary and appropriate. The assessments used are as follows:

- Cognitive Abilities Test (CogAT)
- Classroom Performance/Student Portfolios
- DRA2 Level
- iReady Diagnostic Scores
- Gifted Indicators Checklist
- Start Strong/NJSLA Assessment Data

The N.J.A.C. requires that students be compared to their chronological peers in the local school district. The New Jersey Department of Education has not established state-level criteria for identifying students who are gifted, such as mandated tests or assessments, grade point averages, or IQ scores. Local school districts must use multiple measures to identify students.

Procedures

<https://www.straussesmay.com/seportal/Public/DistrictPolicy.aspx?policyid=2464&id=b8a33a9f505e4998a6db3fb8e1de778b>

Gifted and Talented Program Identification Matrix

Minimum Score Required for Consideration: 14 Points

1 Point	2 Points	3 Points
Cogat Assessment Overall Stanine Score of a 7	Cogat Assessment Overall Stanine Score of an 8	Cogat Assessment Overall Stanine Score of a 9
iReady Math Assessment Just Below Current Grade Level	iReady Math Assessment On Grade Level	iReady Math Assessment ½ Year + Above Current Level
iReady ELA On Grade Level	iReady ELA ½ Year Above Current Level	iReady ELA One Full Grade Level + Above Current Level
NJSLA Math Approaching Expectations	NJSLA Math Met Expectations	NJSLA Math Exceed Expectations
NJSLA ELA Approaching Expectations	NJSLA ELA Met Expectations	NJSLA ELA Exceed Expectations
HOPE Teacher Rating Scale Raw Score: 11 - 29	HOPE Teacher Rating Scale Raw Score: 30 - 49	HOPE Teacher Rating Scale Raw Score: 50-66

Team meetings present the opportunity to review data and assess the educational needs of all students. Teacher provides examples of student work exhibiting above and beyond grade level expectations, creativity, leadership, critical and abstract thinking. Programs for gifted and talented students will be periodically evaluated for their continuing efficacy and adjusted accordingly. The parent of any student identified as gifted or talented shall be consulted regarding any program designed to address the student's particular needs.

Resource Links

https://riversideinsights.com/cognitive_abilities_test

<https://www.curriculumassociates.com/programs/i-ready-learning>

<https://www.nj.gov/education/assessment/resources/>

<https://www.routledge.com/HOPE-Teacher-Rating-Scale-Involving-Teachers-in-Equitable-Identification/Gentry-Pereira-Peters-McIntosh-Fugate/p/book/9781618214522#:~:text=The%20HOPE%20Teacher%20Rating%20Scale,making%20it%20easy%20to%20use.>

Gifted and talented student: The “*[Strengthening Gifted and Talented Education Act](#)*” defines a gifted and talented student as a “student who possesses or demonstrates a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications of their educational program if they are to achieve in accordance with their capabilities.”

Twice-exceptional (2E) students: A twice-exceptional (2E) student is defined as “a student who is both gifted and a student with a disability. These students may also be referred to as having dual exceptionalities or as being gifted with learning disabilities (GT/LD). This also applies to students who are gifted with ADHD or gifted with autism” (New Jersey Association for Gifted Children, www.nagc.org).

Instructional adaptation: An adjustment or modification to instruction enabling a student who is gifted and talented to participate in, benefit from, and demonstrate knowledge and application of the New Jersey Student Learning Standards in one or more content areas at the instructional level of the student, not just the student's grade level.

Identifying gifted and talented students: The focus of identification is to provide programming and services in which students' specific learning needs and potential are appropriately addressed and met. In every New Jersey school district, there are students who require modifications to the general education curriculum if they are to achieve in accordance with their abilities. By identifying a student's general intellectual ability, creativity, or specific academic area aptitudes, we are acknowledging that they need programming and services outside of the general education/grade level curriculum to advance their learning.

NJDOE Fast Facts

<https://www.nj.gov/education/standards/gifted/>

<https://www.nj.gov/education/standards/gifted/legislation.shtml>

Supplemental Resources/Programming for Gifted Students

Edward V. Walton

- PETS Program – Primary Education Thinking Skills
- Group Solutions/Group Solutions 2 – Cooperative Logic Activities
- Lollipop Logic
- Beginning Thinking Skills
- AIMS Education Programming

James Caldwell and Thelma L. Sandmeier

Math/ELA

- Project M3: Mentoring Mathematical Minds
- Junior Great Books
- AIMS Education Programming
- Borenson Hands on Equations
- BizWorld
- Perplexors
- Advanced Math Explorations grade 3-5
- Challenging Units for Gifted Learners (ELA and Math)
- Creative Curriculum Extenders
- Differentiated Lessons & Projects
- Challenge Math Grades 4+
- Differentiating Instruction with Menus (All Content Areas)
- Jacob's Ladder
- Genius Hour/Passion Project
- Spatial Reasoning
- Logic Puzzles, Brain Games, Analogies

STEM

- Engineering is Elementary
- Engineer Throughout the Year
- PBS Design Squad
- DefinedSTEM
- Project Lead the Way (PLTW)

Enrichment Events

Experience for all students to be enriched through events related to the curricular or extracurricular activities. Examples include after school clubs, PTA-sponsored events, leadership opportunities, visual and performing arts, and community service opportunities.