

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

“When we empower learners to explore and learn how to make an impact on the world, we inspire problem solvers and innovators.” - Katie Martin

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Curriculum Developed:

July 2021

Date of Board Approval:

September 21, 2021

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

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**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

**Affirmative Action Statement
Equality and Equity in Curriculum**

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

**Randolph Township Schools
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Library Media Curriculum**

**EDUCATIONAL GOALS
VALUES IN EDUCATION**

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools 4th and 5th Grade Elementary Library Media Curriculum

Introduction

The Randolph School District is committed to providing equitable opportunities and supporting all students in becoming life-long learners and Future Ready global citizens. The Library Media curriculum is designed with these values at the forefront. The fourth and fifth grade curriculum is aligned with New Jersey Student Learning Standards of Computer Science and Design Thinking, Career Readiness, Life Literacies and Key Skills, and English Language Arts to provide a critical foundation in the areas of library, digital, and global citizenship. Further, the curriculum has been developed with a focus on CASEL (Collaboration for Academic, Social, and Emotional Learning) core competencies to support students in understanding and managing emotions, setting and achieving positive goals, feeling and showing empathy for others, establish and maintaining positive relationships, and making positive decisions. Students will engage in learning through the lens of scientists, sustainability, and environmental activists. Students will have opportunities to explore and create code, as well as investigate software and online tools; simultaneously developing appreciation for print and digital resources as problem solving tools while developing a love for literature.

All students in Randolph Township Schools will be empowered to acquire a growth mindset that will serve to promote lifelong learning as confident, flexible, and resourceful thinkers. This curriculum has been designed to foster students' natural curiosity by encouraging all students, regardless of gender, economic status, or cultural heritage, to develop the ability, confidence, and motivation to succeed academically, socially and emotionally.

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum
Curriculum Pacing Chart**

| SUGGESTED TIME ALLOTMENT | UNIT NUMBER | CONTENT - UNIT OF STUDY |
|---------------------------------|--------------------|--------------------------------|
| 5 weeks | I | Our Community |
| 9 weeks | II | Global Citizenship |
| 8 weeks | III | Exploring Science in Our World |
| 8 weeks | IV | Sustainability |
| 6 weeks | V | Making My Mark |

**Randolph Township Schools
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| Library Media Unit | September | October | November | December | January | February | March | April | May | June |
|--|-----------|---------|----------|----------|---------|----------|---------|-------|---------|------|
| Our Community | 5 Weeks | | | | | | | | | |
| Global Citizenship | | 9 Weeks | | | | | | | | |
| Global Citizens Explore Science in our World | | | | | 8 Weeks | | | | | |
| Sustainability | | | | | | | 8 Weeks | | | |
| Making My Mark | | | | | | | | | 6 Weeks | |

Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum

Unit I: Our Community

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| TRANSFER: Solve problems through collaboration with community members. | | |
| <p>STANDARDS / GOALS:</p> <p><u>Career Readiness, Life Literacies, and Key Skills</u> 9.4.5.IML.5: Distinguish how media are used by individuals, groups, and organizations for varying purposes. (e.g., 1.3A.5.R1a) 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social. 9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each. 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images graphics, or symbols. 9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively (e.g., 1.5.5.CR3a). 9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).</p> <p><u>Computer Science and Design Thinking</u> 8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.</p> | ENDURING UNDERSTANDINGS | ESSENTIAL QUESTIONS |
| | Digital communications and resources allow us to share perspectives with one another. | <ul style="list-style-type: none"> • How can we evaluate information? • How do we communicate? |
| | Collaboration allows opportunities for new ideas and products. | <ul style="list-style-type: none"> • Why is it important to understand another person’s perspective? |
| | Positive reading experiences allow us to see the world from other perspectives. | <ul style="list-style-type: none"> • How does self-selection influence reader identity? • How does reading help us make connections to the world? |
| | <u>KNOWLEDGE</u> Students will know: | <u>SKILLS</u> Students will be able to: |
| | Both online and offline community norms for Library Media enable us to engage in effective learning. | Engage effectively in online communities. |
| | | Analyze personal experiences and school expectations to develop norms for online behavior. |

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

Unit I: Our Community

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| <p>8.1.5.CS.1: Model how computing devices connect to other components to form a system. 8.1.5.CS.2: Model how computer software and hardware work together as a system to accomplish tasks. 8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies. 8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have. 8.2.5.ITH.3: Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use.</p> <p><u>English Language Arts</u> RL.4.1 Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text. RI.5.1 Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><u>CASEL Competencies</u> Self-Awareness • Identifying Emotions • Self-Confidence</p> <p>Self-Management • Self-Discipline • Organizational Skills</p> <p>Responsible Decision Making • Ethical Responsibility • Reflecting • Identifying Problems • Analyzing Situations</p> | <p>Online communities allow us to share perspectives and create new learnings.</p> <p>Personal feelings and actions have an impact on how we interact with the world.</p> <p>Organized information and resources support efficient problem solving.</p> | <p>Participate and share ideas in an online community.</p> <p>Analyze benefits of online learning communities.</p> <p>Synthesize ways that digital communities allow for social interactions with positive and negative outcomes.</p> <p>Create sharable information and communications to develop new and improved ideas about one’s community and the world.</p> <p>Develop a personalized system to locate and obtain information.</p> <p>Connect best internet search strategies to efficiently locate authentic, relevant information.</p> |
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Randolph Township Schools
4th and 5th Grade Elementary
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Unit I: Our Community

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| | <p>KEY TERMS: circulation, borrow, return, overdue, non-fiction, fiction, print, digital, mouse, keyboard, monitor, Destiny, shelf marker, e-book, keyword, subject, Makerspace, Microsoft TEAMS, online, internet, posting, virtual, digital footprint, apps, efficient, perspective, search, key terms, reader identity</p> | |
| <p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Employing strategies to identify and locate appropriate books for research and reading. • Creating a digital artifact that allows students to collaborate and assess 2 or more digital tools. • Reacting to reading materials in a variety of forums. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Search for and successfully utilize Library Media resources • Access and navigate Microsoft TEAMS to communicate with an online community • Tour Library Media Center and Microsoft TEAMS to develop an understanding of how to access resources • Demonstrate Library Media behaviors, book care and borrowing procedures • Collaborate on a digital artifact with peers, noting the benefits to working online • Create a Word Document with specific editing tasks completed • Compare two or more digital tools via scavenger hunt or similar activity • Apply concepts to validate search engine results | | |
| <p>SUGGESTED TIME ALLOTMENT</p> | <p>5 weeks</p> | |
| <p>SUPPLEMENTAL UNIT RESOURCES</p> | <ul style="list-style-type: none"> • <u>This is How We Do It- One Day in the Lives of Seven Kids from Around the World - Matt Lamothe</u> • <u>Eyes that Kiss in the Corners by Johanna Ho</u> | |

**Randolph Township Schools
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Unit I: Our Community

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| | <ul style="list-style-type: none">• Computers with Internet Connectivity• Laptops and/or iPads with internet connectivity and charging stations |
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Randolph Township Schools
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Unit II: Global Citizenship

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| TRANSFER: Participate in a global community responsibly. | | |
| <p>STANDARDS / GOALS:</p> <p><u>Career Readiness, Life Literacies, and Key Skills</u></p> <p>9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity</p> <p>9.4.5.DC.1: Explain the need for and use of copyrights.</p> <p>9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.</p> <p>9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.</p> <p>9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).</p> <p>9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity.</p> <p>9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions (e.g., 8.1.5.IC.1).</p> <p>9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.</p> <p>9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).</p> <p>9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance (e.g., Social Studies Practice - Gathering and Evaluating Sources).</p> <p>9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole.</p> | ENDURING UNDERSTANDINGS | ESSENTIAL QUESTIONS |
| | Solving problems requires teamwork, listening and a solid understanding of available resources. | <ul style="list-style-type: none"> • How do people effectively solve problems? • What tools facilitate problem solving? |
| | Digital citizenship requires ethical, responsible decision making. | <ul style="list-style-type: none"> • How can digital citizens participate responsibly in varied online communities? • What strategies can I employ when faced with challenges online? • What analysis strategies can I utilize to evaluate information? |
| | Experiencing diverse cultures and perspectives helps citizens develop empathy and expand cultural social perspectives of the world. | <ul style="list-style-type: none"> • How can understanding others help decision making? • How does having empathy aid in problem solving? |

**Randolph Township Schools
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Unit II: Global Citizenship

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| <p><u>Computer Science and Design Thinking</u> 8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. 8.1.5.IC.2: Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. 8.1.5.NI.2: Describe physical and digital security measures for protecting sensitive personal information. 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models 8.2.5.ED.4: Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints). 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process. 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.</p> <p><u>English Language Arts</u> RL.4.1 Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text. RI.5.1 Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><u>CaseL Competencies:</u> Relationship Skills • Communication • Social engagement • Relationship building</p> | <p><u>KNOWLEDGE</u> Students will know:</p> | <p><u>SKILLS</u> Students will be able to:</p> |
| | <p>The design process helps students solve problems collaboratively.</p> <p>Reflecting on work helps prepare us for future endeavors.</p> <p>Digital citizens evaluate how to engage with information and others online.</p> | <p>Investigate problems through attentive reading and further exploration.</p> <p>Develop a logical argument that solves a problem.</p> <p>Design a plan and functional prototype that addresses needs and constraints.</p> <p>Revise prototype and continuously reflect to improve product.</p> <p>Critique design process by celebrating mistakes that improved the concept.</p> <p>Reflect on project outcomes and possible next steps.</p> <p>Develop an understanding of laws and regulations that necessitate respecting the digital content of others.</p> |

Randolph Township Schools
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Unit II: Global Citizenship

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| <ul style="list-style-type: none"> • Teamwork <p>Social Awareness</p> <ul style="list-style-type: none"> • Perspective-taking • Empathy • Appreciating diversity • Respect for others <p>Responsible Decision Making</p> <ul style="list-style-type: none"> • Identifying problems • Analyzing situations • Solving problems | <p>Individuals from different cultures may have different points of view and experiences.</p> <p>Authors use various techniques to engage a reader.</p> | <p>Formulate a new understanding of digital citizenship based on the environment or platform being utilized.</p> <p>Analyze positive and negative impacts of shared information.</p> <p>Identify patterns of behavior that people use to solve conflicts or problems.</p> <p>Investigate background/history in order to develop a deeper understanding.</p> <p>Analyze how culture shapes people’s perspectives in communities and across the world.</p> <p>Investigate the author’s craft used to engage readers.</p> |
| | <p>KEY TERMS:</p> <p>Novel Engineering, planning, diverse, online, offline, balance, culture, perspective, text features, communicate, informational, coding, robotics, Makerspace, teamwork, ethical, collaboration, resources, criteria, problem, digital citizen, critically review, empathy, persevere, culture</p> | |

**Randolph Township Schools
4th and 5th Grade Elementary
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Unit II: Global Citizenship

ASSESSMENT EVIDENCE: Students will show their learning by:

- Analyzing reasons information and images in media are altered.
- Working collaboratively to solve a problem identified in a story (e.g.; Novel Engineering).
- Planning an ideal day of media balance.
- Creating text or clickbait to engage an audience.

KEY LEARNING EVENTS AND INSTRUCTION:

- Participate in solving Novel Engineering problems, utilizing the design process
- Reflect on Novel Engineering process and outcomes
- Participate in creating a positive digital school community through positive behaviors and self-reflection
- Read books and cultivate diverse perspectives through discussion with peers
- Synthesize ways authors engage readers in various media (e.g., clickbait, captions, altered images, discussing layout or features of a website or book) through techniques such as color, layout, style, ADA compliance, title or font
- Evaluate genre characteristics in order to successfully select appropriate reading material

SUGGESTED TIME ALLOTMENT

9 weeks

SUPPLEMENTAL UNIT RESOURCES

- Moth and Butterfly by Dev Petty
- Eyes that Kiss in the Corners by Johanna Ho
- Laptops and/or iPads with internet connectivity and charging stations
- Suggested Websites
 - Novel Engineering books: <https://www.novelengineering.org/books/>
 - Common Sense Media Resources: commonsensemedia.org

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

Unit III: Exploring Science in Our World

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| TRANSFER: Solve problems through perseverance, creativity, knowledge of societal issues, and flexible thinking. | | |
| STANDARDS / GOALS: | ENDURING UNDERSTANDINGS | ESSENTIAL QUESTIONS |
| <p><u>Career Readiness, Life Literacies, and Key Skills</u> 9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6). 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2). 9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1). 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems. 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3). 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3). 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data. 9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings.</p> <p><u>Computer Science and Design Thinking</u></p> | Global citizens seek knowledge and engage in sustained inquiry to guide informed decisions. | <ul style="list-style-type: none"> • How can global citizens efficiently solve problems? • Why do global citizens share information? |
| | Global citizens care deeply about one another and their environment. | <ul style="list-style-type: none"> • Why is it important to become responsible caretakers of our world? • How can I impact our world? |
| | Engineers create and modify technologies to meet people’s needs and wants; scientists ask questions about the natural world. | <ul style="list-style-type: none"> • How can the design process help solve problems in the world? • How can I improve upon a design? |
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Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum

Unit III: Exploring Science in Our World

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| <p>8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.</p> <p>8.1.5.IC.2: Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users.</p> <p>8.1.5.NI.2: Describe physical and digital security measures for protecting sensitive personal information.</p> <p>8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.</p> <p>8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.</p> <p>8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim</p> <p>8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data</p> <p>8.1.5.AP.6: Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended.</p> <p>8.1.5.AP.2: Create programs that use clearly named variables to store and modify data</p> <p><u>English Language Arts</u></p> <p>RL.4.1 Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.5.1 Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><u>Case1 Competencies:</u></p> <p>Relationship Skills</p> <ul style="list-style-type: none"> • Communication • Social engagement | <p><u>KNOWLEDGE</u></p> <p>Students will know:</p> <p>Scientists are naturally curious about the world.</p> <p>Scientists use the scientific method to investigate their curiosities.</p> <p>Coding is a set of languages used to communicate solutions to everyday problems with technology.</p> | <p><u>SKILLS</u></p> <p>Students will be able to:</p> <p>Observe a variety of scientists to identify the qualities that all scientists have in common.</p> <p>Analyze human actions and their impact on the world, specifically the environment and its communities.</p> <p>Analyze real world problems through the lens of a scientist</p> <p>Collaborate with peers on potential solutions with criteria.</p> <p>Collaborate with peers to create a simple program with increasingly complex codes.</p> <p>Design coding projects to solve problems that affect others.</p> |
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**Randolph Township Schools
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Library Media Curriculum**

Unit III: Exploring Science in Our World

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| <ul style="list-style-type: none"> • Relationship building • Teamwork <p>Social Awareness</p> <ul style="list-style-type: none"> • Perspective-taking • Empathy • Appreciating diversity • Respect for others <p>Responsible Decision Making</p> <ul style="list-style-type: none"> • Identifying problems • Analyzing situations • Solving problems | <p>Literature helps us make sense of our world.</p> <p>Global citizens develop an appreciation for the earth, its resources and those that live there.</p> | <p>Revise solutions to authentically solve problems.</p> <p>Critically review and categorize literature for a variety of purposes.</p> <p>Deepen curiosity for the wonders of the world through multi-media/multi-modal immersion.</p> <p>Collaborate with fellow citizens to discuss issues that are impacting our world.</p> <p>Design or create a plan to solve an issue impacting our world.</p> <p>Share new understandings via multimedia solutions.</p> |
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**Randolph Township Schools
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Unit III: Exploring Science in Our World

KEY TERMS:

social scientist, methods, tools, database, resources, information, design process, Scratch, code.org, evaluate, synthesize, ideate, authentic, climate change, book awards such as Caldecott, Newbery, Pura Belpre, Coretta Scott King, Stonewall

ASSESSMENT EVIDENCE: Students will show their learning by:

- Demonstrating use of a digital spreadsheet.
- Sharing learning and understanding of insights, e.g.; Padlet museum, Flipgrid, class presentation or passion project.
- Creating a coding project. (i.e., code.org or other coding tools)

KEY LEARNING EVENTS AND INSTRUCTION:

- Solve real world problems through participation in Hour of Code events
- Read a book to gain knowledge about a scientist's life and work
- Record thinking and information about a topic to build background and create questions for further inquiry
- Immerse students in tools and methods utilized by scientists
- Read, gather, and respond to information of interest on a selected topic of interest
- Develop questions and use evidence from resources to support new learning
- Seek out additional resources to address unaddressed questions
- Create a project to demonstrate learning and understanding of a self-selected topic
- Become a teacher as thinking is taken public and shared with others
- Articulate learning process and reflect on it

**Randolph Township Schools
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Library Media Curriculum**

Unit III: Exploring Science in Our World

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| SUGGESTED TIME ALLOTMENT | 8 weeks |
| SUPPLEMENTAL UNIT RESOURCES | <ul style="list-style-type: none">• <u>This is How We Do It- One Day in the Lives of Seven Kids from Around the World</u> - Matt Lamothe• <u>Iqbal and His Ingenious Idea: How a Science Project Helps One Family and the Planet</u> by Elizabeth Suneby• <u>Women in Science: 50 Fearless Pioneers Who Changed the World</u> by Rachel Ignatofsky• <u>The World Made a Rainbow</u> by Michelle Robinson• Laptops and/or iPads with internet connectivity and charging stations• Age-appropriate databases such as WorldBook and PebbleGo |

**Randolph Township Schools
4th and 5th Grade Elementary
Library Media Curriculum**

Unit IV: Sustainability

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| TRANSFER: Solve problems that connect sustainable practices to the world around us. | | |
| <p>STANDARDS / GOALS:</p> <p><u>Career Readiness, Life Literacies, and Key Skills</u> 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6). 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).</p> <p><u>Computer Science and Design Thinking</u> 8.1.5.AP.1: Compare and refine multiple algorithms for the same task and determine which is the most appropriate. 8.1.5.AP.3: Create programs that include sequences, events, loops, and conditionals. 8.1.5.AP.4: Break down problems into smaller, manageable sub-problems to facilitate program development. 8.1.5.AP.5: Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program. 8.2.5.ITH.1: Explain how societal needs and wants influence the development and function of a product and a system. 8.2.5.ITH.4: Describe a technology/tool that has made the way people live easier or has led to a new business or career.</p> | ENDURING UNDERSTANDINGS | ESSENTIAL QUESTIONS |
| | Citizens can make changes to increase sustainability in the world. | <ul style="list-style-type: none"> • How can the actions of one person combine with other efforts to make a big difference? • How can citizens take action to initiate change? |
| | Developing background of a topic supports deep connections with others. | <ul style="list-style-type: none"> • How can coding advance change for climate, education, and other global issues? • How does knowledge allow one to be an agent of change? |
| | Change happens when ideas are shared. | <ul style="list-style-type: none"> • How can we identify community members who will amplify ideas? • How do community members connect using 21st century tools? |
| | <u>KNOWLEDGE</u> | <u>SKILLS</u> |

**Randolph Township Schools
4th and 5th Grade Elementary
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Unit IV: Sustainability

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| <p>8.2.5.NT.2: Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies.</p> <p>8.2.5.NT.3: Redesign an existing product for a different purpose in a collaborative team.</p> <p>8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies.</p> <p>8.2.5.ETW.1: Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems.</p> <p>8.2.5.ETW.2: Describe ways that various technologies are used to reduce improper use of resources.</p> <p>8.2.5.ETW.3: Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.</p> <p>8.2.5.ETW.4: Explain the impact that resources, such as energy and materials used to develop technology, have on the environment.</p> <p>8.2.5.ETW.5: Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change.</p> <p>8.2.5.EC.1: Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.</p> <p><u>English Language Arts</u></p> <p>RL.4.1 Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.5.1 Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><u>Case1 Competencies:</u> Relationship Skills</p> | <p>Students will know:</p> <p>Thinking critically helps improve upon a creator’s work.</p> <p>Coding is a language that allows us to solve problems with technology.</p> <p>Societies solve real world problems with sustainable resources.</p> | <p>Students will be able to:</p> <p>Apply critical analysis skills to reflect on and improve design of a product.</p> <p>Utilize 21st century tools to enhance product designs and support change.</p> <p>Develop sequences of code which share or promote a message that ultimately lead people to sustainable practices.</p> <p>Apply a variety of strategies and coding understandings to arrive at a solution.</p> <p>Modify, remix, or incorporate pieces of existing programs into one’s own work to add additional features or create a new program.</p> <p>Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies.</p> <p>Analyze how technology has contributed to or reduced inequities in local and global communities and</p> |
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Unit IV: Sustainability

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| <ul style="list-style-type: none"> • Communication • Social engagement • Relationship building • Teamwork <p>Social Awareness</p> <ul style="list-style-type: none"> • Perspective-taking • Empathy • Appreciating diversity • Respect for others <p>Responsible Decision Making</p> <ul style="list-style-type: none"> • Identifying problems • Analyzing situations • Solving problems | <p>KEY TERMS: Innovation, inequities, sequences, events, loops, conditionals, team, critical analysis, sustainability, renewable resources, impact, climate change, technology, coding, inequity, empathy, monitor, measure, energy, society, diverse perspectives</p> | <p>determine its short- and long-term effects</p> |
| <p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Creating and editing coding sequences that promote and lead people to sustainable practices. • Working through peer review process in Novel Engineering to create a product. • Developing a product that conveys new learning about the use of sustainable resources. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Redesign an existing product for a different purpose in a collaborative team • Compare and refine multiple algorithms for the same task and determine which is the most appropriate • Create programs that include sequences, events, loops, and conditionals • Create code as a tool that leads to sustainable practices • Create a Novel Engineering project that focuses on peer review process • Share learnings about the work done globally to solve problems with technology | | |
| <p>SUGGESTED TIME ALLOTMENT</p> | <p>8 weeks</p> | |

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Unit IV: Sustainability

SUPPLEMENTAL UNIT RESOURCES

- Iqbal and His Ingenious Idea: How a Science Project Helps One Family and the Planet by Elizabeth Suneby
- We Are Water Protectors by Carole Lindstrom
- The Mess That We Made by Michelle Lord
- Laptops and/or iPads with internet connectivity and charging stations
- Suggested Websites
 - Novel Engineering resources (from <https://www.novelengineering.org/>)
 - Databases including WorldBook and PebbleGo
 - World Wildlife Fund: worldwildlife.org
 - United Nations Sustainability Resources: (<https://sdgs.un.org/goals>)
 - Wonderopolis (<https://wonderopolis.org/>)

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Unit V: Making My Mark

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| TRANSFER: Reflect on learning as a process of innovation. | | |
| <p>STANDARDS / GOALS:</p> <p><u>Career Readiness, Life Literacies, and Key Skills</u> 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a). 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2). 9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1). 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems. 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3) 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5). 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social (e.g., 2.2.5. PF.5).</p> <p><u>Computer Science and Design Thinking</u> 8.2.5.ITH.1: Explain how societal needs and wants influence the development and function of a product and a system.</p> | ENDURING UNDERSTANDINGS | ESSENTIAL QUESTIONS |
| | Reading for pleasure broadens our understandings of and connections to people all over the world. | <ul style="list-style-type: none"> • Why should I read about the experiences of others? • What tools can be utilized to be accountable for one’s own learning? |
| | Sharing ideas and understandings connects us. | <ul style="list-style-type: none"> • Why do we make meaningful connections with others? • How do we purposely grow from the connections we make? |
| | Curiosity leads to new learning. | <ul style="list-style-type: none"> • How can innovation influence the way we solve problems? • What does lifelong learning look like? • How do we stay culturally responsible and curious? |

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Unit V: Making My Mark

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| <p>8.2.5.ITH.2: Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have.</p> <p>8.2.5.NT.4: Identify how improvement in the understanding of materials science impacts technologies.</p> <p>8.2.5.EC.1: Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.</p> <p>8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.</p> <p>8.1.5.IC.2: Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users.</p> <p><u>English Language Arts</u></p> <p>RL.4.1 Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.5.1 Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><u>Case1 Competencies:</u></p> <p>Relationship Skills</p> <ul style="list-style-type: none"> • Communication • Social engagement • Relationship building • Teamwork <p>Social Awareness</p> <ul style="list-style-type: none"> • Perspective-taking • Empathy • Appreciating diversity • Respect for others | <p style="text-align: center;"><u>KNOWLEDGE</u></p> <p style="text-align: center;">Students will know:</p> <p>Communicating personal ideas and learnings to others helps us solidify our thinking.</p> <p>Communicating with empathy influences the thinking of others.</p> <p>Self-reflection is a part of learning.</p> | <p style="text-align: center;"><u>SKILLS</u></p> <p style="text-align: center;">Students will be able to:</p> <p>Analyze and synthesize information from multiple sources to create a new product.</p> <p>Extend thinking to solve real world problems.</p> <p>Utilize appropriate outlets for communicating ideas.</p> <p>Think critically about the audience when presenting.</p> <p>Share information with others in an engaging format.</p> <p>Reflect on the experience of sharing as a vehicle for personal growth.</p> <p>Develop goals based on a specific purpose.</p> <p>Reflect on goals throughout the learning progression.</p> |
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Unit V: Making My Mark

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| Responsible Decision Making <ul style="list-style-type: none"> • Identifying problems • Analyzing situations • Solving problems | | Honor mistakes and reflect on them as a necessary part of the learning process for adapting and growth. |
| | KEY TERMS: NoveList, book trailer, Randolph Summer Reading, goals, connections, self-reflection, mistakes, empathy | |
| <p>ASSESSMENT EVIDENCE: Students will show their learning by:</p> <ul style="list-style-type: none"> • Designing, creating and sharing a review, based on a specific audience/purpose. • Creating goals based on a specific target and design a plan(s) to implement the goal. • Sharing a portfolio of learning (learning progression) based on a learning target. <p>KEY LEARNING EVENTS AND INSTRUCTION:</p> <ul style="list-style-type: none"> • Analyze summer reading tools and opportunities • Synthesize moments of learning to expand upon and share with others • Compare and contrast the efficiency of different technologies for sharing ideas with others • Communicate the process and purpose of taking work public • Demonstrate how curiosity brought about new learning • Discuss what lifelong learning looks like and what it means | | |
| SUGGESTED TIME ALLOTMENT | 6 weeks | |

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Unit V: Making My Mark

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| SUPPLEMENTAL UNIT RESOURCES | <ul style="list-style-type: none">• <u>This is How We Do It- One Day in the Lives of Seven Kids from Around the World</u> - Matt Lamothe• Laptops and/or iPads with internet connectivity and charging stations• Selected readings from summer reading suggestions (new books)• Suggested presentation tools and Apps<ul style="list-style-type: none">○ Flipgrid○ Animoto○ Scratch○ Stop Motion Studio○ DoInk |
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APPENDIX A

The suggested texts listed below can be used as additional resources on science and sustainability:

- The Water Princess by Susan Verde
- The Watcher by Jeanette Winter
- Rachel Carson And Her Book That Changed the World by Laurie Lawlor
- Follow Those Zebras by Sandra Markle
- The Elephant by Jenni Desmond
- Mario and the Hole in the Sky: How a Chemist Saved our Planet by Elizabeth Rusch