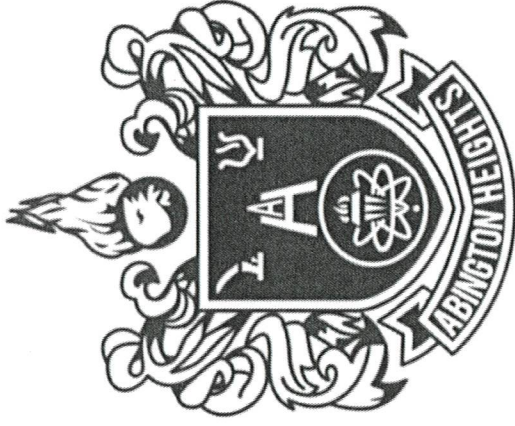


# Abington Heights School District Comet Connects Grade 3 - 4 Science, Technology & Engineering, and Environmental Literacy & Sustainability Curriculum



Themes:

- ★ Engineering
- ★ Technology

Board Approval Date: April 3, 2024

Review Date:

Adoption: 2024 - 2025 SY

## Grade 3 Comet Connects Curriculum Scope and Sequence

Month	Unit	Estimated Number of Weeks
September	Introduction: What is STEM?	2 Weeks
October - November	Technology: How can technology be used to share information?	4 Weeks
December	Technology: What are the different ways robotics can move? What is digital citizenship?	2 Weeks
January	Technology : What is the importance of block coding? How is blocked coding used in different apps?	2 Weeks
February	Technology and engineering: How do technologies develop and change? How do technologies help us grow and develop as a society?	2 Weeks
March-May	Technology and engineering: How can technology or engineering be used to create a project that meets a specific need?	6 Weeks
June	Technology: What is binary coding?	2 Weeks

## Grade 4 Comet Connects Curriculum Scope and Sequence

Month	Unit	Estimated Number of Weeks
September	Introduction: What is STEM?	2 Weeks
October - November	Technology: How can technology be used to share information?	4 Weeks
December	Technology: What are the different ways robotics can move? What is digital citizenship?	2 Weeks
January	Technology : What is the importance of block coding? How is blocked coding used in different apps?	2 Weeks
February	Technology and engineering: How do technologies develop and change? How do technologies help us grow and develop as a society?	2 Weeks
March-May	Technology and engineering: How can technology or engineering be used to create a project that meets a specific need?	6 Weeks
June	Technology: What is binary coding?	2 Weeks

AHSD Science Comet Connects (STEM) Curriculum Grade 3 - 4						
Month / Unit	Essential Questions	Standards	Content			
		Skills	Activities			
		Assessment / Evidence of Learning				
September	<p><b>INTRODUCTION</b> What are the different components of STEM?</p>	<p>3.5.3-5.J Explain how technologies are developed or adapted when individual or societal needs and wants change. 3.5.3-5.M Demonstrate essential skills of the engineering design process. 3.5.3-5.W Describe the properties of different materials. 3.5.3-5.F Classify resources used to create technologies as either renewable or nonrenewable. 3.5.3-5.HH Differentiate between the role of scientists, engineers, technologists, and others in creating and maintaining technological systems. 3.5.3-5.D Predict how certain aspects of their daily lives would be different without given technologies</p>	<p>STEM stands for Science, Technology, Engineering, and Math. In Comet Connect there is a focus on Engineering and Technology. Both require knowledge of societal needs have changed technology and engineering. Both also require a design process.</p>	<p>Students will identify the different parts of STEM. They will discuss how technology has developed. The engineering design process will also be introduced.</p>	<p><b>3rd Grade:</b> Team building challenge with index card engineering challenge. Learn about different parts of STEM with Escape Room Challenge. <b>4th Grade:</b> Review engineering design process with the nametag challenge. The nametag needs to meet the requirements. Review parts of STEM with STEM jeopardy.</p>	<p><b>3rd-4th Grade:</b> Engineering challenges and review the different parts and requirements of STEM with different games.</p>
October	<p><b>TECHNOLOGY:</b> How can technology be used to share information?</p>	<p>3.5.3-5.C Follow directions to complete a technological task. 3.5.3-5.K Judge technologies to determine the best one to use to complete a given task or meet.</p>	<p>Technology can be used to convey information. There are many different tools that can be used to complete this task. Students will focus on video and visual presentations.</p>	<p>Students will work with visual and video mediums to explain information about themselves or famous people in STEM.</p>	<p><b>3rd Grade:</b> Students will create a Google Slide document that explains about themselves. <b>4th Grade:</b> Students will research, write, and film a video about famous people in STEM. It will be recorded in front of a Green Screen.</p>	<p><b>3rd-4th Grade:</b> Google slides and videos will be used to convey information.</p>
November	<p><b>TECHNOLOGY AND ENGINEERING:</b> How can technology be used to share information? How is the design process used for engineering activities?</p>	<p>3.5.3-5.C Follow directions to complete a technological task 3.5.3-5.K Judge technologies to determine the best one to use to complete a given task or meet 3.5.3-5.I Design solution by safely using tools, materials, and skills 3.5.3-5.O Describe requirements of designing or making a product or system. 3.5.3-5.S Illustrate that there are multiple approaches to deising 3.5.3-5.T Apply universal principles and elements of design.</p>	<p>Technology can be used to convey information. There are many different tools that can be used to complete this task. Students will focus on video and visual presentations. When creating an engineering activity, it is crucial that students understand and apply the engineering design process (Imagine, Plan, Create, Test, and Improve)</p>	<p>Students will work with visual and video mediums to explain information about themselves or famous people in STEM. Students will solve an engineering challenge by following the engineering design process.</p>	<p><b>3rd Grade:</b> Students will wrap up Google slide presentation. Students will solve an engineering challenge, using the engineering design process. <b>4th Grade:</b> Students will wrap up video presentation.</p>	<p><b>3rd-4th Grade:</b> Google slides and videos will be used to convey information. Students in 3rd Grade will solve different engineering challenges.</p>

AHSD Science Comet Connects (STEM) Curriculum Grade 3 - 4		Assessment / Evidence of Learning		
Month / Unit	Essential Questions	Standards	Content	
		Skills	Activities	
December	<p><b>TECHNOLOGY:</b> What are the different ways robotics can move? What is digital citizenship?</p>	<p>3.5.3-5.A Use appropriate symbols, numbers, and words to communicate key ideas about technological products and systems. 3.5.3-5.N Identify why a product or system is not working properly. 3.5.3-5.G Describe the helpful and harmful effects of technology. 3.5.3-5.BB Illustrate how, when parts of a system are missing, it may not work as planned.</p>	<p>Students will need to apply their coding and understand when moving robotics. <b>3rd Grade:</b> Students will work with sphero bolt robotics and review digital citizenship. <b>4th Grade:</b> Students will work with sphero bolt and define cyber bullying. Students will begin lesson 1 with internet safety (Common Sense.org).</p>	<p><b>3rd-4th Grade:</b> Work with robotics and begin to review Internet Safety.</p>
January	<p><b>TECHNOLOGY:</b> What is the importance of internet safety? How is blocked coding used in different apps?</p>	<p>3.5.3-5.G Describe the helpful and harmful effects of technology 3.5.3-5.P Evaluate the strengths and weakness of existing design solutions, including their own solutions. 3.5.3-5.Q Practice successful design skills 3.5.3-5.DD Demonstrate how simple technologies are often combined to form more complex systems.</p>	<p>Students will identify important internet behaviours and will review block coding. <b>3rd Grade:</b> Students will plan, build, and code their own lego robotics. <b>4th Grade:</b> Students will work in Code.org Hour of Code: Hello World; Emoji. Students will then practice email etiquette.</p>	<p><b>3rd-4th Grade:</b> Work on a variety of coding programs and practice internet etiquette.</p>
February	<p><b>TECHNOLOGY AND ENGINEERING:</b> How do technologies develop and change? How can technologies help us grow and develop and a society?</p>	<p>3.5.3-5.B Examine information to assess the trade-offs to using a product or a system. 3.5.3-5.H Determine factors that influence changes in a society's technological systems or infrastructure. 3.5.3-5.L Demonstrate how tools and machines extend human capabilities, such as holding, lifting, carrying, fastening, separating, and computing. 3.5.3-5.V Interpret how good design improves the human condition. 3.5.3-5.AAA Create representations of the tools people made, how they cultivated to provide food, made clothing, and built shelters to protect themselves. 3.5.2-5.Y Identify the resources needed to get a technical job done, such as people, materials, capital, tools, machines, knowledge, energy and time. 3.5.3-5.E Explain why responsible use of technology require sustainable management of</p>	<p>Students will need to identify technologies and explain how it improves the human condition. <b>3rd Grade:</b> Create a timeline of various technology and identify different technologies and the helpful or harmful effects. <b>4th Grade:</b> Create a model of an ancient tool and describe how it was used. Discuss the development of technology and give an example how a certain tool can continue to be improved (i.e. iPhone)</p>	<p><b>3rd-4th Grade:</b> Examine the history of some technology and tools and identify how they worked and how they can be made better.</p>

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			Skills
March	<p><b>TECHNOLOGY AND ENGINEERING:</b> How can technology or engineering be used to create a project that meets a specific need?</p>	<p>3.5.3-5.R- Apply tools, techniques, and materials in a safe manner as part of the design process. 3.5.3-5.U Evaluate designs based on criteria, constraints, and standards 3.5.3-5.Z Create a new product that improves someone's life. 3.5.3-5.FF Compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced. 3.5.3-5.GG Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.</p>	<p>3rd-4th Grade - STEM Night Project</p> <p>3rd-4th Grade - STEM Night Project</p> <p>Students will practice teamwork skills in developing their project. Students will also work through the engineer design process throughout (imagine, plan, build, test, improve).</p>
April	<p><b>TECHNOLOGY AND ENGINEERING:</b> How can technology or engineering be used to create a project that meets a specific need?</p>	<p>3.5.3-5.R- Apply tools, techniques, and materials in a safe manner as part of the design process. 3.5.3-5.U Evaluate designs based on criteria, constraints, and standards. 3.5.3-5.Z Create a new product that improves someone's life. 3.5.3-5.FF Compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced. 3.5.3-5.GG Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.</p>	<p>3rd-4th Grade - STEM Night Project</p> <p>3rd-4th Grade - STEM Night Project</p> <p>Students will practice teamwork skills in developing their project. Students will also work through the engineer design process throughout (imagine, plan, build, test, improve).</p>
May	<p><b>TECHNOLOGY AND ENGINEERING:</b> How can technology or engineering be used to create a project that meets a specific need?</p>	<p>3.5.3-5.R- Apply tools, techniques, and materials in a safe manner as part of the design process. 3.5.3-5.U Evaluate designs based on criteria, constraints, and standards 3.5.3-5.Z Create a new product that improves someone's life. 3.5.3-5.FF Compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced. 3.5.3-5.GG Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.</p>	<p>3rd-4th Grade - STEM Night Project</p> <p>3rd-4th Grade - STEM Night Project</p> <p>Students will practice teamwork skills in developing their project. Students will also work through the engineer design process throughout (imagine, plan, build, test, improve).</p>
June	<p><b>TECHNOLOGY:</b> What is binary coding?</p>	<p>3.5.3-5.CC Describe how a subsystem is a system that operates as a part of another larger system 3.5.3-5.A Use appropriate symbols, numbers, and words to communicate key ideas about technological products and systems. 3.5.3-5.C Follow directions to complete a technological task.</p>	<p>3rd Grade- Create their name out of binary codes. 4th Grade- Solve binary code puzzles</p> <p>Students will learn and demonstrate binary coding.</p>