

## 7th Grade Technology Education Scope & Sequence

Days	Unit	Standard(s)/Outcome(s)	Essential/Guiding Questions
1	Introduction & Engineering Design Journals	<ol style="list-style-type: none"> <li>1. Understanding the attributes of design.</li> <li>2. Understanding the role of society in the development and use of technology.</li> </ol>	Invention and innovation are creative ways to turn ideas into real things. How do you create a new product?
2	Safety & Safety test		
3	Greatest Invention of all time	<ol style="list-style-type: none"> <li>1. Throughout history, new technologies have resulted from the demands, values, and interests of individuals, industries, and societies.</li> <li>2. The use of inventions and innovations has led to changes in society and the creation of new needs and wants.</li> <li>3. Meeting societal expectations is the driving force behind the acceptance and the use of products and systems.</li> </ol>	<p>Inventions and innovations are the result of demands, values, and interests of individuals, industries, and societies. What do you think is the greatest invention of all time?</p> <p>How would you advertise a product?</p>

8	Rubber Band Vehicle	<ol style="list-style-type: none"> <li>1. Understanding the attributes of design</li> <li>2. Design is a creative planning process that leads to useful products and systems.</li> <li>3. There is no perfect design.</li> <li>4. Requirements for a design are made up of criteria and constraints.</li> <li>5. Understanding engineering design.</li> <li>6. Design involves a set of steps, which can be performed in different sequences and repeated as needed.</li> <li>7. Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.</li> <li>8. Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.</li> </ol>	<p>Technology involves many types of problems and different approaches to solve them, including troubleshooting, research and development, invention and innovation, and experimentation. The engineering design process must take all of these things into account. How can you utilize a rubber band to power a model vehicle?</p>
2	Intro Future Car Term Project	<ol style="list-style-type: none"> <li>1. Understanding the influence of technology on history Many inventions and innovations have evolved by using slow and</li> </ol>	<p>Many of the inventions and innovations we enjoy today have taken centuries to develop into their modern form. How would</p>

		<p>methodical processes of tests and refinements.</p> <ol style="list-style-type: none"> <li>2. The specialization of function has been at the heart of many technological improvements.</li> <li>3. In the past, an invention or innovation was not usually developed with the knowledge of science.</li> <li>4. Abilities to assess the impact of products and systems</li> <li>5. Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology.</li> <li>6. Understanding of and abilities to select and use transportation technologies</li> <li>7. Governmental regulations often influence the design and operation of transportation systems.</li> </ol>	<p>you improve a car for the future?</p>
5	Docking Station	<ol style="list-style-type: none"> <li>1. Understanding the relationships among technologies and connections with other fields of study.</li> <li>2. Technological systems often</li> </ol>	<p>When humans develop and use technology systems and products, there is a direct influence on our economy, our culture, and our society.</p>

		<p>interact with one another.</p> <ol style="list-style-type: none"> <li>3. A product, system, or environment developed for one setting may be applied to another setting.</li> <li>4. Understanding the cultural, social, economic and political effects of technology</li> <li>5. Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.</li> </ol>	<p>Additionally, the impacts of the development and use can produce positive and negative impacts. What features are essential for a docking station for your electronic device?</p>
5	Code.org programming	<ol style="list-style-type: none"> <li>1. Understanding the relationships among technologies and connections with other fields of study</li> <li>2. Technological systems often interact with one another.</li> <li>3. A product, system, or environment developed for one setting may be applied to another setting.</li> <li>4. Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.</li> <li>5. The development and use of technology poses ethical</li> </ol>	<p>The use of technology and computers are essential to the day to day workings of today's society. How do you create code?</p>

		<p>issues.</p> <p>6. Economic, political, and cultural issues are influenced by the development and use of technology.</p>	
5	Marble Challenge	<ol style="list-style-type: none"> <li>1. New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.</li> <li>2. The development of technology is a human activity and is the result of individual or collective needs and the ability to be creative.</li> <li>3. Design is a creative planning process that leads to useful products and systems.</li> <li>4. There is no perfect design</li> <li>5. Requirements for a design are made up of criteria and constraints</li> <li>6. Understanding the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.</li> <li>7. Invention is a process of turning ideas and imagination</li> </ol>	<p>Designers and inventors must consider the core concepts of technology and other resources such as scientific knowledge during the process of designing. They must also adhere to the criteria and constraints of a design. Can you build a device that moves a marble for a specific time?</p>

		<p>into devices and systems. Innovation is the process of modifying an existing product or system to improve it.</p> <ol style="list-style-type: none"> <li>8. Some technological problems are best solved through experimentation</li> <li>9. Students will develop the abilities to apply the design process.</li> <li>10. Specify criteria and constraints for a design</li> </ol>	
7	Rube Goldberg Challenge	<ol style="list-style-type: none"> <li>1. Understanding engineering design</li> <li>2. Design involves a set of steps, which can be performed in different sequences and repeated as needed.</li> <li>3. Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.</li> <li>4. Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.</li> <li>5. Understanding the role of troubleshooting, R&amp;D, etc. in problem-solving</li> </ol>	<p>Creativity is important to the process of invention and innovation. Innovation is the process of modifying an existing product, process, or system to improve it. Invention is a process of turning ideas and imagination into new products, processes, or systems. Design a device that incorporates simple machines to perform a task</p>

		<p>6. Invention is a process of turning ideas and imagination into devices and systems. Innovation is the process of modifying an existing product or system to improve it.</p> <p>7. Some technological problems are best solved through experimentation.</p> <p>8. Abilities to apply the design process</p> <p>9. Apply the design process to solve problems in and beyond the laboratory-classroom.</p> <p>10. Specify criteria and constraints for the design.</p> <p>11. Make two-dimensional and three-dimensional representations of the designed solution.</p> <p>12. Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.</p>	
3 -4	Prosthetic Limb Engineering Design Challenge (Extension as time allows)	<p>13. Understanding engineering design</p> <p>14. Design involves a set of steps, which can be performed in different sequences and</p>	What features are essential for a prosthetic limb to be useable, functional, and aesthetically pleasing

		<p>repeated as needed.</p> <p>15. Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.</p> <p>16. Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.</p> <p>17. Understanding the role of troubleshooting, R&amp;D, etc. in problem-solving</p> <p>18. Invention is a process of turning ideas and imagination into devices and systems. Innovation is the process of modifying an existing product or system to improve it.</p> <p>19. Some technological problems are best solved through experimentation.</p> <p>20. Abilities to apply the design process</p> <p>21. Apply the design process to solve problems in and beyond the laboratory-classroom.</p> <p>22. Specify criteria and constraints for the design.</p> <p>23. Make two-dimensional and three-dimensional</p>	
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