4th Grade

Unit # – Unit Title

Text Connections: *Title* by Author

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| Design Challenge Summary |
| Challenge: What will the students be required to do? |
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| Standards: What standards are addressed? |
| Science:  NS.1.4.1 Communicate observations orally, in writing, and in graphic organizers  NS.1.4.2 Refine questions that guide scientific inquiry  NS.1.4.3 Conduct scientific investigations individually and in teams  NS.1.4.5 Communicate the designs, procedures, and results of scientific investigations  NS.1.4.6 Estimate and measure length, mass, temperature, capacity/volume, and elapsed time…  NS.1.4.7 Collect and interpret measurable empirical evidence in teams and as individuals  NS.1.4.8 Develop a hypothesis based on prior knowledge and observations  NS.1.4.9 Identify variables that affect investigations  NS.1.4.10 Identify patterns and trends in data  NS.1.4.11 Generate conclusions based on evidence  NS.1.4.12 Evaluate the quality and feasibility of an idea or project  NS.1.4.13 Use simple equipment, age appropriate tools, technology, and mathematics in scientific investigations  Math:  Mathematical Practice Standards  ELA:  W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.  W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.  W.4.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.  W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.  W.4.10 Write routinely over extended time frames and shorter time frames for a range of discipline-specific tasks, purposes, and audiences.  SL.4.1 Engage effectively in a range of collaborative discussions with diverse partners on grade 4 topics and texts, building on other’s ideas and expressing their own clearly.  SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.  SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace. |
| Result: What will students know, value, and be able to do as a result of the lesson? What’s the big idea? |
| Know and apply the engineering design loop.  Value collaboration and discussion. |
| Assessment: What evidence will be used to determine student learning? |
| Did they (what the challenge required)?  Did they follow the design loop process?  Did groups work collaboratively together? |
| Prior Knowledge/Experiences: What prior content knowledge and skills will the students need? |
| Experience with the Engineering Design Loop process  Connections to the Mathematical Practices  Investigations/Inquiry in Science  Experiences with |
| Summary/Connections: How will this design challenge connect with new/future learning, other content areas, real world experiences, etc.? |
| This lesson will help students develop problem solving skills and collaboration skills that are essential in succeeding in the 21st century. It will allow students the opportunity to transfer and apply skills from various content areas within one task.  Extensions: |
| Materials/Equipment/Preparation: What materials and equipment will students need to successfully complete this design challenge? |
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**ADDITIONAL INFORMATION**