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| Unit 3: Lego NXT                     | Estimate Unit Length: 1-2 weeks |
| Course Code/Course Title: Robotics 1 | Date Created: 7/16/2018         |

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| <p><b>Students will understand</b></p> <ul style="list-style-type: none"> <li>• Describe what a Lego NXT is and identify its applications.</li> <li>• Build a robot chassis using Lego pieces.</li> <li>• Individually design, build, and program an NXT robot to perform a particular set of tasks.</li> <li>• Communicate with clarity and precision.</li> <li>• Build a design and programming journal for each project.</li> </ul> | <p><b>Essential Questions: How does science and Biology relate to me?</b></p> <ul style="list-style-type: none"> <li>• How is a Lego NXT connection to robots and functionality?</li> <li>• How is Lego NXT used to help develop student understanding of hardware and software applications?</li> </ul> |
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**Sub-Unit Components/Sub-Headings/Objectives**

|                            |                        |                     |                    |                      |                                |
|----------------------------|------------------------|---------------------|--------------------|----------------------|--------------------------------|
| Lego Computer Applications | Robot Chassis building | Design of NXT robot | Build of NXT Robot | Program of NXT Robot | Design and Programming Journal |
|----------------------------|------------------------|---------------------|--------------------|----------------------|--------------------------------|

**Knowledge—Students will know...**

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| <ul style="list-style-type: none"> <li>• Describe what a Lego NXT is and identify its applications.</li> <li>• Build a robot chassis using Lego NXT kits to specific specifications per project.</li> <li>• Individually design, build, and program an NXT robot to perform a particular set of tasks.</li> <li>• Communicate with clarity and precision connects to design and programing per project.</li> <li>• Build a design and programming journal for each project.</li> </ul> |
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**Standards**

**Assessments/Evidence**

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| <p>(HS-ETS1-1) Analyze complex real-world problems by specifying criteria and constraints for successful solutions.</p> <p>(HS-ETS1-2) Design a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.</p> | <p>Closed –Ended Selected Response (Optional)</p> <ul style="list-style-type: none"> <li>• Multiple Choice</li> <li>• True/False</li> <li>• Matching</li> </ul> <p>Open-Ended Constructed Response (Essential)</p> <ul style="list-style-type: none"> <li>• Short Answer</li> <li>• Visual Representation (Web, Concept Map, Flow Chart, Graph / Table, Picture)</li> </ul> <p>Products (Essential)</p> <ul style="list-style-type: none"> <li>• Log/Journal</li> <li>• Robot</li> </ul> <p>Student Self-Assessment (Essential)</p> <ul style="list-style-type: none"> <li>• Teacher-Made Prompts for Reflection</li> <li>• Bell-Ringers</li> <li>• Discussion (Whole-Class or Small Group)</li> </ul> |
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|--|--|
|  | <ul style="list-style-type: none"> <li>• Self Evaluation</li> <li>Peer Evaluation</li> </ul> |
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**Reading and Writing Standards (except for English/Language Arts courses)**

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| <p>RST.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. (HS-ETS1-1), (HS-ETS1-3)</p> <p>RST.11-12.8 - Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. (HS-ETS1-1), (HS-ETS1-3)</p> <p>RST.11-12.9 - Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. (HS-ETS1-1), (HS-ETS1-3)</p> |
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**Instructional Resources/Materials**

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| <ul style="list-style-type: none"> <li>• Lego NXT</li> <li>• Associated Software</li> </ul> |
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