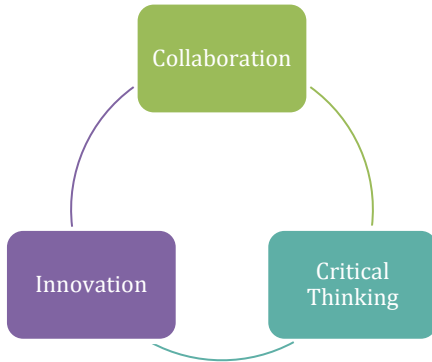


# STEM SCHOOL CHATTANOOGA

## 11<sup>th</sup> Grade PBL Unit Plan Template

Unit Quarter: 2nd

Title: The Imagination Machine



### Learning Target Topics

**Collaboration:** Working with other people on a project or problem to achieve a shared goal.

**Critical Thinking: Accessing, using, and applying information and knowledge.**

**Innovation:** Using creative thinking to construct something new and valuable.

|                      |  |             |         |
|----------------------|--|-------------|---------|
| Grade Level          | 11 <sup>th</sup> Grade   | Unit Length | 9 Weeks |
| Industry Partner     | <ul style="list-style-type: none"> <li>Principal Brown and Mrs. Dowd, Librarian, Red Bank Elementary School</li> </ul>   |             |         |
| Unit Overview        | <p>STEM student teams will design an interactive electronic-mechanical system to create an engaging experience for students to learn math and scientific principles at Red Bank Elementary School. The system will serve as the centerpiece in the school library's Maker Space and must support checking in or checking out books. Students will build half-scale or larger fully-functioning prototypes. Students should include electronic capabilities, such as Arduino or Raspberry Pi. This project will require use of the ShopBot, laser cutter, and vinyl cutter. For the school partner, the focus is on the thoughtful, creative design of the system to inspire students. For the STEM School, the focus is on the critical thinking skills demonstrated by the student teams.</p> |             |         |
| Unit Essential Issue | <ul style="list-style-type: none"> <li><b>Project:</b> <i>Design an interactive electronic-mechanical system to engage elementary school students</i></li> </ul>   |             |         |
| Kick Off Event       | <p><b>Kick Off: TBD (Oct 14-16)</b><br/>Principal Brown and school librarian Mrs. Dowd will explain the vision for the library and maker space. They will discuss the current process of checking library books in and out and how they want to transform this experience. They will explain the requirements for the imagination machine and other resources, such as retired books, that can be used in the project.</p>   |             |         |
| Culminating Events   | <p><b>Presentation Day: TBD (Dec 14-17)</b><br/>The student teams will present their prototypes to the project leads and any personnel they choose to include. The project leads will evaluate the designs and provide constructive feedback to the teams.</p>   |             |         |
| Common Assessment    | <p>Students will be scored using the Association of American Colleges and Universities rubric for Critical Thinking Skills. All 4's will equate to Advanced, scores of 3 and 4 will equate to Proficient, and any scores below a 3 will equate to Below Basic.</p> <p>Items that will be used to score student work:</p> <ul style="list-style-type: none"> <li>Assignments (Plans, Weekly Status Reports, Design Process Work Products, etc.)</li> <li>Presentation.</li> <li>Functional prototype (The Imagination Machine)</li> </ul>   |             |         |