

**Department/ Grade Level Curriculum Proposal**

**Department/ Grade Level:** Elementary Innovation Labs

**Group Members:**

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**SMART Goal *(Specific, Measurable, Achievable, Relevant, Time-Bound*):**

To create a standards-aligned lesson plan for each grade level K-6 connected to the engineering design process, with a literature connection.

**Standards Addressed:**

Next Generation Science Standards and American Library Association

## K-2-ETS1-1 - Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

## K-2-ETS1-2 - Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

## K-2-ETS1-3 - Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

## 3-5-ETS1-1 - Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

## 3-5-ETS1-2 - Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

## 3-5-ETS1-3 - Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

**Action Steps with Timeframes:**

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| --- | --- | --- |
| Grade | Literature Source | Engineering Lesson |
| K | Creepy Carrots | [Building a fence, perimeter](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) |
| 1 | The Three Little Pigs-Sample Problems- need a house that can be protected from wolf, wolf needs to find a way into the brick house | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |
| 2 | The Relatives CameSample Problem- Not enough room for everyone to sleep comfortably | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |
| 3 | Muncha Muncha MunchaSample problem-bunnies eating from farmers garden -farmer built wall bunnies can’t get to dinner | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |
| 4 | Katy No PocketSample problem- Katy the Kangaroo does not have pockets to carry her baby-baby bunny can’t hop fast enough to keep up with the rest of the Kangaroos  | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |
| 5 | A Long Walk to WaterSample problem-Water is making people sick, carrying water is difficult and time consuming, no shoes to protect feet during walk.  | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |
| 6 | James and the Giant PeachSample problem- peach is in a hole and they need to get it out | [Engineer a solution for a problem](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub) found in story. Identify client needs, identify problem, identify any constraints, engineer solution, give and receive feedback, improve on design.  |

Given the small size of our group, we will work collectively on each of these grade levels and projects.

December Grades K, 1, 2

February: Grades 3, 4

April: Grades 5, 6

June: Refine, debrief and make adjustments for future years

**Deliverables - to include:**

One [Novel Engineering](https://www.novelengineering.org/) lesson per grade level (link is [here](https://docs.google.com/document/d/e/2PACX-1vT-zoSeVe929KgHmszu8o4kyEIjIUQaS2vJ2dwj5rSbQD12Gzz5t1RhzbFYAVRSPHQ8visiusCyl55G/pub)).

Resources for future lessons.

Resources to be used in general classroom.

Google Folder with lessons and links.

**Feedback (from Administrative Support):**

As you continually add to the repertoire of Novel Engineering Lessons, be sure to keep the resources in a central location, ready to be shared once complete. Also, make note of any ideas and suggestions as lessons are being undertaken. These notes will serve as important tools to assess the success of the lesson implementation via the Innovation Labs.

**Approved By:**

**Administrative Support: Deborah Ratcliff Date: 11/08/18**

**Facilitator: Anne Mlod Date: 11/08/18**

**ATA President: Date:**

**ASI: Date:**