## Lesson Plan

<table>
<thead>
<tr>
<th>Teacher:</th>
<th>Remi Willoughby</th>
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<tr>
<td>Date:</td>
<td>2nd 9 Weeks</td>
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<tr>
<td>Subject/Grade Level:</td>
<td>Intro to Engineering/7th Grade</td>
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**Materials:** Alice Software, Internet Access, Projector, Computer, Printouts (Tutorials, Storyboard), *Rosie Revere, Engineer* by Andrea Beaty

### Chapter 126. Texas Essential Knowledge and Skills for Technology Applications

1. Creativity and innovation. The student develops products and generates new understanding by extending existing knowledge.

#### Lesson Objective(s)

- **A** Students will demonstrate understanding of careers in engineering
- **B** Investigate and explore various career opportunities within the computer science field;
- **B** Create and publish interactive stories, games, and animations using Alice Programming Software;

#### Modifications:

- Give student specific information on various careers in engineering;
- Have main elements on storyboard and have them add notes/extras in guided practice;
- **Video requirements reduced to 15-20 seconds.**

### ENGAGEMENT

- Read the book *Rosie Revere, Engineer* by Andrea Beaty to students
- Discuss careers in computer science and engineering
- Show an introductory sample of different worlds
- Have students share their own career aspirations
- Discuss with students whether their interests match any of the careers they have in mind. Explain that many times its good to assess our interests and values to learn about careers that are closely to your particular interests in values.

### ELABORATION/PRACTICE

- Explain to students they will begin working on a multimedia project that will summarize their research on careers in engineering and computer science. They will use Alice, 3d Animation program to build their project.
- Show students example of student project on [http://www.youtube.com/watch?v=NV2mqo4DrEo](http://www.youtube.com/watch?v=NV2mqo4DrEo)
- Students must first create a storyboard for their 45-second project.

### PROJECTS/PRODUCTS ASSIGNED

**Make a machine!** Reuben Goldberg was an American cartoonist, engineer, and inventor. To entertain himself, he liked to create complicated machines to do simple tasks. Now we call these kinds of devices *Rube Goldberg machines*. Design your own Rube Goldberg machine and create a game with it using Alice. Think of materials like string, cardboard, plastic containers, springs, popsicle sticks, tubes, etc.

Ideas for simple tasks: **placing coins in a bank; turning a page; watering a plant; closing/opening a door.**

### EVALUATION/CLOSURE

- Provide students with a **storyboard handout** and rubric for assessment.
- Students will begin tutorials on how to use Alice programming using tutorials from [http://www.cs.duke.edu/csed/alice09/tutorials.php](http://www.cs.duke.edu/csed/alice09/tutorials.php)