## Daily Lesson Plan

<table>
<thead>
<tr>
<th>Date</th>
<th>Unit/Course</th>
<th>Topic</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/28/2016</td>
<td>Chemistry</td>
<td>Chemical Reactions</td>
<td>Amanda White</td>
</tr>
</tbody>
</table>

### Overview & Purpose/Objectives

Students will apply their knowledge of chemical reactions to answer questions brought out during a scenario presented to them. Students will apply their knowledge of chemical reaction to create a scenario using objects, functions, and methods, in Alice.

### Prior Knowledge Needed

Prior knowledge of 5 types of chemical reactions is needed to complete this assignment. The 5 types of chemical reactions include: single replacement, double replacement, synthesis, decomposition, and combustion. Students will need a few basic tutorials on how to bring in objects into Alice, how to manipulate them, and how to create a scene.

### NC Standards Addressed

Chm 2.2 Analyze chemical reactions in terms of quantities, product formation, and energy.

### Objectives/Other Standards (Skills/information that will be learned)

- Standards: 1. Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experience that advance students learning creativity, and innovation in both face-to-face and virtual environments. 2. Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resource to maximize content learning in context and to develop the knowledge, skills, and attitude identified in the standards.

- ISTE standards: 1. Students demonstrate creative thinking construct knowledge, and develop innovative products and processing technology. 3. Students apply digital tools to gather, evaluate, and use information. 6. Students demonstrate a sound understanding of technology concepts, systems, and operations. If students construct their own questions with coding in Alice these ISTE will have been met.

### Detailed Schedule (Demonstration or lesson details)

Main lesson plan: Teacher will review chemical reactions with students before going through the animations. Students will then start on the ChainOfRXNIslands simulation to apply their knowledge of chemical reactions. Students will go through the world, answer all of the questions and then head to a final destination that will provide the teacher will feedback that the student has gone to all of the islands and correctly answered the questions.

- Option 2: After students have gone through the simulations, instructions on creating a scenario or narrative and question will be presented to the students. The students will create a scene or a description of a scene that involved a chemical reaction, complete with a character(s) and objects to create a visual representation. Students will complete a method, a function, and an event to provide instant feedback if a person has correctly identified the type of chemical reaction that has occurred. Students will upload their scene and code to a google drive to be analyzed by the teacher or students. An additional option for students to "copy" or reproduce the code in the original world will create an test bank for students to go through many different scenarios of different chemical reaction occurring. The best part is that no

### Teaching Aids/Materials Needed

Alice program on individual computers. 1 computer per 1 to 2 students. File/Coding for ChainOfRXNIslands. This simulation can be used as a class review, if the teacher is going through the world and asking students for a response to the questions presented.

### Other Resources (Web, Books, etc.)

- Students can use storyboard paper to plan how they want their animation to look, camera angles, character actions, etc.

### Practice (Independent activity to reinforce lesson)

- Option 2: Students will practice coding and applying their understanding of chemical reactions to different real world scenarios they have heard of or that is plausible. Options 1: Students will apply their understanding of chemical reactions by answering questions and scenarios already created.

### Summary/Closure

- Option 2: Students will “print” or export as a file their code for the chemical reaction scenario. Since Alice does not allow for “copying and pasting”, it is suggested you check their code and simulation for accuracy or have students flip through other students worlds and scenarios for issues with the problem or issues with the simulation.

- Option 1: To end the simulation additional questions must be answered to escape the islands. The questions serve as a summary or tapping into working memory to go through each scenario a second time, without actually visiting and answer each questions/scenario again.

### Additional Notes

This Lesson plan can be teacher directed with teacher made coding and problems, or student-centered with students creating and checking over other students simulations. This lesson plan can be completed over 50 min or over 3 class periods (150mins).