

Intermediate/Senior Lesson Plan Template

Subject <u>Science (Applied)</u> Grade <u>9</u> Course Code <u>SNC 1P1</u>	
Lesson Topic <u>Fireworks and Explosions</u> Duration <u>75</u> min. Date <u>Wed. Dec 10, 2014</u>	
<p>Overall Expectations (from curriculum documents)</p> <p>C1: Analyse how properties of common elements and/or simple compounds affect their use, and assess the social and environmental impact associated with their production or use. C2: Investigate, through inquiry, physical and chemical properties of common elements and simple compounds</p> <p>Specific Expectations: (from curriculum documents)</p> <p>C1.1 - Analyse how the chemical and physical properties of common elements and/or simple compounds affect the use of everyday materials that contain those elements and/or compounds (AI, C) C2.1 - Use appropriate terminology related to the exploration of matter, including but not limited to: combustion, conductor, decomposition, lustrous, precipitate, reaction and soluble (C) C2.2 - Use an inquiry process to identify the physical and chemical properties of common elements and simple common compounds, including gaseous substance (e.g., sulfur is a yellow solid, sodium chloride is water soluble, nitrogen gas is colourless, odourless, and very unreactive) (PR, AI) C2.4 - Investigate and distinguish between the physical and chemical properties of household substances (e.g., starch, table salt, wax, toothpaste) (PR, AI)</p>	<p>Prerequisite Knowledge/Skills: (how will the knowledge and skills used/taught today connect with what students previously know?)</p> <p style="text-align: center;">Unit C: Ch.5, 6, and 7</p>
<p>Differentiated Instruction Details</p> <p>Knowledge of Students</p> <p>Differentiation based on student:</p> <p><input type="checkbox"/> Readiness <input type="checkbox"/> Interests <input type="checkbox"/> Preferences:</p> <p>Willing to learn chemistry, <input type="checkbox"/> Styles <input type="checkbox"/> Intelligences <input type="checkbox"/> Other with no homework fireworks, Listen Grade 9 Applied (e.g., environment, gender, culture) explosions Watch/Read iPads No culture/gender issues associated with the lesson No cultural issues associated with the lab material</p> <p>Need to Know</p> <ul style="list-style-type: none"> Students' ... General skill and level of understanding of students that they can comprehend <p>How to Find Out</p> <ul style="list-style-type: none"> ... - Walk around the classroom to see if they are struggling with the material and activities - Observer alertness and students raising their hands to answer or ask a question <p>Differentiated Instruction Response</p> <p><input type="checkbox"/> Learning materials (content) <input type="checkbox"/> Ways of learning (process) <input type="checkbox"/> Ways of demonstrating learning (product) <input type="checkbox"/> Learning environment</p>	
<p>Lesson Learning Goals- (Written in student friendly language- shared with students)</p> <p>Key Question: What will students know, understand, be able to do, and communicate? (Knowledge/Understanding Thinking Communication Application)</p> <p>Students will:</p> <ul style="list-style-type: none"> - Learn about firework compounds for all colours of fireworks - Learn to calculate the number of atoms in each element in a compound - Relate chemical compounds in fireworks used in everyday life - Raising hands to ask and answer questions - Participate in the lab on explosions with various compounds - Apply knowledge and understanding of chemical compounds for conducting an experiment in the lab 	
<p>Assessment – Indicators of Learning – Key Question: How will I know each student has learned the concept(s)/skills?</p> <ul style="list-style-type: none"> - Look over their exercises for completion and understanding (walk around the classroom/lab) - Answering and asking questions regarding the lab activity and the calculations if they understood the expectations - Post-Unit check of binders with activity worksheets graded for completion to go to their final grade 	

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Accommodations and/or Modifications- Key Question: What will I do to assist individual learners or provide enrichment for others?

- Give time to those who are in need of more time to complete the activity
- Give students a chance to read, listen and participate in the exercise by answering questions posed by the teacher and have the teacher involve the students in the discussion (3-step lesson plan, teach, activity, discuss)
- Walk around the classroom to students that are especially struggling with the activity
- Sit with students with known IEP's or are recognized as needing further help

Resources and Materials Required/Safety Considerations

- PowerPoint presentation (handed out to students along with a follow up activity to fill out with the lesson)
- Hand out created by Teacher Candidate
- Supplies needed: 100 mL sulfuric acid, 6 tsp of baking soda, 100 mL sucrose, beakers x6, large bottle of white vinegar, dish detergent (3 drops), waste bin x2, fumehood, glassrod, scapula, hazardous waste jug (with labels of contents), red food colouring
- Hazards: students will not perform the experiment but will watch and fill out a worksheet for the lab observations

Time	Lesson Sequence and Instructional Strategies (Setting the stage, instructional strategies, consolidation)	Assessment Opportunities
1010am	<ul style="list-style-type: none"> - Teach students about fireworks and the different colours that are possible - Each colour of a firework is caused by a certain chemical compound being ignited with gunpowder - Students will recognize the colours and associate the chemical compound with that colour - The students will fill in a worksheet indicating the number of atoms per element in the chemical compound for that firework colour 	<p>Each worksheet that is associated with the lesson will be put into the students binder and will be marked at the end of the unit for completion</p>
1030am	<ul style="list-style-type: none"> - Students will observe 3 different experiments called "Explosions Lab" - The students will fill out a worksheet of 6 questions that they will learn and observe from each lab. - Experiment 1: Volcano in a Beaker <ul style="list-style-type: none"> - Mix 3 tsp of baking soda with a large beaker of vinegar (with red food food colouring already added). - The experiment will be carried out in a waste bin to catch the overflow - The students will be asked questions about the experiment before the experiment is conducted and each step of the experiment will be described in detail for the students to record - Experiment 2: Sugar Carbon Snake <ul style="list-style-type: none"> - Mix 50mL of sucrose with 50mL of sulfuric acid and stir with a glass rod under a fumehood. - The students will be asked questions about the experiments before the experiment is conducted and each step of the experiments will be described in detail for the students to record - Experiment 3: Dancing Raisins <ul style="list-style-type: none"> - Mix 3 tsp of baking soda with a large beaker of white vinegar. As the reaction starts (bubbling), add a handful of raisins to the mixture - The experiment will be carried out in a waster bin to catch the overflow - The students will be asked questions about the experiment before the experiment is conducted and each step of the experiment will be described in detail for the student to record - Clean up will be done by pouring the liquids in the hazardous waste jug and the carbon snake will be disposed of in a separate hazardous pail for disposal of solid waste 	<p>Each worksheet that is associated with the lab will be put into the students binder and will be marked at the end of the unit for completion</p>

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Applying Learning in Class/ At Home

- Learn by listening, watching/reading and doing work in the classroom
- No homework but students will have in class worksheets and observations to make during class that are associated with the lesson and with the lab performed by the Teacher Candidate

Post Lesson Reflection

Reflection on Lesson: Key Questions: What went well? What do I need to change or modify?

Were the students engaged? Did the students learn the material? Were the activity sheets effective?

The lesson went well with students listening and filling in the lesson worksheet during my lesson.

The lab went well with the students. The 3 labs were interesting and all students watched the labs and filled in their activity sheets.

Next time I would do the lesson and lab, I would have more interactive labs rather than having the teacher perform it (because of the volatile substances and the maturity and level of the students). I would pick a safe experiment that they could perform themselves.

Follow Up – Specific Students (Learning and/or Behaviour)

Some students did not listen to the lesson and were not engaged by the material. In my classroom 12 of 20 students have IEPs therefore it is expected that some students will have difficulty staying on task and listening effectively.

Some students did not listen during the lab portion because of difficulty to focus and needed extra attention to stay focused so that the lab would go smoothly. The students were identified visually and spoken to during the lab to listen and focus on the lab without being rude.

What facets of my own teaching do I need to focus on and refine?

I would learn how to deal with students with IEPs more effectively so that they would not disrupt the entire class and I could identify any situations where the students could be disruptive. Maybe I could limit the amount of time I leave during my lesson for students to ask questions, which allowed my students to disrupt the class.