**Detailed Hybrid Classroom Plan Template**

Subject : **General Science**  Grade : **8**

Week : **22 & 23 (3rd Quarter)**

Date : **November 10-21, 2014**

Unit Topic : **Electricity**

Objectives : At the end of the two-weeks activity, the learner should be able to:

* describe the basic properties of electric current;
* infer the relationship between current and charge;
* discuss basic electricity relationships in series and parallel circuits;
* calculate electric power and the cost of running electrical appliances;
* calculate resistance, current, and potential difference using Ohm’s law;
* suggest ways on how to conserve electricity; and
* discuss the hazards of electricity.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Day 1 : Introduction (F2F)**Presentation of Electricity Unit Plan Concept Map using Popplet (<http://popplet.com/app/#/1773228> ) (10 mins.)Electricity Role Play (20 mins)\* The Jelly Bean Role Play\* The Electric ShuffleWatch a video on the structure of an atom and its relationship ( 20 mins. ) (<http://www.youtube.com/watch?v=jIKnti0H_LA> )Assessment : Answer the Fill-in Questions (see attachments)* approximately 10 mins.
 | **Day 2 (F2F)**Teacher demonstration using real lab equipment and simulations ( 50 mins.)* Introduction to Properties of Electric Circuits

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc><https://phet.colorado.edu/en/simulation/circuit-construction-kit-ac-virtual-lab>Assessment : CCK\_Clicker questions\_1.pptx (10 mins.) | **Day 3**Perform Simulation Lab Activities* Resistors in Series and Parallel Circuits

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>Assessment : Series and Parallel Circuits Basics-2 Worksheet | **Day 4**Perform Simulation Lab Activities\* Combination of Series and Parallel Circuits<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab>Assessment : Combined Series and Parallel Worksheet | **Day 5 (F2F)**Problem Solving Activities  - Resistance in Series and Parallel Circuits \* Present the ff. videos :<https://www.youtube.com/watch?v=CMWwIGvifig&feature=player_embedded><https://www.youtube.com/watch?v=EHskV2LG5jM&feature=player_embedded> \* Parallel Resistance Calculator<http://www.sengpielaudio.com/calculator-paralresist.htm> - Ohm’s Law \* Present the Video<https://www.youtube.com/watch?v=FwEz9ygPHiM&feature=player_embedded> \* Ohm’s Law Calculator <http://www.sengpielaudio.com/calculator-ohmslaw.htm>Assessments :Problem Set #1 Key : <http://sun4.vaniercollege.qc.ca/phys_science/Problem_sets/Problem_Set_3_Solution.pdf>Assignment :Problems #21-31<http://www.physicsclassroom.com/calcpad/circuits/problems> |
| **Day 6 (F2F)**Calculate the Cost of Household Electrical Energy Consumption (30 mins.)* <http://www.webmath.com/kwh.html>

Mini-lecture on electric safety devices and the hazards of electricityAssessment : \* Create a wall in [www.Padlet.com](http://www.Padlet.com) and gather suggestions and tips from the class on the proper ways of handling Electricity ( 30 mins.) | **Day 7**Learn how energy is generated and conserved through an online game* <http://www.wonderville.ca/asset/save-the-world>

Assessment : Write a brief Reflection Paper about the concepts learned in the activity | **Day 8 & Day 9**Project Making Activity Using any of the tools listed in <http://mashable.com/2010/10/24/create-your-own-comics/> students create a comic strip that demonstrates ways to conserve electricity around their home. In their comic, they should explain why saving electricity is important and they should suggest ways on how to conserve energy in their homes. | **Day 10 : Evaluation (F2F)**Presentation of Group Projects ( 30 mins.)Short Summative Assessment of the Unit ( 30 mins.) |

**Semi-Detailed Hybrid Classroom Plan**

Unit Topic : **Electricity**

|  |  |  |
| --- | --- | --- |
| Week: **22 & 23**Date: **November 10-21, 2014** | **Description of F2F activities\***(including time estimates) | **Description of out-of-class activities**(including time estimates) |
| **By the end of this lesson, students should be able to:** * describe the basic properties of electric current;
* infer the relationship between current and charge;
* discuss basic electricity relationships in series and parallel circuits;
* calculate electric power and the cost of running electrical appliances;
* calculate resistance, current, and potential difference using Ohm’s law;
* suggest ways on how to conserve electricity; and
* discuss the hazards of electricity.
 | Presentation of Electricity Unit Plan Concept Map using Popplet (<http://popplet.com/app/#/1773228> ) (10 mins.; Day 1)Electricity Role Play (20 mins; Day 1)\* The Jelly Bean Role Play\* The Electric ShuffleWatch a video on the structure of an atom and its relationship ( 20 mins. ; Day 1) (<http://www.youtube.com/watch?v=jIKnti0H_LA> )Assessment : Answer the Fill-in Questions (10 mins.; Day 1)Teacher demonstration using real lab equipment and simulations ( 50 mins.; Day 2)* Introduction to Properties of Electric Circuits

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc><https://phet.colorado.edu/en/simulation/circuit-construction-kit-ac-virtual-lab>Assessment : CCK\_Clicker questions\_1.pptx (10 mins.; Day 2)Problem Solving Activities (Day 5) - Resistance in Series and Parallel Circuits \* Present the ff. videos :<https://www.youtube.com/watch?v=CMWwIGvifig&feature=player_embedded><https://www.youtube.com/watch?v=EHskV2LG5jM&feature=player_embedded> \* Parallel Resistance Calculator<http://www.sengpielaudio.com/calculator-paralresist.htm> - Ohm’s Law \* Present the Video<https://www.youtube.com/watch?v=FwEz9ygPHiM&feature=player_embedded> \* Ohm’s Law Calculator <http://www.sengpielaudio.com/calculator-ohmslaw.htm>Assessments :Problem Set #1 Key : <http://sun4.vaniercollege.qc.ca/phys_science/Problem_sets/Problem_Set_3_Solution.pdf>Assignment :Problems #21-31<http://www.physicsclassroom.com/calcpad/circuits/problems>Calculate the Cost of Household Electrical Energy Consumption (30 mins.; Day 6 )* <http://www.webmath.com/kwh.html>

Mini-lecture on electric safety devices and the hazards of electricityAssessment : \* Create a wall in [www.Padlet.com](http://www.Padlet.com) and gather suggestions and tips from the class on the proper ways of handling Electricity ( 30 mins.; Day 6)Presentation of Group Projects ( 30 mins.; Day 10)Short Summative Assessment of the Unit ( 30 mins.; Day 10) | Perform Simulation Lab Activities (60 mins.; Day 3)* Resistors in Series and Parallel Circuits

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>Assessment : Series and Parallel Circuits Basics-2 WorksheetPerform Simulation Lab Activities (60 mins.; Day 4)\* Combination of Series and Parallel Circuits<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab>Assessment : Combined Series and Parallel WorksheetLearn how energy is generated and conserved through an online game (60 mins.; Day 7)* <http://www.wonderville.ca/asset/save-the-world>

Assessment : Write a brief Reflection Paper about the concepts learned in the activityProject Making Activity ( Days 8&9) Using any of the tools listed in <http://mashable.com/2010/10/24/create-your-own-comics/> students create a comic strip that demonstrates ways to conserve electricity around their home. In their comic, they should explain why saving electricity is important and they should suggest ways on how to conserve energy in their homes. |
| **Assessment Tools**Electricity and Matter Fill-in QuestionsCCK\_Clicker questions\_1.pptxSeries and Parallel Circuits Basics-2 WorksheetCombined Series and Parallel WorksheetRubrics for rating a Reflection PaperProblem Set #1Rubrics for Comic StripsSummative Assessment Worksheet |
| **Assignments Due**CCK\_Clicker Questions – Nov. 12Series and Parallel Circuits Basics-2 Worksheet – Nov. 13Combined Series and Parallel Worksheet – Nov. 14Reflection Paper – 19Comic Strips - 21 |

* all worksheets and resources are available for download in : <http://samplehcplan.weebly.com/other-resources.html>