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| **Lesson Plan Template** |
| **Teacher:** | Brian Hardison |
| **Grade/Subject:** | 7th/8th |
| **Course Unit:** | Math |
| **Lesson Title:** | Incandescent bulb vs. CFL |

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| **LESSON OVERVIEW** | Summary of the task, challenge, investigation, career-related scenario, problem, or community link |
|  -students will become more familiar with incandescent and CFL (compact fluorescent light bulbs). They will compare the total costs of using both over various periods of time and how this could  potentially save energy and help the electric grid. |

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| **STANDARDS** | Identify what you want to teach. Reference State, Common Core, ACT College Readiness Standards and/or State Competencies. |
|  Math- 7.N.S.A.3 7.EE.B.3 Science- 0707.Inq.1 0707.Inq.3 \*\*\*The integration of science standards is a way of “teaching across the curriculum” to grasp deeper understanding. |

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| **OBJECTIVE** | Clear, Specific, and Measurable – NOT ACTIVITIESStudent-friendly |
|  - Students will use a kill-a-watt device, 60 watt incandescent and  CFL bulb in the class setting. After comparing brightness,heat,costs of bulb, they will use the information provided by the teacher to compute the costs of each bulb over 8,000 hours(approx 1 year),  then costs of multiple bulbs throughout house, etc. |

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| **INTRODUCTION** | Should Include: Any prior knowledge that the students need to complete the lesson, approximately how long the lesson is predicted to take (Ex. 1 Day or 2 Days), and a short summary of the entire lesson plan. |
|  -Students will be given a brief history of the light bulb and how its  evolved over last century. The lesson will take 1-2 days to  complete. |

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| **MATERIALS LIST** | A bullet list of materials.The materials need to be specific and include quantities |
|  -kill-a-watt device (5) -incandescent and CFL, and small desk lamps(5 each) -calculators(for specified classes) -paper and pencil -laptop and smart board(for short youtube video) |

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| **RESOURCES** | Should Include: A bullet list of any links to videos, names of worksheets, names of projects, names of PowerPoints, links to online articles, links to interactive websites, names of reading materials, etc (All worksheets, PowerPoints, projects, and reading materials should be attached to the back of the lesson plan). Specify whether they will be used before, during, or after the lesson. |
|  -<https://www.youtube.com/watch?v=latpb1mdKGM> (shown at very beginning of lesson) - <http://www.earthsfriends.com/cfl-vs-incandescent/> (enrichment article to be read at home) |

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| **ACTIVATING STRATEGY** | Motivator / HookAn Essential Question encourages students to put forth more effort when faced with complex, open-ended, challenging, meaningful and authentic questions. |
| * The following video introduces students to incandescent and CFL bulbs to peak their interest.(shown at beginning of lesson after the brief history of light bulb
* discussion
* <https://www.youtube.com/watch?v=latpb1mdKGM>
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| **INSTRUCTION** | Step-By-Step Procedures – SequenceDiscover / Explain – Direct InstructionModeling Expectations – “I Do”Questioning / Encourages Higher Order ThinkingGrouping StrategiesDifferentiated Instructional Strategies to Provide Intervention & Extension |
|  - Have discussion with students about history of light bulb over  last century. - Show video comparing the two bulbs - Show students how to use the kill-a-watt device-use digital  camera displayed on smart board so that they can view the  teacher go through the settings/functions of the device -show students a brief math example on how to compute watts to kWh, etc.   |

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| **GUIDED & INDEPENDENT PRACTICE** | “We Do” – “ You Do”Encourage Higher Order Thinking & Problem SolvingRelevanceDifferentiated Strategies for Practice to Provide Intervention & Extension |
|  -Guide students through one practice problem and show how to convert watts to kWh, then compute(local electric company) cost’s per kWh, then compute over certain amount of hours of usage. -Guide students on how to plug up lamps to kill-a-watt device and how to change out light bulbs. -Students will independently compute 8,000 hours of usage of each bulb, then compute 2 bulbs, 4 bulbs, 10 bulbs, savings per room, per year and record the savings. |

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| **CLOSURE** | Reflection / Wrap-UpSummarizing, Reminding, Reflecting, Restating, Connecting |
|  - Last 5 minutes of class, students will be given a sticky note and  write one thing……..they learned, or one thing that peaked their  interest and want to know more, or one thing they didn’t quite grasp and need more guidance. -Also, remind students if we all do our part and convert to the more efficient CFL, it helps lower the demand on the electric grid. |

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| **CROSS-CURRICULAR CONNECTIONS** |
|  -Science…..standards listed above |

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| **ASSESSMENT /** **EVALUATION** | Students show evidence of proficiency through a variety of assessments. Aligned with the Lesson ObjectiveFormative / SummativePerformance-Based / RubricFormal / Informal |
|  -Students will be assessed via quiz/exam at end of chapter or unit. |

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| **CITATIONS** | Any websites that were used to gather information. |
|  <https://www.youtube.com/watch?v=latpb1mdKGM> |

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| **NOTES:** | Purchasing information for non-typical itemsTips & Tricks that may help |
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