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| **Learning Experience** | **Lesson Description** | **Goals** | **Related Engineering & Science Practices (1-8)** | **Possible modifications** |
| 1. What’s the matter in Mr. Whisker’s room? | a. Teacher Read aloudb. Class discussion & chart | - Introduce the concept of matter (anything that takes up space and has weight) |  |  |
| 1a. Is it Matter? | a. Students complete probe “is it matter”b. Class discussion | - Explore concept of matter |  |  |
| 2& 3. Static Electricity Stations | a. Teacher introduces electronsb. Students experiment with static electricity(5 stations)  | -Reinforce the concept of matter-Introduce idea that electrons jumps |  |  |
| 4a. Spark of genius | a. Teacher introduces vocabularyb. Teacher read aloud “Spark of Genius”c. Class discussion | -Introduce that static electricity is an electrical charge-Introduce Ben Franklin-Introduce connection between static electricity & lightning |  |  |
| 1. KWL about electricity | a. Students discuss electricity & complete KWL chartb. Class discussion and completion of KWL chart | - Students become aware that electricity is all around them-Students create list of sources of electricity | - |  |
| 2. Circuits & motors | a. Teacher demonstrates motorb. Students experiment to make motor turn in different directionsc. Science talk | -Students experiment with circuits- Students learn that motor direction can be changed by reversing the wires- Students identify critical points on a battery that make complete circuits with wires |  |  |
| 3. Lighting the Bulb  | a. Students experiment with bulbs, wires and batteriesb. Science talk | -Students identify critical points on batteries and bulbs in order to make complete circuits-Students learn that a complete circuit is a continuous pathway of electricity |  |  |
| 4. What’s inside the bulb?  | a. Teacher reviews parts of a light bulb.b. Students experiment to explore what part of bulb lights up.c. Students record the path of electricity in a light bulb | -Students learn how electric current passes through a light bulb |  |  |
| **Learning Experience** | **Lesson Description** | **Goals** | **Related Engineering & Science Practices (1-8)** | **Possible modifications** |
| 5. Conductors & nonconductors | a. Students experiment with conductors & nonconductorsb. Science talk | - Students will understand that conductors allow electricity to flow and nonconductors do not |  |  |
| Assessment | a. Students complete “Will the Bulb Light” and test predictionsb. Science talk- what is necessary to light a bulb? | - Students apply knowledge of complete circuits-Students predict what will make a light bulb light and test their predictions |  |  |
| 6. Series & Parallel Circuits | a. Teacher introduces Schematics of series circuitb. Teacher reviews flow of electricityc. Teacher introduces parallel circuitsd. Students draw parallel circuitse. Teacher reviews difference in circuits related to voltage | -Introduce volt-Introduce series and parallel circuits-Introduce schematic symbols |  |  |
| 7. Series circuits | a. Teacher reviews series circuit with drawing and discussionb. Students experiment with many light bulbs in a series circuitsc. Science talk | * Students understand components of a series circuit
* Students trace electric current through series circuits
* Students experiment to see the effect of adding more bulbs to a series circuit
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| **Learning Experience** | **Lesson Description** | **Goals** | **Related Engineering & Science Practices (1-8)** | **Possible modifications** |
| 8. Brightness meters | a. Class discussion reviewing brightnessb. Teacher introduces brightness meter | - Students understand need for common unit of measurement- Students measure brightness of a light bulb |  |  |
| 8 & 9.  | 1. Teachers reviews series circuit
2. Students experiment to light two bulbs without changing their brightness
3. Science Talk
 | -Students begin to understand how parallel circuits work- Students experiment making parallel circuits-Students diagram the path of electricity in a parallel circuit |  |  |
| 10. Switches | a. Class discussionb. Students work to build circuits with switchesc. Science talk | - Students will understand that a switch is a controllable way to open and close a circuit-Students design and build simple switch to turn a light on and off |  |  |
| 11. Electric resistance | a. Class discussion on what affects brightnessb. Students experiment with different gauge wire and lengthsc. Science talk | - Students will understand that circuits and electric devices resist electric current-Students assemble circuit testers and test various lengths of wire |  |  |
| 12. Hidden Circuits | a. Teacher shows circuit foldersb. Students work to find hidden circuitsc. Class discussion | - Students build and use a circuit tester to identify hidden circuits in a box-Students apply knowledge of circuits in order to complete a challenge |  |  |
| 13-15 Assessment “Electricity Convention Project” | a. Students record questions about electricityb. Students plan experiment & complete experimentc. Students prepare poster sharing their results | - Students apply knowledge of circuits in order to complete an experiment-Students design and complete an experiment to answer their own question about electricity-Students communicate their test procedure and results in writing |  |  |