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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 aloud  b. 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 electrons  b. Students experiment with static electricity(5 stations) | -Reinforce the concept of matter  -Introduce idea that electrons jumps |  |  |
| 4a. Spark of genius | a. Teacher introduces vocabulary  b. 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 chart  b. 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 motor  b. Students experiment to make motor turn in different directions  c. 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 batteries  b. 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 & nonconductors  b. 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 predictions  b. 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 circuit  b. Teacher reviews flow of electricity  c. Teacher introduces parallel circuits  d. Students draw parallel circuits  e. 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 discussion  b. Students experiment with many light bulbs in a series circuits  c. 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 |  |  |
| **Learning Experience** | **Lesson Description** | **Goals** | **Related Engineering & Science Practices (1-8)** | **Possible modifications** |
| 8. Brightness meters | a. Class discussion reviewing brightness  b. 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 discussion  b. Students work to build circuits with switches  c. 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 brightness  b. Students experiment with different gauge wire and lengths  c. 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 folders  b. Students work to find hidden circuits  c. 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 electricity  b. Students plan experiment & complete experiment  c. 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 |  |  |