|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Preparation: *Summary of “to do’s” that the teacher should understand and prepare before bringing this lesson to the classroom.* | | | | |
| Teachers will need to ensure that the proper supplies are available for students to build their solutions.  You will need these items:  **Materials:**   * Electrical Circuits kit from Stem 101 website- https://stem101.org/ | | | | | |
|  | Safety: *Summary of safety strategies in the lesson.* | | | | |
|  | | | | | |
|  | Desired Results: | | | | |
| Established Goals: | | |  | Transfer: | |
| *Problem Solving Techniques and Applications Standards:* | | | *Students will be able to independently use their learning to…*   * Better understand electricity and circuits | |
| Meaning: | |
| Understandings  *Students will understand that...*   * A circuit needs to be closed for current to flow and a LED to light up * How electricity flows | Essential Questions  *Students will keep considering...*   * How electricity is used and functions in everyday settings |
| Acquisition OF KNOWLEDGE AND SKILL: | |
| *Students will know...*   * The difference between series and parallel circuits * What is an open circuit and closed circuit * How current flows * What a LED is and how it works | *Students will be skilled at...*   * Designing a circuit * Creating a circuit * Testing a circuit * Troubleshooting a circuit |
|  | Evidence: | | | | |
| Evaluative Criteria: | | |  | Assessment Evidence: | |
|  | | | | *Performance Task(s):*  **Task Placeholder**  The circuits the student designs will be assessed based on the set up and proper function. | |
| *Other Evidence:*   * End of unit quiz | |
|  | Learning Plan: *Summary of Key Learning Events and Instruction* | | | | |
| **1. Introduce Activity**   1. Create different circuits to understand series and parallel circuits   **2. Brainstorm**   1. Students will use the step-by-step circuit to help design their own series and parallel circuit   **3. Construct**   1. Using the workbook, students will build 7 different circuits   **4. Test**   1. Test the circuits for proper operation.   **5. Communicate Results**   1. Share the workbook with instructor   **Progress Monitoring:**  Teacher should observe students and provide on-going feedback during the activity. While introducing the unit, the teacher will pause and ask for questions to make sure everyone understands.  Students will complete self-assessment and brainstorm how they could improve their skills in the future. At the end of the unit, there will be a quiz to measure their overall understanding. | | | | | |
|  | Differentiation: *Summary of Key Differentiation Techniques* | | | | |
| The ASCD Study Guide for Integrating Differentiated Instruction and Understating by Design: Connecting Content and Kids.  by Carol Ann Tomlinson, Jay McTighe  Integrating Differentiated Instruction and Understating by Design: Connecting Content and Kids.  by Carol Ann Tomlinson, Jay McTighe  ISBN-13: 978-1416602842  ISBN-10: 1416602844  Differentiating Reading Instruction  *by Laura Robb.*  ISBN13: 9780545022989  A Teacher's Guide to Differentiating Instruction  The Center for Comprehensive School Reform and Improvement | | | | | |
|  | | | career Connections: *Summary of Career Opportunities Associated with this Lesson* | | | | |
| Good sources for career connections:  Occupational Outlook Handbook  <http://www.bls.gov/ooh>  The National Career Clusters® Framework  <http://www.careertech.org/career-clusters> | | | | | | | |
|  | | | Keywords: *Please Insert Keywords from this Lesson with their Definitions* | | | | |
| Use resources like [dictionary.com](http://dictionary.reference.com/) to find definitions to your keywords | | | | | | | |