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|  | 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.  From the kit you will need these items:  **Materials:**   * Automated Greenhouse kit from STEM 101   **Tools:**   * Located in the kit | | | | |
|  | Safety: *Summary of safety strategies in the lesson.* | | | |
| Proper tool usage is important. Working with electronics needs to be done carefully to avoid injury or damage to components. Follow instructions carefully. | | | | |
|  | Desired Results: | | | |
| Established Goals: | |  | Transfer: | |
| *Problem Solving Techniques and Applications Standards:* | | *Students will be able to independently use their learning to…*   * Understand greenhouses and the agricultural growing process | |
| Meaning: | |
| Understandings  *Students will understand that...*   * Greenhouses allow controllable plant growth * Automating a greenhouse helps with controlled plant growth * Microcontrollers can automate many things | Essential Questions  *Students will keep considering...*   * Uses for automated greenhouses * Agricultural growing processes * Uses for microcontrollers in the environment and agriculture |
| Acquisition OF KNOWLEDGE AND SKILL: | |
| *Students will know...*   * Purpose of greenhouses * Different growing processes * Automation * Programming and code | *Students will be skilled at...*   * Coding * Assembly of greenhouse * Wiring of Electronics * Automation |
|  | Evidence: | | | |
| Evaluative Criteria: | |  | Assessment Evidence: | |
|  | | | *Performance Task(s):*  **Task Placeholder**  Students will be assessed on the assembly and function of their greenhouse | |
| *Other Evidence:*   * Online test at the end of the unit | |
|  | Learning Plan: *Summary of Key Learning Events and Instruction* | | | |
| **1. The content knowledge and project instructions will take you through the understanding of Greenhouses along with guiding you through the assembly and functionality of the Automated Greenhouse**  **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 | | | | |

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|  | 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 | |