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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.     **Materials:** * Cups
* Markers
* Phenolphthalein solution
* Sodium carbonate
* Note cards
* Distilled water

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|  | Safety: *Summary of safety strategies in the lesson.* |
| * Please refer to the Phenolphthalein and Sodium carbonate MSDS for safety precautions
 |
|  | Desired Results:  |
| Established Goals: |  | Transfer: |
|   | *Students will be able to independently use their learning to…** Understand the way a virus spread
 |
| Meaning: |
| Understandings*Students will understand that...** Viruses have a range of ways they can be transported from an infected patient to a non-affected patient
* Preventative measures exist today that were formed out of historical necessity
 | Essential Questions*Students will keep considering...** Various famous viruses and how they were transported
* Historical impacts viruses and other illnesses had
* How they can better prepare areas of the world for viruses
 |
| Acquisition OF KNOWLEDGE AND SKILL: |
| *Students will know...** Various ways viruses can spread throughout a community
* How a virus can be attacked and changed
* Prevention methods that exist in modern day medicine
 | *Students will be skilled at...** Determining the origin of a viral outbreak from specific data
* Ruling out ludicrous possibilities logically
* Determining how a virus spreads by analyzing specific data
 |
|  | Evidence:  |
| Evaluative Criteria: |  | Assessment Evidence: |
| * Graded rubric
 | *Performance Task(s):* **Tracking a Virus** In this activity, you will analyze data and determine various characteristics about a virus and learn how viruses spread  |
| * Thoughtful, clear, thorough
* Graded on accuracy, multiple choice questions
* Completed on time
 | *Other Evidence:* * Online end of unit test
 |
|  | Learning Plan: *Summary of Key Learning Events and Instruction* |
| **Pre-Assessment:**    Medical Technologies Design Pre-Test  **Outline:**  1. Fill 3 cups with phenolphthalein solution, below halfway. These are the “infected” cups.
2. Number all cups and take note of the originally infected cups. Make sure they are dispersed. Make sure there is a multiple of four cups present, add dummy cups if you need to.
3. Fill other cups with distilled water, same amount.
4. introduce activity
5. have kids take cups and write down their numbers
6. brief them on viruses and how to exchange cup fluids properly
7. let them exchange fluids with three partners
8. Add sodium carbonate to all cups
9. Have class cooperate to determine who was originally infected.

**Learning Experiences:** 1. The flagship idea of this learning activity is the way viruses can be spread by people who don’t even know they have the virus, and witnessing it being represented. To this end it is vitally important to keep their attention at the beginning of the activity so they understand what’s going on.

 1. Besides the way the actual virus works, it might be interesting to the students what an epidemiologist does. When you transition to figuring out who the original infected were be sure to mention epidemiology.
2. Another learning experience is practicing their problem-solving skills. Be sure to let the kids drive the conversation at the end when you’re determining the originally infected people. If you spoon feed them the answers or the technique then it won’t be nearly as fun or rewarding for the students to figure out the problem.

 **Progress Monitoring:**  Teacher observes students and provides 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* |
| Please use this space to insert your differentiation techniques. Depending on the needs of students, various techniques might be needed in a classroom, therefore use the information below and experts in the area needed to design your plan for differentiation.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* |
| Please use this space to insert careers that might be connected to this lesson. This section will need continuous updating as new careers and emerging technologies change the opportunities available in the workforce.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* |
| Please use this space to insert keywords and their definitions Use resources like [dictionary.com](http://dictionary.reference.com/) to find definitions to your keywords  |