**Reviewer Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lesson/Unit Title:\_\_STD/AIDS\_\_\_\_\_\_\_\_\_\_\_**

**I. Alignment to the NGSS**

The lesson or unit aligns with the conceptual shifts of the NGSS:

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| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| A. Grade‐appropriate elements of the science and engineering practice(s),disciplinary core idea(s), and crosscutting concept(s), work together tosupport students in three‐dimensional learning to make sense ofphenomena and/or to design solutions to problems.i. Provides opportunities to develop and use specific elements of thepractice(s) to make sense of phenomena and/or to design solutions toproblems.ii. Provides opportunities to develop and use specific elements of thedisciplinary core idea(s) to make sense of phenomena and/or to designsolutions to problems.iii.Provides opportunities to develop and use specific elements of thecrosscutting concept(s) to make sense of phenomena and/or to designsolutions to problems.iv.The three dimensions work together to support students to make senseof phenomena and/or to design solutions to problems. | Using all 3 dimensions students understand structure and function of T-cells and how they relate to and effect the rest of the body through science practices such as investigating, modeling, and using data students can engage in argument based on evidence to back up the significance of education for protection and abstinence.  | * For Activity 1 fluid exchange, have students complete over 2 days testing HIV and Hepatitis B separately
* For fluid exchange, use disposable cups instead of trays to avoid confusion and aid in classroom management
* For the latex barrier leakage activity, make sure students rub petroleum jelly all over the balloon instead of in one concentrated area. The balloon will not pop if they do not spread out the jelly.
* After personal experience, we do not recommend the latex barrier permeability activity because the balloons burst and spray oil in participants faces.
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A unit or longer lesson will also:

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| Criteria | Specific evidence from materials and reviewers’ reasoning | Suggestions for improvement |
| B. Lessons fit together coherently targeting a set of performance expectations.i. Each lesson links to previous lessons and provides a need to engage inthe current lesson.ii. The lessons help students develop proficiency on a targeted set ofperformance expectations.C. Where appropriate, disciplinary core ideas from different disciplines areused together to explain phenomena. D.Where appropriate, crosscutting concepts are used in the explanation ofphenomena from a variety of disciplines.E. Provides grade‐appropriate connection(s) to the Common Core StateStandards in Mathematics and/or English Language Arts & Literacy inHistory/Social Studies, Science and Technical Subjects. | Evidence of opportunities for students to develop and use the practices include: * Students carrying out an investigation for find patient zero
* Students analyzing data to determine which patients were infected
* Students determining which patients exchanged fluid with other patients
* Body fluid kit to model real life exchange and transmission of disease
* Finding ratios and percentage of who was infected
* Model showing how latex could have prevented transmission
* Student created PSA or commercial to advocate for use of latex barriers

Connection to Common Core: Math 6.EE.C.9 Use variables to represent quantities in a real-world problem that change in relationship to one another Social Studies WHST.6-8.7 Conduct short research projects to answer a question, drawing on several sources and generating additional related focused questions that allow for multiple avenues of exploration. Reading RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.  | Suggestions for opening the unit: Discuss case of Ryan White, teenager diagnosed with AIDs in the 1980s. YouTube clip: <http://channel.nationalgeographic.com/the-80s-the-decade-that-made-us/videos/aids-activist-ryan-white/>Suggestions for closing the unit: Relate transmission of communicable diseases to the present day ZIKA virus. Class discussion, student extension projects possible.  |

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| **Disciplinary Core Ideas (DCIs)** | **Element** | **Evidence** |
| [LS1.A: Structure and Function](http://www.nap.edu/openbook.php?record_id=13165&page=143)[ETS1.B: Developing Possible Solutions](http://www.nap.edu/openbook.php?record_id=13165&page=206) | * [All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).](http://www.nap.edu/openbook.php?record_id=13165&page=143)
* [At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.](http://www.nap.edu/openbook.php?record_id=13165&page=206)
 | Students recognize that serious viruses infect and eventually kill helper T-cells which in turn causes a disruption in the proper function of cells, the immune system, and eventually the entire body.Students will create a PSA, commercial, or other type of informative advertisement to communicate the importance of latex barriers (condoms) or abstinence to prevent the transmission of disease (STD/AIDS). |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

**Reviewer Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lesson/Unit Title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Science and Engineering Practice (SEP)** | **Element** | **Evidence** |
| [Planning and Carrying Out Investigations](http://www.nap.edu/openbook.php?record_id=13165&page=59)[Constructing Explanations and Designing Solutions](http://www.nap.edu/openbook.php?record_id=13165&page=67)Using Mathematics and Computational ThinkingEngagement in Argument from EvidenceAnalyzing and Interpreting DataAsking Questions and Defining ModelsDeveloping and Using Models | * [Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation.](http://www.nap.edu/openbook.php?record_id=13165&page=59)
* [Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.](http://www.nap.edu/openbook.php?record_id=13165&page=67)
* [Use mathematical representations to describe and/or support scientific conclusions and design solutions.](http://www.nap.edu/openbook.php?record_id=13165&page=64)
* [Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.](http://www.nap.edu/openbook.php?record_id=13165&page=71)
* [Analyze and interpret data to determine similarities and differences in findings.](http://www.nap.edu/openbook.php?record_id=13165&page=61)
* [Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.](http://www.nap.edu/openbook.php?record_id=13165&page=54)
* [Develop a model to predict and/or describe phenomena.](http://www.nap.edu/openbook.php?record_id=13165&page=56)
 | Students carry out an investigation (experiment) to understand the transmission of disease and how the CDC is able to locate patient zero.The experiment shows how interactions with those infected, therefore spreading the disease, shows the importance of the use of latex barriers or abstinence.Students calculated ratios and percentages of infected vs. uninfected.Students use ratios, percentages, and overall observation from experiment as evidence to back up their argument.After transmission students will use the color key code to determine which patients were infected. Using this information students will observe how quickly a virus can spread and the significance of the number of “body fluid” exchanges.Students should come up with a list of diseases they are familiar with or have heard of. Have health educator visit the classroom to discuss STD/AIDS including myths, transmission, and prevention.Students are using lab aid kit to model body fluid transmission in a population. Students use balloons to model latex barriers (condom) and their effectiveness. |

**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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**Evidence that Disciplinary Core Ideas (DCIs), Science and Engineering Practice (SEP) and Crosscutting Concepts (CCCs) were included in this lesson**

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| **Crosscutting Concepts (CCCs)** | **Element** | **Evidence** |
| [Scale, Proportion, and Quantity](http://www.nap.edu/openbook.php?record_id=13165&page=89)PatternsCause and Effect**Structure and Function****Stability and Change** | * [Phenomena that can be observed at one scale may not be observable at another scale.](http://www.nap.edu/openbook.php?record_id=13165&page=89)
* Graphs and charts can be used to identify patterns in data<http://www.nap.edu/openbook.php?record_id=13165&page=85>
* [Cause and effect relationships may be used to predict phenomena in natural or designed systems.](http://www.nap.edu/openbook.php?record_id=13165&page=87)
* [All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).](http://www.nap.edu/openbook.php?record_id=13165&page=143)
* [Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales.](http://www.nap.edu/openbook.php?record_id=13165&page=98)
 | Students will recognize how disease can spread rapidly in a smaller population and compare those numbers to a larger scale population.Students find patterns representing the transmission progression from patient zero to a larger populationStudents were able to observe how the exchange of “body fluids” without a latex barrier can spread disease exponentially.Students recognize that serious viruses infect and eventually kill helper T-cells which in turn causes a disruption in the proper function of cells, the immune system, and eventually the entire body.Students observe that the body is no longer able to maintain homeostasis because the HIV/AIDS causes a damaging change in T-Cells which affects the entire body. |