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| **Lesson Title**: **Science Skills-The Immune System****Created by:** Mary Clare Sullivan | **Level of Lesson: NRS 4** |
| **Intended Modality:** (check all that apply)X□ In-person X□ Virtual X□ Hybrid  |
| **Content Area(s)** | **Targeted** [**IL ABE/ASE Content Standards**](http://www.excellenceinadulted.com/resources/abease-curriculum-project/) |
| Reading in the Content Area:Science & Technical | 4.R.RS.4 4.R.RS.10 4.R.RS.12 |
| Reading-Vocabulary | 4.R.VA.1 4.R.VA.4 |
| Speaking & Listening | 4.S.CC.1a,c 4.S.CC.5b  |
| Functional & Workplace Skills | 4.R.FW.2 |
| **Integrated** [**Essential Employability Skills**](https://www.illinoisworknet.com/DownloadPrint/ILEssentialEmployabilitySkills-Handout.pdf) |
| X□ Personal Ethic *(Integrity, Respect, Perseverance, Positive Attitude)*1a & 1b demonstrates appropriate use of technology | X□ Teamwork *(Critical Thinking, Effective & Cooperative Work)*Critical thinking & whole class/partner/independent activities |
| X□ Work Ethic *(Dependability, Professionalism)*2.a.i dependability | X□ Communication *(Active Listening, Clear Communication)*3a & 3b |
| **Lesson Objectives *(Students will be able to)****:* * Students will describe the basic function of the immune system.
* Students will be able to identify the body’s main barriers and internal organs of the immune system.
* Students will understand the similarities & differences between bacteria & viruses.
* Students will understand how antibiotics and immunizations protect against pathogens.
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| **Engagement is not “one size fits all.” How are you providing multiple ways to engage all learners? Click on** [**Multiple Means of Engagement**](https://udlguidelines.cast.org/engagement) **to learn more about providing options for learners and explain how you are including this below:****7.1** * Students choose various online resources to research information

**7.2*** Students learn about the ways they may prevent/control sickness and disease, which are contextualized to the health choices they have and will make during their lifetimes.
* Activities involve active participation and exploration
* Activities involve evaluation & personal reflection about the medical decisions students have made and will make for themselves and their families

**7.3*** Students are encouraged to work individually, with a partner, and to participate in whole group discussions throughout the lesson
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| **Key Vocabulary**: AntibioticsAntibodyAntigensBacteriaHostImmune systemLymph systemPathogens Scientific MethodT cellToxinVaccineVirusWhite blood cells (leukocytes) |

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| **Instructional Materials:** [**Google Drive- Materials-Immune System**](https://drive.google.com/drive/folders/1mnKMWdm8CsLzH7IMYmOWBJIT5j0Z8bVB?usp=sharing)Textbooks or online curriculum: * Computer with internet access or cell phone
* Pencils, pens, notebooks, folders, prior handouts
* Vocabulary Logs
* Life Science Vocabulary
* Video Notetaking Worksheets (2)
* 8 Tips to Google Like a Pro
* Venn Diagram: Compare Bacteria & Viruses
* Quiz: Disease, Pathogens, & the Immune System

Websites: * Quizlet vocabulary: Disease, Pathogens, & the Immune System <https://quizlet.com/685844469/life-science-disease-pathogens-the-immune-system-flash-cards/>
* Quizlet vocabulary: Scientific Method <https://quizlet.com/499704362/scientific-method-flash-cards/>
* How does your immune system work? <https://www.youtube.com/watch?v=PSRJfaAYkW4&t=12s>
* Bacteria v. Viruses: <https://www.youtube.com/watch?v=hTWUV6azGXE>
* What is a coronavirus? <https://www.youtube.com/watch?v=D9tTi-CDjDU>
* Explanation of mRNA vaccines: <https://www.youtube.com/watch?v=mvA9gs5gxNY>
* Vocabulary.com <https://www.vocabulary.com/lists/208247>
* Dictionary.com <https://www.dictionary.com/>

Teacher Resources:Fighting Back! <https://www.teachengineering.org/lessons/view/cub_human_lesson10>Viral Hijackers <https://www.teachengineering.org/lessons/view/duk_virus_mary_less> Quizlet Library Study Sets-Mary Clare Sullivan <https://quizlet.com/latest>  |
| **Lesson Activities:** **Activate prior knowledge:** Discuss prior lessons regarding basic structure, function, reproduction of cells and their production of proteins.Brainstorm with whole class: 1. “What are the common dangers to the human body?” Write the list on the board. Possible answers: diseases, germs, bacteria, viruses, cancer, broken bones, insect or animal bites, scratches/cuts, falls, accidents, temperature extremes
2. “What can parts of our body or body functions do to protect us from these dangers?” Possible answers: fever, cough, sneeze, swelling, tearing, shivering, sweating, vomiting
3. “Can you tell me about the human immune system? What do you know about its function?”

**Lesson Background & Concepts:*** Instructor provides an overview of the basic functions of the immune system using material taken from Lesson Background in “Fighting Back” <https://www.teachengineering.org/lessons/view/cub_human_lesson10>
* Students will independently review vocabulary words and record words in vocabulary log using the following resources:

Quizlet vocabulary: Disease, Pathogens, & the Immune System <https://quizlet.com/685844469/life-science-disease-pathogens-the-immune-system-flash-cards/> Dictionary.com <https://www.dictionary.com/> Vocabulary.com <https://www.vocabulary.com/lists/208247>Life Science Vocabulary List* Video: How does your immune system work? <https://www.youtube.com/watch?v=PSRJfaAYkW4&t=12s>

Students will take notes while watching the video on “Video Notetaking Worksheet”* Whole class discussion about information presented in the video
* Instructor will then introduce a whole class discussion about the differences between bacteria and viruses, students brainstorm while instructor lists suggestions on the board.

Instructor will then provide additional information from “Viral Hijackers” <https://www.teachengineering.org/lessons/view/duk_virus_mary_less> * Video: Bacteria v. Viruses: <https://www.youtube.com/watch?v=hTWUV6azGXE>

Students will take notes while watching the video on “Video Notetaking Worksheet”* Small group activity: Instructor will pair students and ask them to complete the “Venn Diagram Worksheet” comparing bacteria and viruses

After the instructor models an example, students may conduct research using reliable resources on the Internet, textbook, and may re-watch the videos using headphones. The instructor will then model students’ findings by creating a Venn Diagram on the board **Questions/topics for discussion:** 1. What virus has spread globally since the spring of 2020 and resulted in over 6 million of deaths?
2. Instructor will list students’ prior knowledge of the corona virus/covid-19 on the board
3. Why do you think recommendations from doctors, scientists, & government officials changed over time?
4. What are some examples of false information that has been spread about the virus?
* Discuss the Scientific Method and review the steps in Quizlet: Scientific Method <https://quizlet.com/499704362/scientific-method-flash-cards/>
* Let’s learn how that virus was discovered and named: Video: What is a coronavirus? <https://www.youtube.com/watch?v=D9tTi-CDjDU>
* Whole class discussion about information & facts learned from the video
* Discuss immunizations in general and list the most common diseases/immunizations that we receive over the course of our lives
* Video: Explanation of mRNA vaccines: <https://www.youtube.com/watch?v=mvA9gs5gxNY>
* Discuss the reasons why mRNA vaccines may be a game-changer for the prevention of currently known and future viruses

**Final Assessment: Quiz:** Disease, Pathogens, & the Immune System |
| **Learners vary in the way that they react to and grasp information that is presented to them. Click on** [**Multiple Means of Representation**](https://udlguidelines.cast.org/representation) **to explore ways that you can provide options for representing content and explain how you are including this below:** 1. **Flexible Content**
* Written text
* Videos with close captioning
* Online search/websites
* Quizlet-online study sets
1. **Language & Symbols**
* Vocabulary Logs
* Venn Diagram
1. **Comprehension**
* Activate prior knowledge: vocabulary review, prior biology lessons, current events/news
* Quiz
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| **Performance Tasks:*** Students will determine the meaning of words and phrases as they are used in the lecture and videos and record in their vocabulary logs
* Video Notetaking Worksheet: How does the immune system work?
* Video Notetaking Worksheet: Bacteria & Viruses
* Venn Diagram: Bacteria & Viruses
* Quiz: Disease, Pathogens, & the Immune System
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| **Learners best express what they know in different ways. Click on** [**Multiple Means of Action & Expression**](https://udlguidelines.cast.org/action-expression) **to explore ways to offer options for learners and explain how you are doing this below:** [**Google Drive-Materials- Immune System**](https://drive.google.com/drive/folders/1mnKMWdm8CsLzH7IMYmOWBJIT5j0Z8bVB?usp=sharing)* Add captioning to YouTube videos
* Add captioning to Blackboard Collaborate Recordings
* Students may choose to listen to vocabulary pronunciations & definitions in Quizlet, in addition to reading the material
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| **Notes:*** Be sure to download this lesson plan to access the documents in **Google Drive-Materials** link
* The material in this lesson may be taught in correlation with lessons in textbooks or online learning platforms such as i-Pathways and Khan Academy.
* This lesson may be split up/chunked across multiple classes
* Instructors may create their own study sets in Quizlet (free)
* Instructors may create their own quiz using study sets in Quizlet
* Low tech classroom:

-Students may watch videos on cell phone with headphones-Students may access online research websites on cell phone-Students may study vocabulary using free Quizlet app on cell phone |