Teacher Page
LaCuKnoS Investigation – Vaccines

Lesson Description

Brief Description: Students will explore two models that help explain how vaccines help keep our communities safe.

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NGSS Connections:

SEPs: Using Mathematics and Computational Thinking; Developing and Using Models; Analyzing and Interpreting Data; Engaging in Argument from Evidence

CCCs: Scale, proportion, and quantity; Systems and systems modeling; Cause and effect: Mechanism and explanation

LaCuKnoS Practice(s) being highlighted

L1: Choosing language based on topic, purpose & audience

C2: Engaging families together in science co-learning experiences

K1: Shared experiences with relevant phenomena as basis for how science knowledge is built and accepted

LaCuKnoS Tools used in lesson

In this lesson we use five LaCuKnoS tools:
- Language Booster (tool L1-1)
- Multilingual Concept Cards (tool L1-3)
- Shared Anchoring Event (tool K1-1)

Language Boosters (tool L1-1) - LaCuKnoS Language Boosters are short (1-2 page), high interest science readings that provide a "hook" to engage students, a conceptual overview of the investigation topic, introduce some key concepts that will be fundamental to the investigation, and make a connection between the ideas to be learned and related experiences that students may have had in some context outside of the classroom. The Language Booster closes with 2 or 3 questions or prompts to guide students' oral and written reflections with a partner.

Multilingual concept cards (tool L1-3) – LaCuKnoS concept cards define and explain a limited number (3 to 6) of important concepts, which are mentioned and highlighted in bold in the investigation -- often in the *Language Booster*. These cards provide the name, a brief "student friendly" definition and a picture of the concept, using both English and Spanish.

The cards can be used flexibly, such as at the start of the lesson, as part of a word wall, to review in lab groups, or introduced as needed when working with the investigation.

Shared anchoring event (with community relevance) (tool K1-1) – LaCuKnoS anchoring events are events or processes that require students to bring together multiple ideas to explain. These events help students see the relationships between *natural phenomena* and *causal explanations.* Anchoring event should be context-rich, meaning that it is about a *specific* event that happens in a *specific* place and time under *specific* conditions (place based). When possible, there should be direct community relevance.

Concepts for Concept Cards
- Virus
- Cell Membrane
- Spike Protein
- Vaccine
- Imune System
- Heard Immunity

Materials needed

- Simulation of virus spread [Link to simulation is here <https://n.pr/3p6t5gu>.](https://n.pr/3p6t5gu)
- Copies of Swiss Cheese Model

Advance Preparation
Before you teach this kit, you will need to provide the materials listed as not included in the kit. We recommend you familiarize yourself with all sections in this document before teaching this investigation.

Review the simulation and the Swiss Cheese Model

Safety Recommendations
None

Other Recommendations
When you are planning and implementing this investigation it may be useful for you to know that:

- Students may have heard all sorts of ideas and rumors about the COVID-19 vaccine. The purpose of this activity is to discuss the evidence so that students can come to their own conclusions based on that evidence. The teacher focus should be less on telling students what to think but on guiding them to think for themselves
- All simulations and models are simplified in some ways – they are approximations. That does not make them wrong or not credible – there is error in every model and measurement but those models and measurements can still guide our actions.