Teacher Directions

UNIT: CHIKUNGUNYA
LESSON 4: GATHERING EVIDENCE AGAINST CHIKV
Activity 4C: Let's Go to Court! A Gallery Walk Case



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Educational Objective
Evaluate how a Chikungunya virus infection can trigger a continuous inflammatory response.

Instructional Objective
Evaluate how dysregulation of immune mechanisms may lead to joint damage.

Activity Summary



In the **Let's Go to Court!** activity, students will assume roles as CHIKV is put on trial. The charge? CHIKV stands accused of causing the Host immune system to fail, resulting in excruciating joint pain!

To prepare for this gallery walk activity, the judge (teacher) will read the charges against CHIKV. Next, the class will be divided into teams: The Prosecution, The Defense, and The Expert Witnesses. Each team is divided into smaller groups. It is the teacher's discretion as to how best divide the class into teams (popsicle sticks, existing groups, etc.) and assign specific roles.

NOTE: Depending on the class size, there can be multiple plaintiffs, defendants, and expert witnesses.

› The Prosecution Team:
- ➔ *The Infected Host/s (plaintiff/s)*
  - Provide information about the agonizing joint destruction experienced as a result of CHIKV infection.
- ➔ *The Legal Representatives:*
  - Gather evidence seeking to place responsibility for the Hosts' joint discomfort on CHIKV.
  - Using evidence, develop a persuasive statement that summarizes why CHIKV should be found guilty of causing joint pain to the host.

› The Defense Team:
- ➔ *The accused, CHIKV (defendant/s):*
  - Provide information to support your innocence.
  - Create an alibi to support your claim of innocence.
- ➔ *The Legal Representatives:*
  - Gather evidence seeking to place responsibility on the immune system. This can be a specific immune system component or the entire immune system.
  - Using evidence, develop a persuasive statement that summarizes why CHIKV should be found not guilty of causing joint pain to the host.

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- **The Expert Witness Team:**
  - ➔ Each member of the Expert Witness team needs to describe their response to a viral invader, such as CHIKV.
  - ➔ Each member of the Expert Witness team provides information about their function and develops an alibi as to why they are not responsible for joint destruction.
  - ➔ There are three types of Expert Witnesses:
    - Macrophages
    - Interleukins
    - Immunoglobins (B-Cells & Antibodies)

Education Standards: Identifies Texas Essential Knowledge and Skills (TEKS) and Next Generation Science Standards (NGSS). This lesson addresses:

TEKS: High School Biology, Anatomy & Physiology, Pathophysiology, and Health

NGSS: Middle School and High School Life Science

Materials

- Student Background
- Transformed CHIKV article
- Student Role Cards (1 per student in the assigned role)
- Note Taking Document
- Activity Role Cards
- Evidence Reference Table
- Processing Out (1 per student)
- Wall post its or poster paper
- Markers/Crayons



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Directions

1. The charge must be read by the Judge (teacher) to the class:



The Court of Immunological Justice is now in session.

I call to order the case of the Plaintiff—our **Infected Host**—versus the Defendant, the **Chikungunya Virus (CHIKV)**. The Host is suffering from severe, permanent joint destruction that mimics rheumatoid arthritis.

The Prosecution will argue the agonizing condition of the Host is the direct result of an unprovoked viral attack. However, the Defense will argue CHIKV is innocent of this tissue damage, proposing it is the failure of the Host's own immune system that is to blame.

To resolve this conflict and arrive at a verdict, the prosecution and defense teams will present their case while Expert Witnesses for the Immune System will present their functions and alibis. Ultimately, the verdict will determine who is responsible for the **dysregulation of immune mechanisms that leads to rheumatoid arthriti**s.

2. Divide the class into teams, outlined above. Each team is provided with multiple sources from which they can gather information to present their arguments.
    - **a.** The transformed article, Chikungunya: Silly Name, Serious Virus,
    - **b.** Student Background,
    - **c.** Student Role Cards (specific to assigned roles)
    - **d.** Evidence Reference Table
    - **e.** Wall post its or poster paper
    - **f.** Markers/Crayons
    - **g.** Note Taking Document

3. Consulting the resources, each team outlines their case and/or alibis on their poster. Students can use bullet points, drawings, timelines, cartoons, etc. It is up to the students' collaborating as a group, how best to determine how to present their case, testimony and alibis.

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NOTE: As students work on their presentations, the teacher serves as a consultant, clarifying information only. Depending on the class size, teachers may elect to increase the number of students for each Expert Witness role. The time allotted for Step 3 is at the teacher's discretion.

4. The Gallery Walk: Students walk around the gallery, using the Note Taking document to record their perspectives and thoughts regarding information presented.

   NOTE: When there are multiple members of each team, one representative may remain next to their poster to answer any questions.

5. Time for the verdict! Distribute the Processing Out.
   a. ***Q1:*** The Verdict. Students will use Claim, Evidence, and Reasoning (CER) to support their decision. Student verdicts may vary. As long as they can justify their verdict with reasoning supported by evidence.
   b. ***Q2:*** Altering behavior regarding mosquito-borne pathogens.
   c. ***Q3:*** Venn diagram comparing Lupus to CHIKV.
   d. ***Q4:*** CHIKV Infection Stages

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