

# Immunology Activities

This resource has two parts. The first part consists of two immunology “Jeopardy” games. One is for biology students who are taking an introductory secondary school course and the second is a similar game for advanced or AP students. The second part is a list of web sites that will provide a teacher with short animations and videos that will enhance teaching and allow students to explore this fascinating topic on their own.

## Jeopardy Game

The Jeopardy Game is on PowerPoint. It is very simple to use. The only difficulty is that you must be careful not to click the mouse, as that will inadvertently show the next slide.

## Web Site Activities

Below are some resources that teachers can use to enhance their teaching of immunology. Because of curriculum requirements it is often difficult to give this ever-increasing field of biology the time that it truly deserves. These activities are simple to use and will help give students a better “picture” of the immune system from macroscopic to microscopic components.

SOFTWARE REQUIREMENTS: Word, Powerpoint, Quicktime, Shockwave

VIDEO: Immune Cells in Action (1 min. 41 sec.): Has a nice simple overview of the immune system responding to a viral attack, and a great shot of a sneeze!

<http://www.teachersdomain.org/9-12/sci/life/cell/immune/index.html>

VIDEO: Sweaty T-shirts and Human Mate Choice (3 min. 11 sec.): Subtle chemical signals, or pheromones, have long been known to draw pairs together within the same species, and for a specific reason. In mice, for example, experiments showed that pheromones acted as attractants between males and females who were genetically similar except that they differed in a certain type of immune system gene. That difference is actually a survival benefit: The combination of two individuals' different MHC (major histocompatibility locus) genes gives their offspring an advantage in beating back disease organisms. Very entertaining experimental design!

<http://www.teachersdomain.org/9-12/sci/life/evo/sweatytshirts/index.html>

VIDEO: Double Immunity (2 min. 21 sec.): Dr. Stephen O'Brien's work with HIV led to a discovery that could one day help scientists treat or prevent HIV infection: People from some European populations carry a genetic mutation that prevents HIV from entering their white blood cells. Dating back 700 years, O'Brien theorizes that this mutation was a selective advantage during the bubonic plague, and again today, with the onslaught of HIV.

<http://www.teachersdomain.org/9-12/sci/life/gen/doubleimmunity/index.html>

VIDEOS: This site has several very short animations which discuss various aspects of the immune system. The overview animation is quite good and can be used either before or after the teacher presents the topic.

<http://www.learner.org/channel/courses/biology/units/hiv/images.html>

EXERCISE: Introduction to ELISA Activity (10-15 minutes): This exercise has some nice animation to help students understand the ELISA (Enzyme Linked ImmunoSorbent Assay) Test for HIV antibodies. Nice, clear presentation of the concepts involved. Students are asked four review questions at the end. This activity can either be presented with an LCD projector or just given to the students as a homework activity.

<http://www.biology.arizona.edu/immunology/activities/elisa/main.html>

INTERACTIVE EXERCISE: HIV simulation (about 10-15 minutes): This exercise will allow students to learn how one can trace the epidemiology of a disease. The site also includes some discussion questions and a full review of immunology.

<http://www.biology.arizona.edu/immunology/activities/AIDS2003/main.html>

INTERACTIVE EXERCISE: Virus Attack Game from PBS (About 5 minutes) – Great little interactive that allows students to distinguish some aspects of non-specific and specific defenses. Introduces terms such as macrophage, helper T-cell, B-cell, plasma cell, antibodies.

<http://www.pbs.org/wgbh/nova/aids/immunewave.html>