

## Summer Research Program for Science Teachers

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### Activities of the Immune System

#### Activity I

#### How Does Skin Protect Humans?

Cut an apple in half.

Cover one half of the apple with plastic food wrap and leave the other half uncovered.

Using a dropper, release several drops of food coloring on each half of the apple.

#### Analyze Your Results:

What happened to the uncovered half of the apple? To the covered half?

How does the plastic wrap provide a model of the human skin?

What are a few traits of human skin that are not represented by the plastic wrap? [[Content Standard Unifying Concepts- Models](#)]

#### Activity II

Using the microscope, take a look at some of the prepared slides of different lymphocyte cells.

**Discussion:** Students and teacher will discuss about the different lymphocyte cells and with transparencies the teacher will explain the development of the cells, their function, structure and activity. [[5-8 Content Standard C- Structure and function in living systems](#)]

Students will go back to the microscopes and begin identifying the parts of the lymphocyte cells.

#### Analysis and Conclusions:

Contrast B cells with killer T cells.

How do macrophages assist B cells in fighting pathogens?

How do humoral immunity and cell-mediated immunity differ?

Develop a flowchart that traces the series of events involved in cell-mediated immunity.

[Teaching Standard B- Orchestrate scientific discourse]

## Activity III

### Creating a Personal Health Journal

You can check on the status of your health habits by creating a personal health journal for your own use.

<b>Taking Care of Your Immune System</b>
Eat a well-balanced and healthful diet.
Get plenty of exercise and rest.
Brush your teeth and bathe or shower regularly.
Keep your home clean.
Avoid tobacco, drugs, and alcohol.
Abstain from sexual activities.
Get vaccinations that prevent diseases.

[5-8 Content Standard F- Personal health]

Look at the list of behaviors in the table above.

Write each of the behaviors at the top of a separate piece of paper.

Jot down your habits related to each behavior during a typical week.

#### Analyze Your Results:

Do you think that your weekly habits are healthy?

Clip the pages together and place them in your journal. Continue to record your health behaviors in your journal.

## Activity IV

In a healthy immune system, white blood cells can tell the body's own cells from foreign cells, such as pathogens. A healthy immune system attacks only the foreign cells. In some diseases, however, the immune system begins to attack the body's own cells. These diseases are called autoimmune diseases. Investigate different types of autoimmune diseases and how they are treated. Find out the symptoms,

what population are most affected, generic and environmental factors, and any late-breaking research regarding the disease. [[5-8 Content Standard C- Populations and ecosystems](#)] [[5-8 Content Standard A- Understandings about scientific inquiry](#)]

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