Exploring Blood and the Immune System WebQuest

The Immune System
In the first portion of the webquest, you will explore how the human body protects itself from invaders through multiple lines of defense.

Website #1: https://www.sciencelearn.org.nz/resources/165-fighting-infection-introduction

Read through the above introduction into the immune system. You can explore the meaning of key terms by placing the cursor over underlined words or phrases.

Website #2: https://www.sciencelearn.org.nz/resources/177-the-body-s-first-line-of-defence

Define pathogen and list 4 types of pathogens.

Pathogen –
1
2
3
4

1. Define antigen and give 3 examples of common antigens.
   Antigen –
   1
   2
   3

2. What is the purpose of the first line of defense?
   Is it general or specific?


Distinguish between self and non-self antigens.
Website #4: https://www.sciencelearn.org.nz/resources/178-the-body-s-second-line-of-defence

Go to the above webpage to further differentiate between primary and secondary immune responses.

3. Complete the chart:

| When does this response occur?  
(First or Subsequent Infection) | Primary Immune Response | Secondary Immune Response |
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<td>How long does it take for the body to respond to the antigen?</td>
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| What immune cells are involved?  
How? |                         |                           |
| Does the body usually display symptoms of being “sick”? |                         |                           |


4. Distinguish between natural and artificial immunity. Give an example of each.

5. Distinguish between passive and active immunity. Give an example of each.

Website #6: https://www.vaccines.gov/basics/work/index.html

Go to the above webpage for a basic overview of vaccines. Upon reading the information provided, click on the “How Vaccines Protect You” bullet for additional information.

6. How does a vaccine work in conjunction with an individual’s immune system to protect an individual against disease?
An In-Depth Examination of Blood

In the second portion of this webquest, you will differentiate between the various components found within blood, compare and contrast different blood types, and examine how the diversity amongst blood plays a crucial role when donating blood or receiving a transfusion.

Website #1: https://www.fi.edu/heart/your-living-blood

It’s Alive
• What does blood deliver to cells?
• What does blood pick-up from cells?

What is Blood Made of?
• What is plasma and what does it contain?

Red Blood Cells
• Why are red blood cells red?
• What is the significance of hemoglobin?
• How long does a RBC live?

White Blood Cells
• What is the job of a WBC?
• How long do they live?
• Is it bad to have too many WBCs? Why?

All About Scabs
• What important blood component makes up a scab?
• Describe scab formation.

Click on “Why Monkeys Matter” followed by “Blood Types”.
• What does it mean to be Rh+?
• What determines your blood type?
• How many blood types are there? What different blood types may an individual have?

- How often does someone in the US need blood?
- How many people actually donate blood each year (percentage)?
- How often can someone donate blood?

**Blood Components**
- How can one donation help more than one person?
- What is the shelf-life of RBC donations?

**Blood and Diversity**
- Did you know there is more than just A, B, AB & O blood?
- Give an example of a “rare” blood type and talk about its origin or uniqueness.
- List some other rare blood types by ethnic groups.

**Testing**
- How many total tests are performed on donated blood?
- What are some diseases that are tested for?

**Blood Types**
- What is the most common blood type across ethnic groups?
- Which ethnic group has a higher % of B blood?
- Why do you think different ethnicities have different percentages of blood types?