

Other Assessment Ideas

- BLM 1-48, Chapter 3 Quiz
- BLM 1-49, Unit 1 Test
- Assessment Checklist 2, Asking Questions
- Assessment Checklist 5, Investigating an Issue
- Process Skills Rubric 9, Questioning
- Assessment Rubric 1, Concept Rubric
- Assessment Rubric 7, Scientific Research Planner Rubric
- Assessment Rubric 8, Research Project Rubric
- Assessment Rubric 9, Collecting Information Rubric
- Assessment Rubric 10, Presentation Rubric
- Assessment Rubric 11, Communication Rubric

CHAPTER 3 ASSESSMENT, p. 118-119**PREPARE YOUR OWN SUMMARY**

Student summaries should incorporate the following main ideas:

1. Transmission of Infectious Diseases
 - Infectious diseases are caused by pathogens.
 - Infectious disease can be transmitted by direct contact, indirect contact, contaminated water and food, and animal bites.
2. First Line of Defence
 - The immune system attacks and destroys invaders such as pathogens and antigens that enter the body.
 - The immune system's first line of defence is the skin and linings of the body's internal systems.
3. Second Line of Defence—Innate Immune Response
 - The immune system's second line of defence may be an innate immune response, which is a response that is general and non-specific.
 - The first action of the innate immune response is inflammation.
 - White blood cells fight infection by consuming invading pathogens.
4. Second Line of Defence—Acquired Immune Response
 - The acquired immune response involves four steps; recognition, mobilization, disposal, and immunity.
 - B cells recognize antigens and produce antibodies in response. Antibodies attach to antigens and signal white blood cells to destroy the antigen.
 - Antibodies remain in the body to protect against future infections, forming an active immunity for the body.
5. Vaccines
 - Vaccines are weakened versions of a disease pathogen.
 - Vaccines stimulate the immune system to create antibodies, providing the body with immunity against the disease.
6. Disorders of the Immune System
 - Immune system disorders occur when the immune system malfunctions and works against the body it is supposed to protect.
 - Allergies are an unusually high sensitivity to a substance.
 - AIDS is an infection of the immune system caused by HIV. HIV destroys the immune system, leaving a person vulnerable to other diseases.

CHAPTER REVIEW ANSWERS**Checking Concepts**

1. A pathogen is an organism or substance that can cause a disease.
2. Pathogens can be spread over 5 m by a cough or a sneeze. By covering your mouth, you reduce the distance the pathogen can travel.
3. The stomach produces gastric juice, which is very acidic and can destroy bacteria.
4. The innate immune response is quick and general. The immune system does not have to recognize a particular antigen in order to respond. Since phagocytes are already in the blood or tissues, the response time is very fast.
5. Phagocytes are present throughout the body, and they will congregate in areas of infection. When these areas are sampled, the white blood cell count will be elevated.
6. The acquired immune response involves B cells, helper T cells, and killer T cells. The B cells produce antibodies to attack the pathogen, helper T cells activate both the B cells and killer T cells, and the killer T cells attack tissue cells that have been invaded by the pathogen.
7. (d) Pathogen is recognized.
(b) B cells mobilize to produce antibodies.
(a) Antibodies destroy pathogens.
(c) Some immunity remains for future use.
8. The four steps in the acquired immune response are:
 - recognition—the antigen must be recognized by a white blood cell
 - mobilization—B cells produce antibodies
 - disposal—antibodies destroy pathogen
 - immunity—memory B cells offer long term immunity

9. B cells actively produce antibodies when fighting an infection, while memory cells are not involved with fighting the pathogen. Memory cells remain after the pathogen has been destroyed so that the body has long term immunity against the pathogen.
10. When a helper T cell recognizes an antigen, it activates the B cells.
11. Helper T cells activate the B cells, which then produce antibodies that attack the pathogen directly. Killer T cells kill body cells that have become invaded by the pathogen. Killer T cells can also kill cancer cells.
12. Grade 9 students in British Columbia receive booster shots for tetanus, diphtheria, and pertussis.
13. An allergen is any substance that can cause an allergic reaction. These substances usually do not elicit a response from most people.
14. Histamines cause the nose to run and the eyes to water. Antihistamines reduce these symptoms.
15. People suffering from anaphylactic shock can be treated with adrenaline. The adrenaline is usually injected into the thigh using an auto-injector.
16. HIV attacks helper T cells. This means that B cells and killer T cells will not be activated and will therefore not be available to fight secondary infections such as pneumonia.
17. To take care of your immune system you should eat a balanced diet, maintain your personal hygiene, maintain a clean environment, avoid smoking, get plenty of rest and exercise, keep your vaccinations up to date, and avoid sharing body fluids with others.
18. First line of defence consist of *skin* and *linings of all internal body systems*.
Second line of defence consists of *innate immune response*; the first response to a pathogen is *fast* and *general*, and *acquired immune response* which has two types of cells, *B cells* and *T cells*.
19. Your immune system has memory B cells that divide, producing many antibody-producing B cells. The antibody-producing B cells release their antibodies, destroying the pathogen.
20. One explanation could be that Owen is allergic to the antibiotic. Another possibility might be that the rash is a symptom of Owen's infection and the antibiotic has not taken effect yet. A third explanation could be that Owen is suffering from two infections at the same time.

21. (a) No. Chicken pox is highly contagious and it is very likely that you will become infected.
(b) You are likely to come down with chicken pox.
(c) Your cousin likely has immunity to the chicken pox because he has been vaccinated.
22. Most people who have had chicken pox have a life-long immunity to the disease. A small percentage of individuals are susceptible to getting chicken pox again or having the dormant virus become active again, causing a disease called shingles.
23. Students' answers may vary, but could include the following: Vaccinations provide immunity so the individual does not suffer from the disease or, at worst, receives a milder form of it. (There is some risk of a person having an allergic reaction to the medium carrying the vaccine.) Since the person will gain long term immunity without suffering the symptoms or risks presented by the disease, vaccinations are the better option.

Pause and Reflect Answer

Accept all reasonable answers. Sample answer:

- (a) First line of defence—sentry; stands on guard at all times
- (b) Innate immune response—infantry; soldiers who fight on foot and are deployed to any areas of conflict on the ground
- (c) Acquired immune response—reconnaissance; soldiers on the lookout for the enemy
- (d) B cells—lookouts or reconnaissance; soldiers who can recognize the enemy
- (e) Helper T cells—support soldiers or engineers; allow other soldiers to do their jobs
- (f) Killer T cells—snipers; killers of specific enemies
- (g) Active immunity—generals or command; remembering who the enemy is and how best to defend against the enemy
- (h) Vaccine—patrols; added just in case the enemy shows up

UNIT 1 ASSESSMENT

PROJECT

Building a 3-D Model of Human Body Systems, p. 122

Purpose

- Students create a life-sized, three-dimensional model of four human body systems.