Part 4 Immune Systems and Parasites

Part 4 Lesson 1 The Immune System Name:

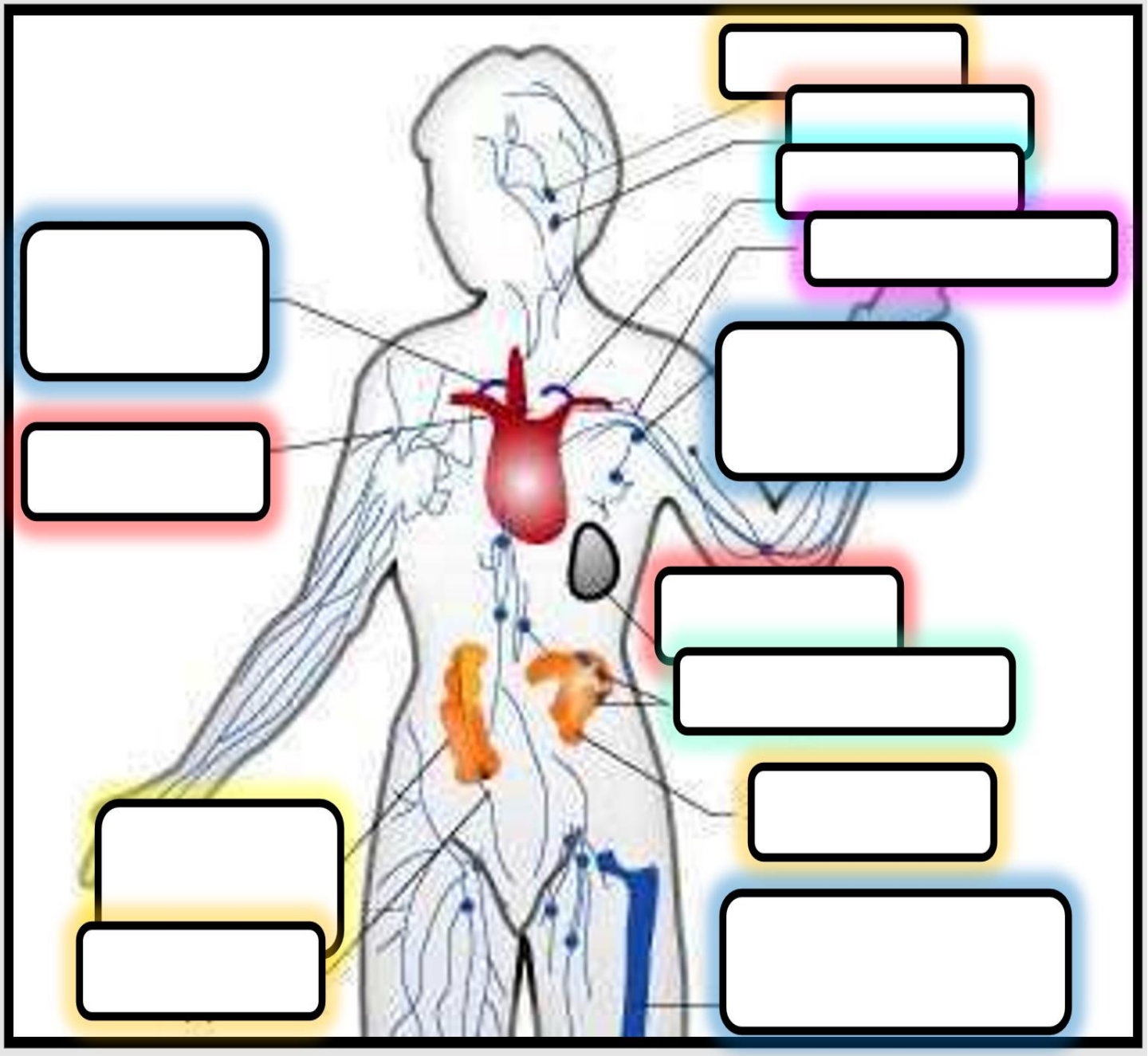
Joseph _____ (1827-1912)

-Changed the 50% death rate of early surgeries.

-He realized that _____(small organisms) were to blame for high post surgery death rates.

-Pioneered the use of antiseptic and cleanliness. (Carbolic Acid Sprayer)

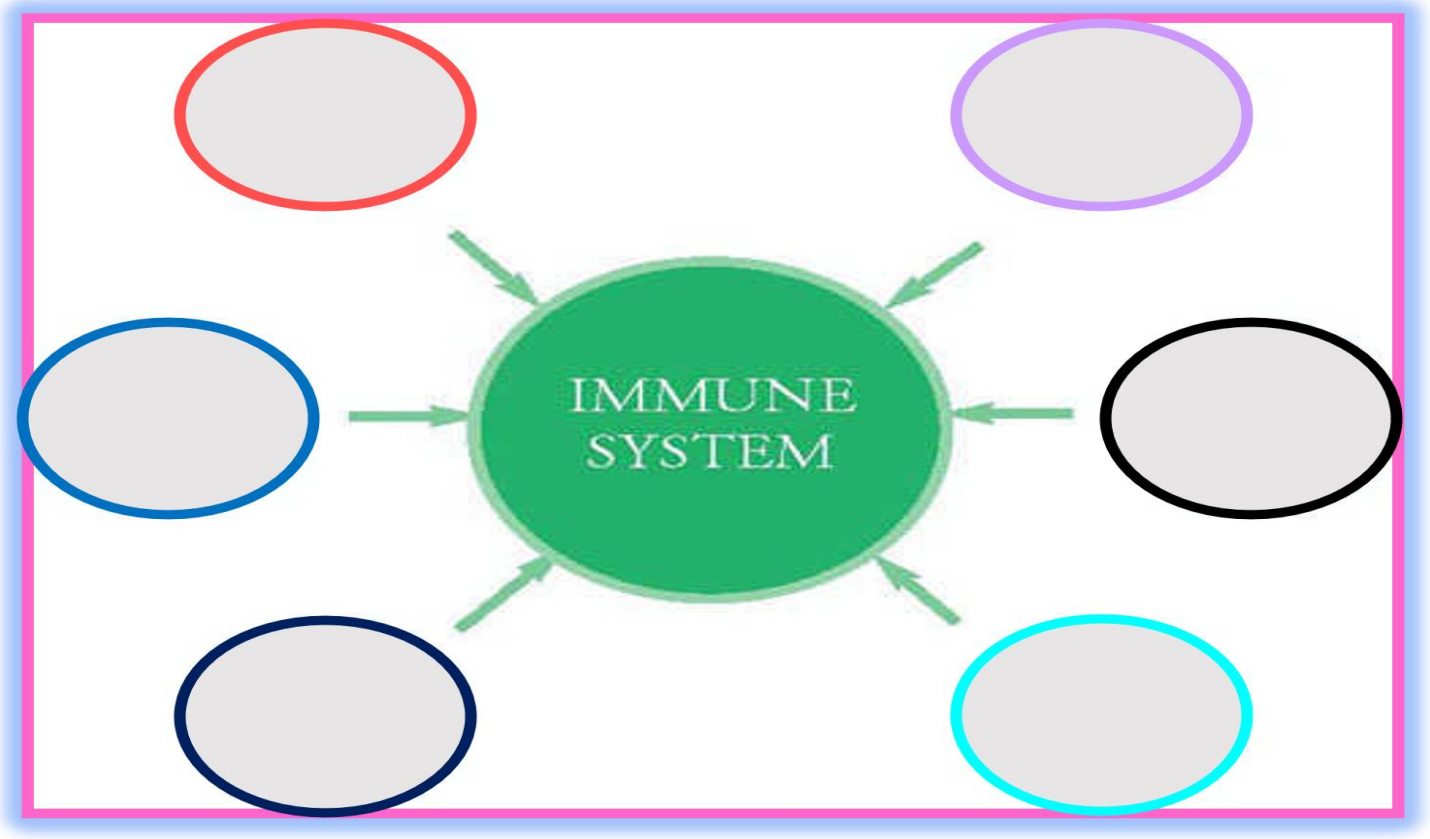
Please fill some parts of the Immune System below.



Immune system: A system that _____ the body from diseases.

It's a complex network of _____, tissues, organs, and the substances they make that helps the body fight infections and other diseases. The immune system includes white blood cells and organs and tissues of the lymph system, such as the thymus, spleen, tonsils, lymph nodes, lymph vessels, and bone marrow.

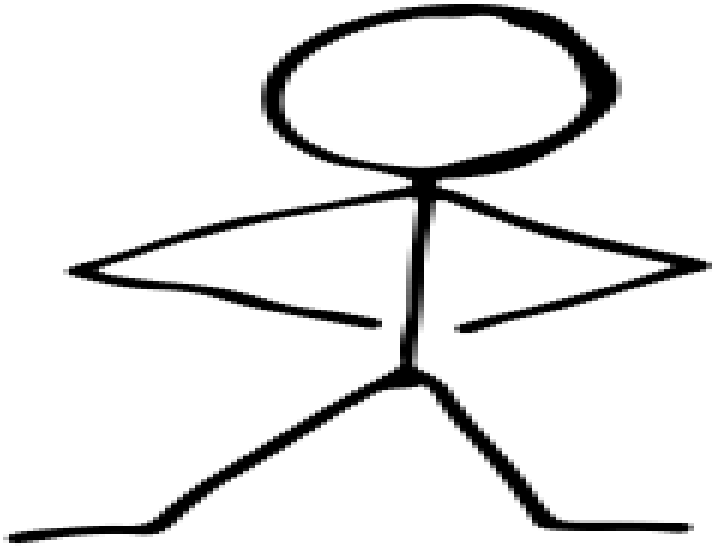
The Immune Systems protects us from…



The Immune System 1st Line of Defense.

_____prevents disease from entering the body.

Where are the holes in the first line of defense?



One of the biggest achievements of the immune system is it's ability to determine _____ from _____.

Part 4 Lesson 2 Immune Response

The Second Line of Defense.

The _____ response: Damaged cells release _____.

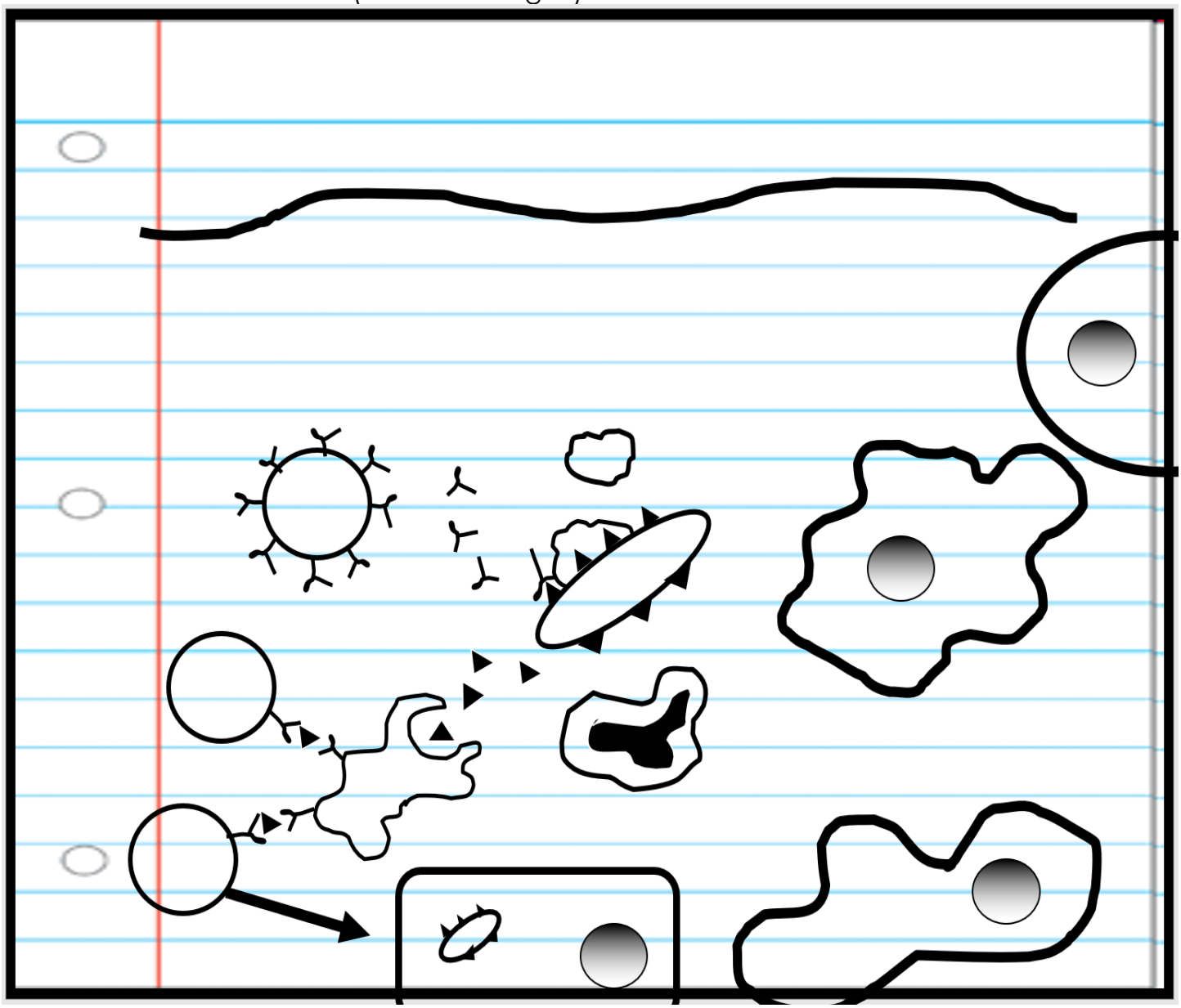
- These chemicals cause blood vessels to leak fluid into the tissues, causing swelling.
- This helps isolate the foreign substance from further contact with body tissues.

The body also has another defense mechanism called and _____ response.

- Cells produce a substance that interferes with the ability of viruses to reproduce.

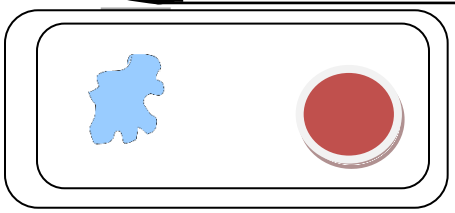
Your Bodies 3rd Line of Defense.

- The War Within (The Battle Begins)



◊ Please use the space below and the pictures to describe the Immune System. Focus on the 1st, 2nd, and 3rd lines of defense. This is supposed to be abstract.

Skin



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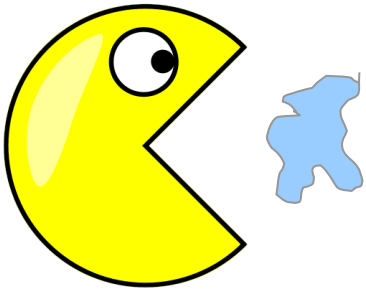
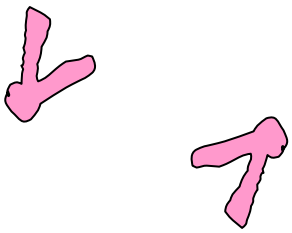
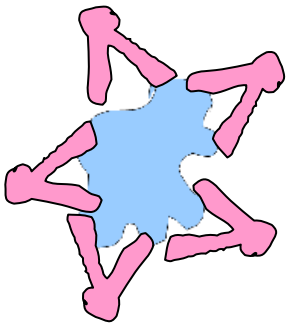
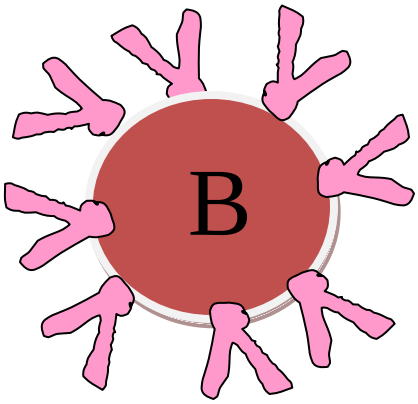






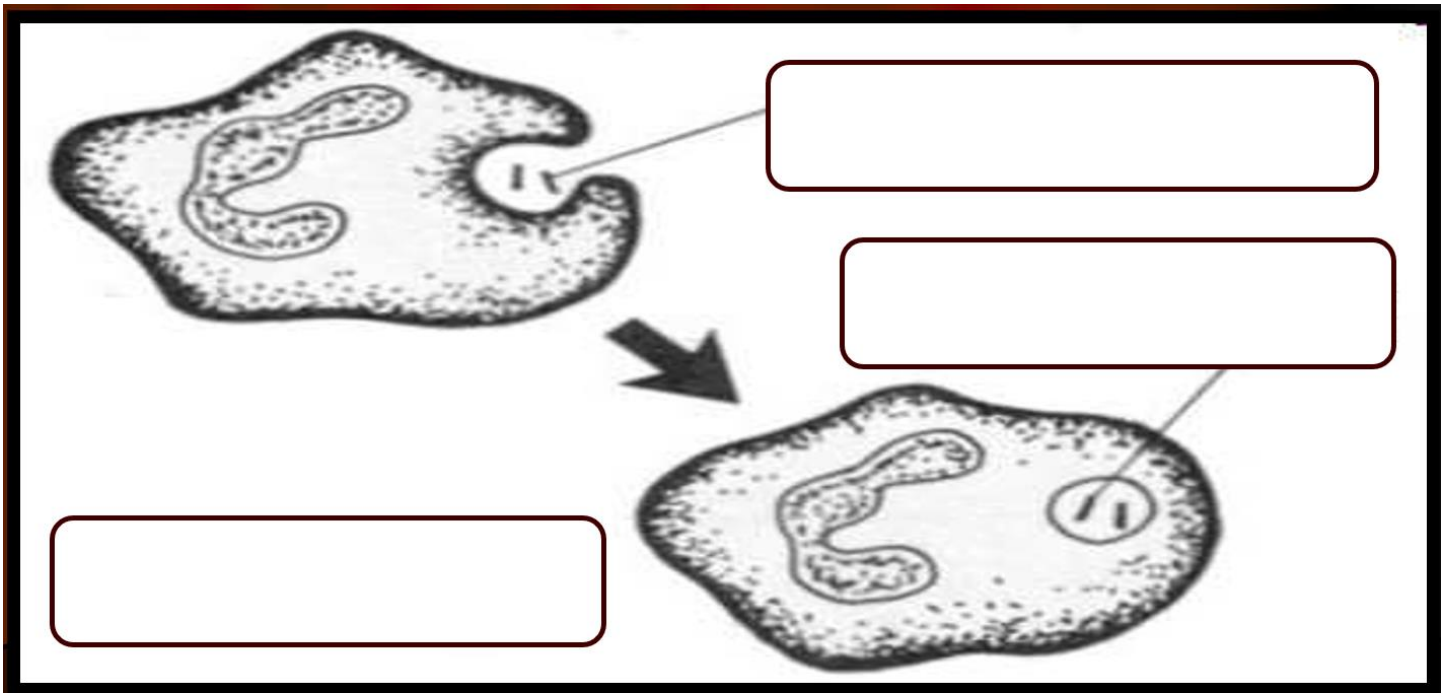


_____ is a severe allergic reaction that occurs rapidly and causes a life-threatening response involving the whole body.

- This reaction can lead to difficulty breathing, shock, and ultimately death if untreated.

3rd Line of Defense

- _____: These tell the body it's under attack.
  - These give you the aches and pains. "Time to rest!" (Warning System)
- _____: White blood cells (made in bone marrow)
  - - Phagocytes: Cells that _____ invaders.



- _____: Cells that remember the invaders and help the body destroy them if they come back.
  - B-Cells
  - T-Cells

_____Cells: These cells function to obtain antigen in tissues, they then migrate to lymphoid organs and activate T cells.

When an antibody encounters a specific _____ (invader) it changes shape (activates) and binds to it.

T Y

- _____ cling to virus making it difficult to attach to cell.

- Immunity: Your immune system is now familiar with the invaders and can summon antibodies quickly.

Part 4 Lesson 3 An Inside Look at the Flu. Vaccines

- Video! An Inside Look at the Flu
- Complete this question as your watch the video on your bundled homework.
  - https://www.youtube.com/watch?v=CkTKZTCxrtc

An Inside Look at the Flu

Describe symptoms of a sickness such as the flu, and the reasons for that symptom based on your immune system response.

Why do you...

-Get the aches and pains.

-Get a fever.

-Get a headache.

-Cough

-have a sore throat

Immunity can be _____, or _____.

_____: A suspension of weakened or dead pathogenic cells are injected in order to stimulate the production of antibodies and boost immunity.

Virus prevention

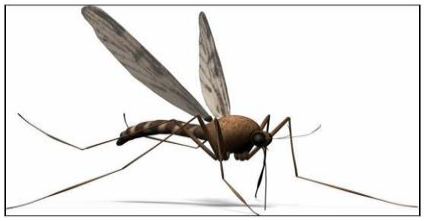
- Minimize _____ with reservoir animal (birds, mice, etc.)
- Minimize person to _____ contact

Part 4 Lesson 4 Parasites

What is the most deadly animal on the planet? Explain below.



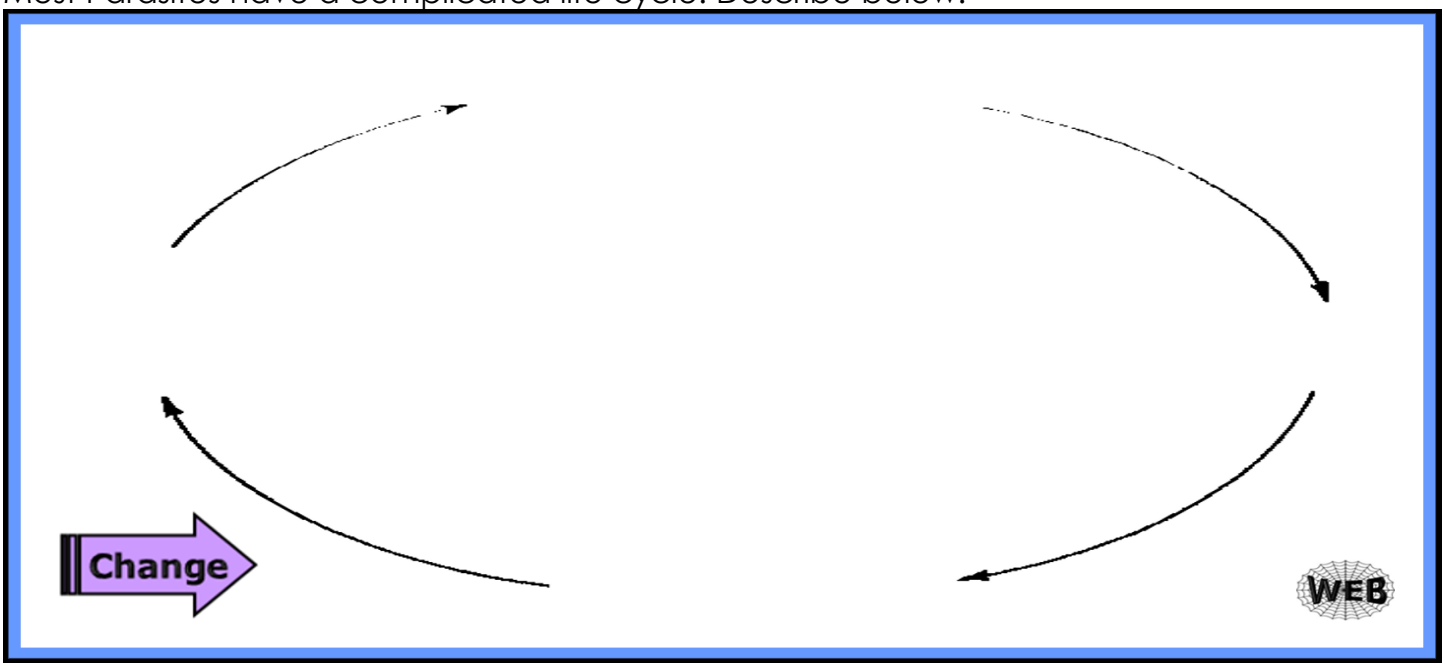


Parasitism: One organism _____ while the other is _____.

Parasitism	Commensalism	Mutualism
Neutral	Neutral	Commensalism
Interspecific Competition?	Neutral	Parasitism

Most Parasites have a complicated life cycle. Describe below.



Two general types of parasites

Endoparasites: _____ your body.

Ectoparasites: _____your body.

Name the type of parasite below.

Sea Lamprey Article and Question

(scientific name in latin): *Petromyzon marinus*; other aliases: great sea lamprey, lake lamprey, lamprey, lamprey eel

Home Land (origination): Coastal regions of Atlantic Ocean. Locally found on east coast of United States and Canada.

Arrival Date: 1936 they were discovered in Lake Michigan.

How to Identify: Sea lampreys are members of an ancient family of Agnatha or "jawless fishes" that were around before the time of the dinosaurs. They are 12-20 inches long and eel-like. They have dark brown to black backs and light yellow to pale brown bellies. Look for a feathery fin from their midsection down and under the tail. Their mouth is circular with circular rows of teeth. They have large reddish eyes.

Sea lampreys are parasites as adults and use their raspy disc-shaped mouth full of teeth to strike and hold fast to fish. They make holes in the sides of their victims and feed on blood and body fluids. They stay attached for hours, days, or even weeks. Large fish will most likely survive a lamprey attack with just a circular scar left on their side. Small fish may die immediately from the attack or will die from an infection from the large sucking wound.

Freshwater eels, native to our Great Lakes and the Eastern United States, look like lampreys, but they're not. Eels measure 2-3 feet with long, slender bodies. They are brown with a white underside. They have dorsal and anal fins that begin at the mid-section of the body and are continuous around the tail. Their mouth is large, with a jaw similar to a fish, unlike the jawless sea lamprey. Freshwater eels are not parasitic and won't attach to fish or suck their blood

Evidence: Lampreys attach themselves to other fish and suck on their blood and body fluids. They leave rounded scars on the fish. When they first arrived on the Great Lakes scene, they killed large numbers of predatory sport fish. People began to notice the lack of large fish and

the scars on others. Lampreys preyed on whitefish, lake trout and chub populations in lakes Superior and Michigan. The lamprey invasion made it hard on the people who fished the Great Lakes to make a living.

One sea lamprey can upset an ecosystem and food chain by eating an estimated 40 pounds of fish or more in its lifetime. Multiply that times 22,000 lamprey found in just one river and you have a lot of dead fish. Because of lower large fish populations, small fish, like the alewife, were able to increase in numbers. Alewives are also invader species which compete with native fish for food and habitat.

Invaded Territory: The Great Lakes and clear, cold streams throughout the Great Lakes region. Construction and improvements on the Erie and Welland Canal (between Lake Ontario and Lake Erie) around 1921 allowed sea lampreys to get through the canal to the next lake. Here's a list of their arrival dates in each lake:

- Lake Erie, 1921
- Lake Huron, 1932
- Lake Ontario, 1935
- Lake Michigan, 1936
- Lake Superior, 1938

Sea lampreys will lay over 100,000 eggs when spawning, much more than the native lamprey species.

Extermination Techniques: Lampricides (poison) was first used in the late 1950s to kill larval lampreys. The chemical was not harmful to humans and didn't effect many plants, invertebrates, fish or waterfowl populations. The chemical worked, but it was costly and did kill some young fish. In 1958 biologists estimated that the Brule River in Wisconsin produced over 22,000 lampreys each year. The Great Lakes Fishery Commission said that this population made up 30-50 percent of all the lampreys captured on American tributaries. Something had to be done!

In 1986, DNR fish managers, technicians and engineers designed a new lamprey barrier which let fish migrate through to spawn, but captured the lamprey. On that first day, 2,000 lamprey were caught! The new barrier was expected to reduce the number of lamprey above the barrier to nearly zero. Today, biologists are still looking for ways to stop the spread of lampreys in lakes, streams, and rivers. The lamprey population is under control, but they are still a threat to aquatic ecosystems. Several million dollars are spent each year on these control methods. Native predatory fish, like the whitefish and lake trout, have been restocked by fisheries professionals to help maintain a healthy level of these species.

Questions to answer in your science journal. Please answer 4-6 questions.

Please draw a Sea Lamprey below and describe some of its physical features.

Why is the Sea Lamprey bad for the Great Lakes?

How did the Sea Lamprey make it to the Great Lakes?

Why are Sea Lampreys bad for people?

Why is the Sea Lamprey a difficult species to control?

What is being done to control the spread of the Sea Lamprey?

_____ Parasitism – The cowbird waits until a mother leaves a nest and then lays her eggs next to the other egg. When the bird comes back she doesn't know the difference and raises the eggs.

- The cowbird drops a few of the real mothers eggs out to make room. Those eggs die and the juvenile cowbird takes most of the food while the other chicks starve.

Part 4 Lesson 5 Parasite Project / Slideshow

Perfect Parasite PowerPoint Preparation Page

Please investigate three parasites. Make a quick sketch and add a description in the boxes below.

Common Name of parasite chosen:_____

Science Name of parasite chosen:_____

How is this parasite transmitted? / How do you get it?_____

_____

_____

_____

_____ Website: _____

_____ Author: _____ Year: _____

What are the health effects?_____

_____

_____

_____

_____

Website: _____ Author: _____ Year: _____

What treatments are available?_____

_____

_____

_____

_____

_____

Website: _____ Author: _____ Year: _____

What is the life cycle of this parasite?_____

_____

_____

Website: Author: Year:

General Information:

Part 4 Lesson 6 Diseases and Wrap-Up

Diseases can be spread by…

- Insects
  - _____ disease: Caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged ticks.

Which is a deer tick (Carries Lyme Disease) and which is a Wood Tick

Diseases can be spread by…

- _____
- _____

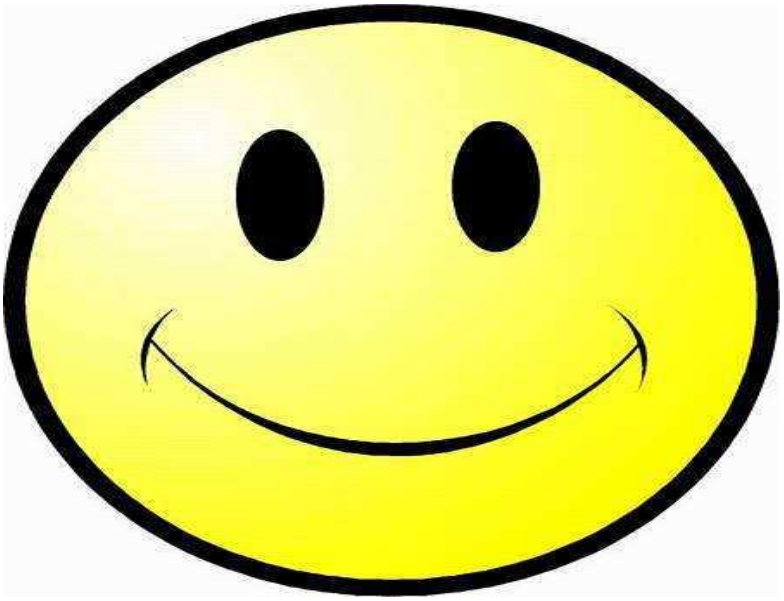
- Water
- _____
- Person to Person
- _____to Person

_____: A deadly virus found on the feces of mice. Avoid close contact (airborne as well) with these droppings.

_____: A deadly virus spread to people from the saliva of infected animals. Rabies is usually spread through an animal bite. Animals most likely to spread rabies include dogs, bats, coyotes, foxes, skunks, and raccoons.

Symptoms include fever, headache, excess salivation, muscle spasms, paralysis, and mental confusion. Seek immediate medical attention after a bite or suspected bite. There is no specific treatment for rabies. Once symptoms appear, it's nearly always fatal. A vaccine can prevent infection.

Please show ways humans can contract infectious diseases by infecting the smiley face below. No STD's please! In what ways have humans created defenses against these diseases?



Across

2. Sea _____ are parasites as adults and use their raspy disc-shaped mouth full of teeth to strike and hold fast to fish. They make holes in the sides of their victims and feed on blood and body fluids.
5. Cells that remember the invaders and help the body destroy them if they come back.
6. The body also has another defense mechanism called and _____ response. – Cells produce a substance that interferes with the ability of viruses to reproduce.
8. A suspension of weakened or dead pathogenic cells are injected in order to stimulate the production of antibodies and boost immunity
9. _____ Cells: These cells function to obtain antigen in tissues, they then migrate to lymphoid organs and activate T cells.
10. These type of parasites generally live outside of the body
13. These are the type of parasites that live inside your body
14. _____ disease: Caused by the bacterium Borrelia burgdorferi and is transmitted to humans through the bite of infected blacklegged ticks.
15. This feeding relationship is when one organism benefits while the other is harmed.
16. These tell the body it's under attack. – These give you the aches and pains. "Time to rest!" (Warning System)
18. I_____: Your immune system is now familiar with the invaders and can summon antibodies quickly.

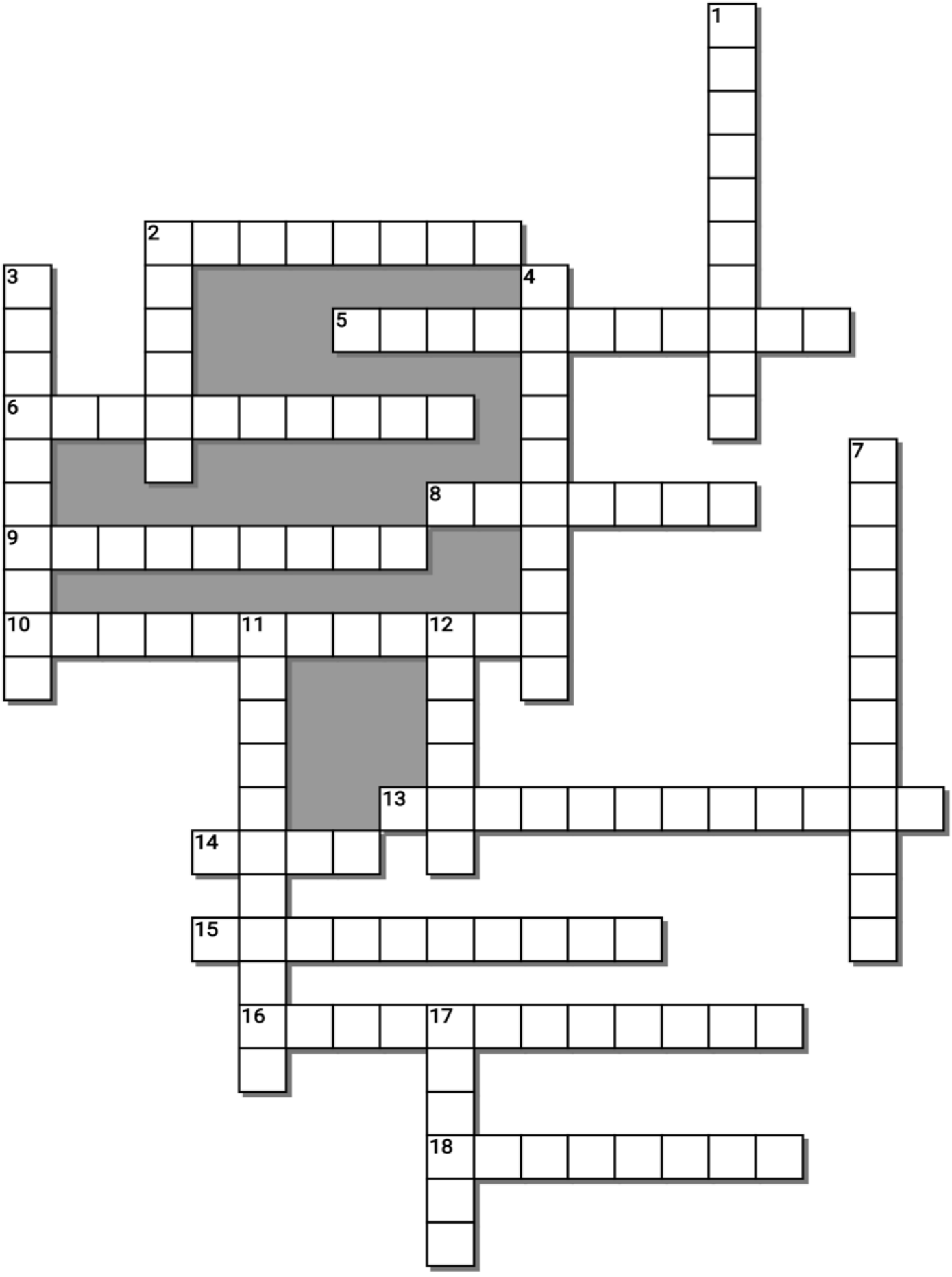
Down

1. White blood cells (made in bone marrow)
2. Joseph _____ (1827-1912) -Changed the 50% death rate of early surgeries. -He realized that microbes (small organisms) were to blame for high post surgery death rates. -Pioneered the use of antiseptic and cleanliness. (Carbolic Acid Sprayer)
3. These proteins can cling to virus making it difficult to attach to cell.
4. Large specialized cells that engulf invaders.
7. The Second Line of Defense. The _____ response: Damaged cells release chemicals.
11. _____ is a severe allergic reaction that occurs rapidly and causes a life-threatening response involving the whole body.
12. _____ system: A system that protects the body from diseases. It's a complex network of cells, tissues, organs, and the substances they make that helps the body fight infections and other diseases.
17. A deadly virus spread to people from the saliva of infected animals. Rabies is usually spread through an animal bite. Animals most likely to spread rabies include dogs, bats, coyotes, foxes, skunks, and raccoons.

----------Teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

LAMPREYS , ANAPHYLAXIS, ANTIBODIES, DENDRITIC, ECTOPARASITE, ENDOPARASITE, IMMUNE, IMMUNITY, INTERLEUKINS, LEUKOCYTES, LISTER, LYME, LYMPHOCYTES, PARASITISM, PHAGOCYTES, RABIES, VACCINE, INFLAMMATORY, INTERFERON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Part 4 Review Game Lesson 6

Name:

1-10 = 10 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

DIPLOMATIC IMMUNITY	FIGHT BACT	FAMOPUS PARASITES Bonus round 1 pt each
1)	6)	*11)
2)	7)	*12)
3)	8)	*13)
4)	9)	*14)
5)	10)	*15)

Final Question Wager ___ /5 Answer: _____

Part 4 Immune Systems

Name:

Part 4 Lesson 1 The Immune System

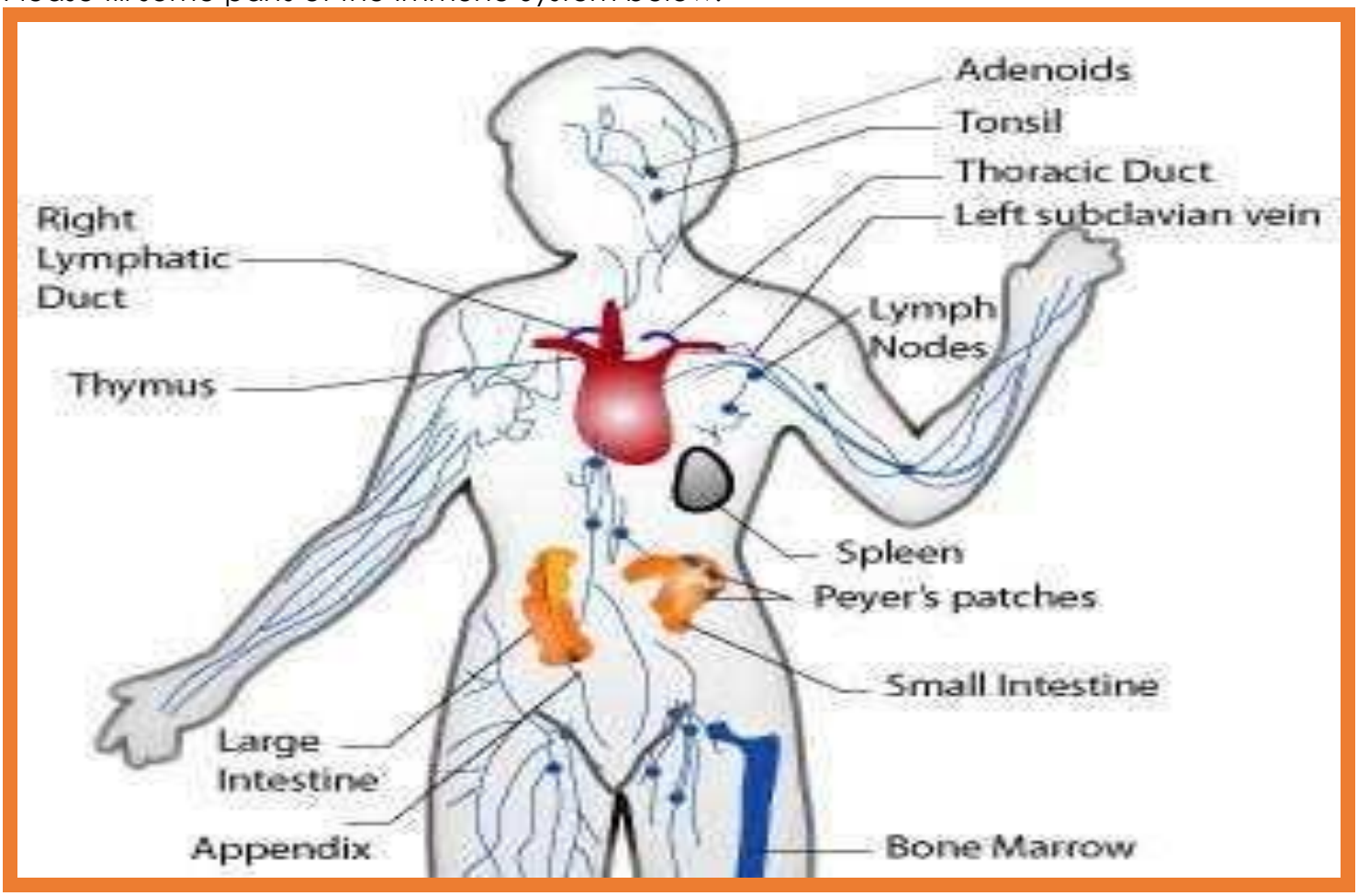
Joseph Lister (1827-1912)

-Changed the 50% death rate of early surgeries.

-He realized that microbes (small organisms) were to blame for high post surgery death rates.

-Pioneered the use of antiseptic and cleanliness. (Carbolic Acid Sprayer)

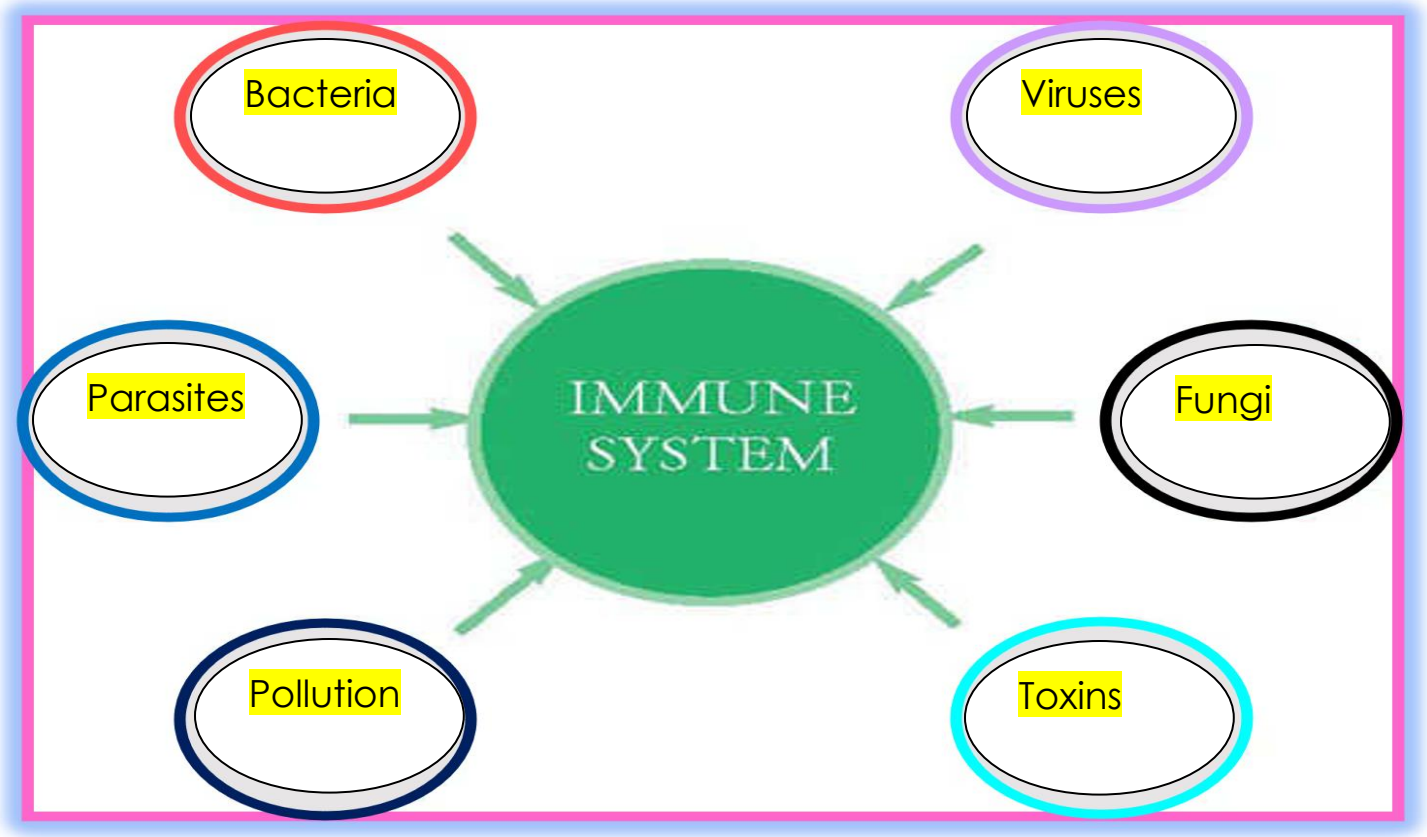
Please fill some parts of the Immune System below.



Immune system: A system that protects the body from diseases.

It's a complex network of cells, tissues, organs, and the substances they make that helps the body fight infections and other diseases. The immune system includes white blood cells and organs and tissues of the lymph system, such as the thymus, spleen, tonsils, lymph nodes, lymph vessels, and bone marrow.

The Immune Systems protects us from…

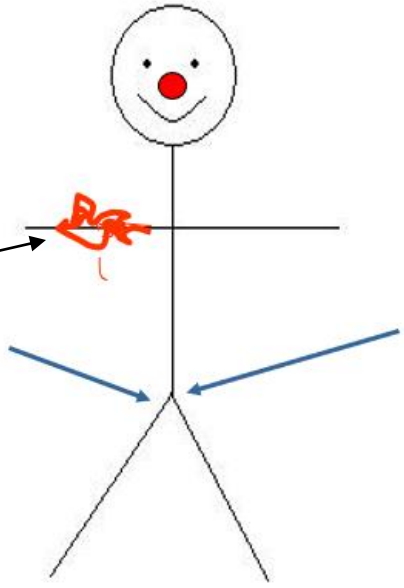


The Immune System 1st Line of Defense.

Skin prevents disease from entering the body.

Where are the holes in the first line of defense?

- Nose
- Mouth
- Eyes
- Open wounds
- Down low
  - STD's



One of the biggest achievements of the immune system is its ability to determine friend from foe.

Part 4 Lesson 2 Immune Response

The Second Line of Defense.

The inflammatory response: Damaged cells release chemicals.

- These chemicals cause blood vessels to leak fluid into the tissues, causing swelling.

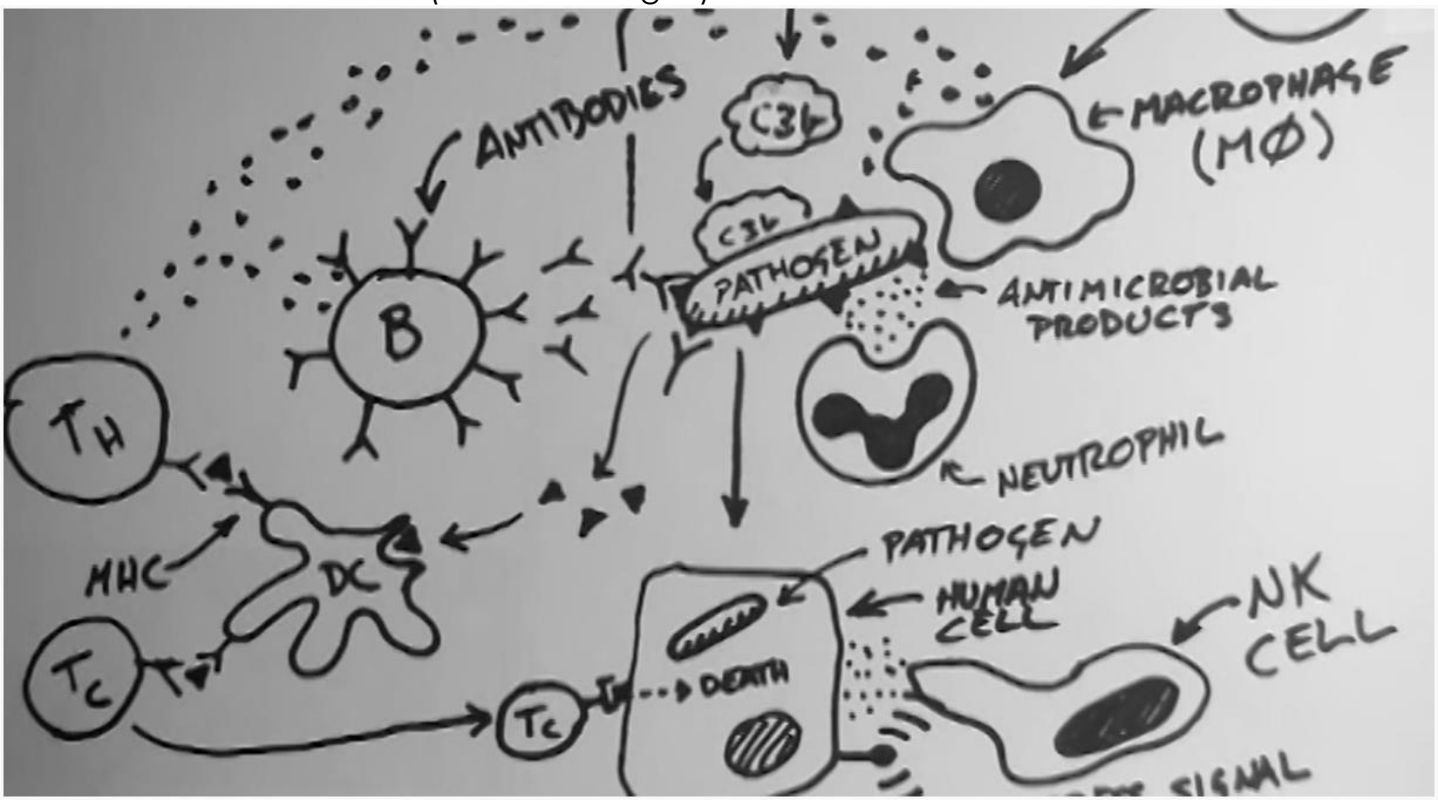
- This helps isolate the foreign substance from further contact with body tissues.

The body also has another defense mechanism called an interferon response.

- Cells produce a substance that interferes with the ability of viruses to reproduce.

Your Bodies 3rd Line of Defense.

- The War Within (The Battle Begins)



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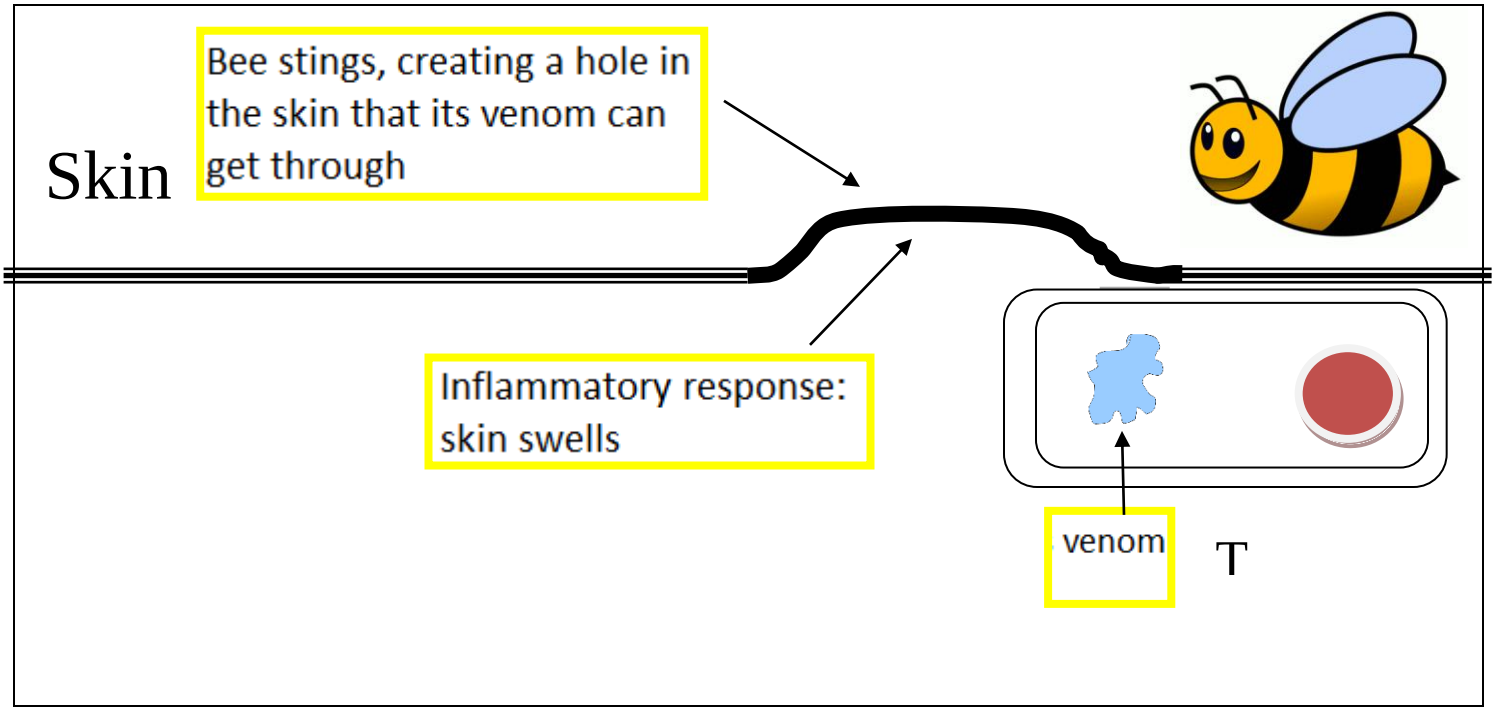
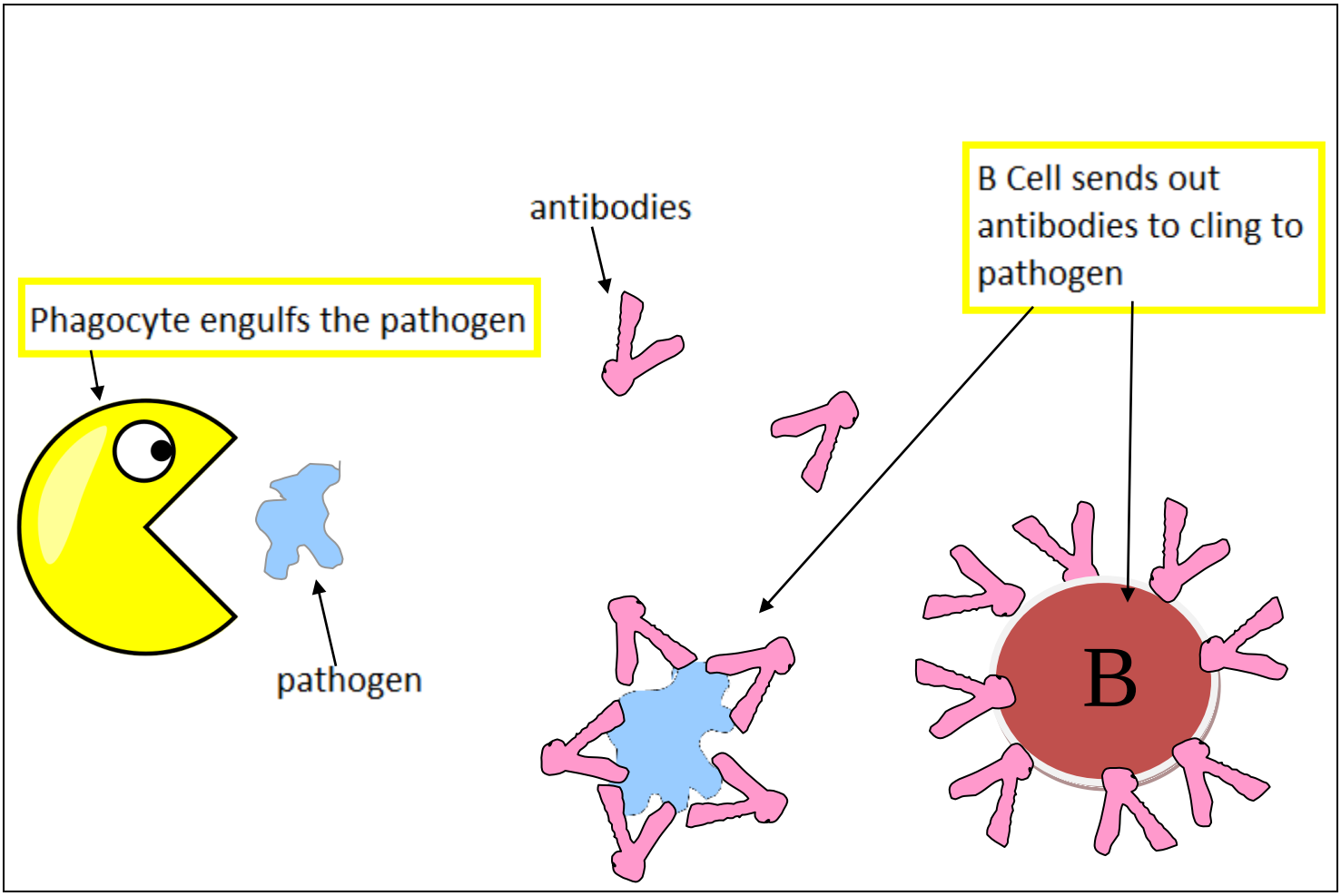
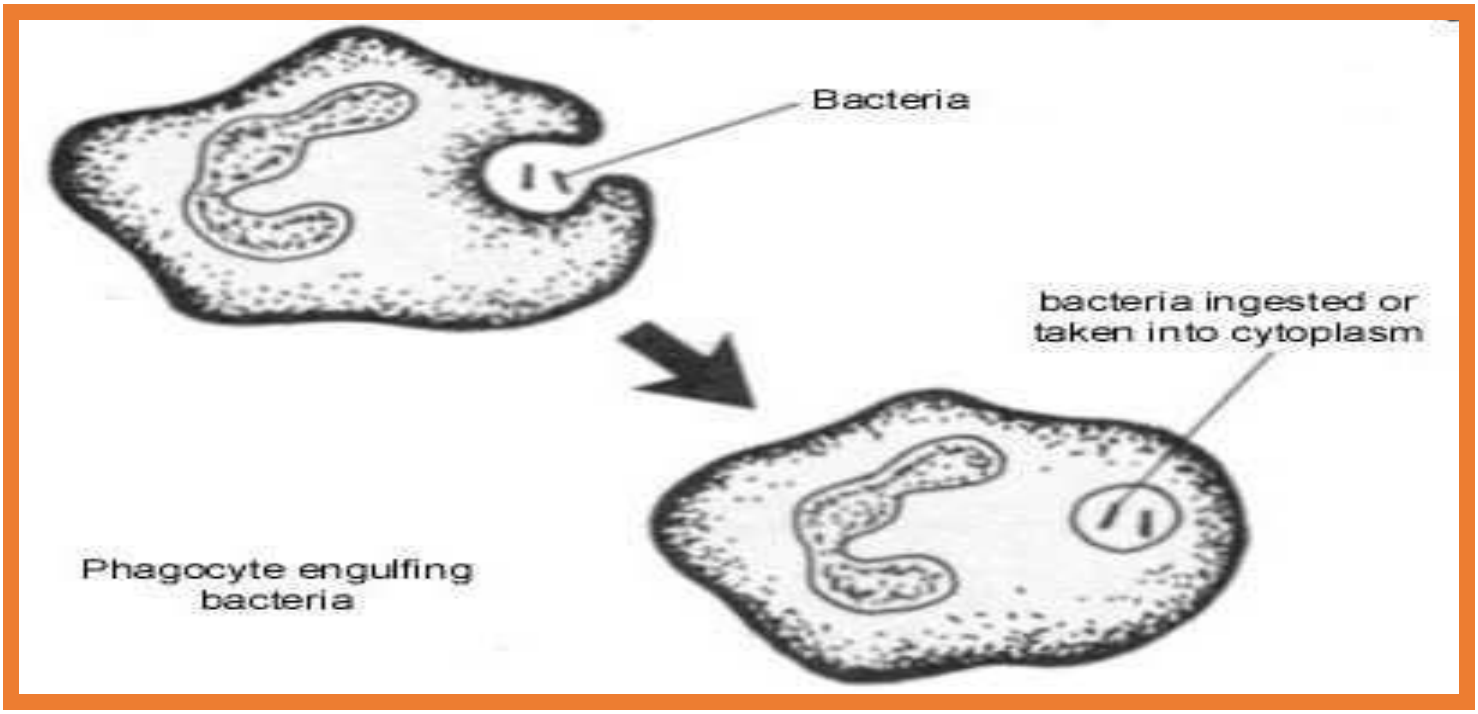




Anaphylaxis is a severe allergic reaction that occurs rapidly and causes a life-threatening response involving the whole body. This reaction can lead to difficulty breathing, shock, and ultimately death if untreated.

3rd Line of Defense

- Interleukins: These tell the body it's under attack.
  - These give you the aches and pains. "Time to rest!" (Warning System)
- Leukocytes: White blood cells (made in bone marrow)
  - Phagocytes: Cells that engulf invaders.



- Lymphocytes: Cells that remember the invaders and help the body destroy them if they come back.
    - B-Cells
    - T-Cells

Dendritic Cells: These cells function to obtain antigen in tissues, they then migrate to lymphoid organs and activate T cells.

When an antibody encounters a specific antigen (invader) it changes shape (activates) and binds to it.

T Y

    - Antibodies cling to virus making it difficult to attach to cell.
- Immunity: Your immune system is now familiar with the invaders and can summon antibodies quickly.

Part 4 Lesson 3 An Inside Look at the Flu. Vaccines

- Video! An Inside Look at the Flu
- Complete this question as you watch the video on your bundled homework.
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An Inside Look at the Flu

Describe symptoms of a sickness such as the flu, and the reasons for that symptom based on your immune system response.

Why do you…

-Get the aches and pains.
-Get a fever.
-Get a headache.
-Cough
-have a sore throat

Immune response

- Sore throat and cough: first line of defense kills cells non-discriminately, so it kills healthy cells too.
- Aches and pains: caused by interleukins.
- Fever: also caused by interleukins in order to destroy optimal breeding temps for the virus.
- Headache: A result of the increased temperature, as the blood vessels in her head swelled.

Immunity can be active, or passive.

Vaccine: A suspension of weakened or dead pathogenic cells are injected in order to stimulate the production of antibodies and boost immunity.

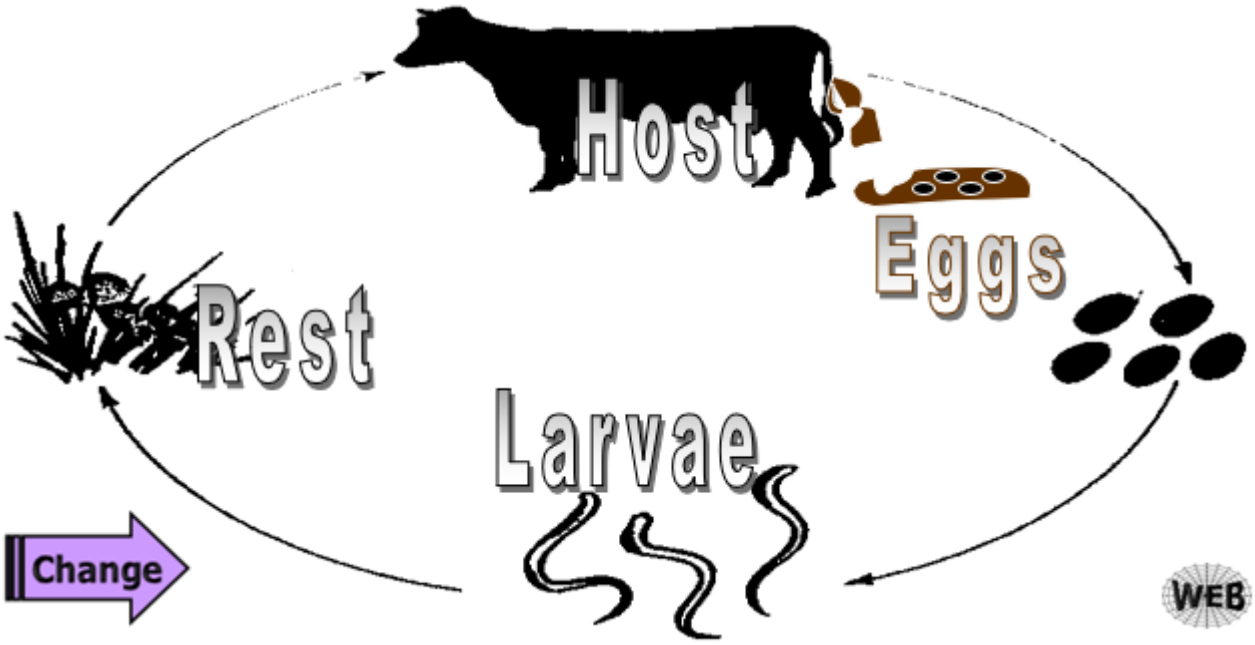
Virus prevention

- Minimize contact with reservoir animal (birds, mice, etc.)
- Minimize person to person contact

Part 4 Lesson 4 Parasites

Parasitism: One organism benefits while the other is harmed.

Most parasites have very complicated life cycles, often going through a number of different species before finding a host. Complete the diagram below as shown in slideshow.



Parasites damage their host by consuming tissues, and releasing toxins.

Two general types of parasites

Endoparasites: Inside your body.
Ectoparasites: Outside your body.

Which is ectoparasite and which is the endoparasite?

Describe and sketch some parasites in the notebook below

Part 4 Lesson 5 Parasite Project

Sea Lamprey

(scientific name in latin): *Petromyzon marinus*; other aliases: great sea lamprey, lake lamprey, lamprey, lamprey eel

Home Land (origination): Coastal regions of Atlantic Ocean. Locally found on east coast of United States and Canada.
Arrival Date: 1936 they were discovered in Lake Michigan.
How to Identify: Sea lampreys are members of an ancient family of Agnatha or "jawless fishes" that were around before the time of the dinosaurs. They are 12-20 inches long and eel-like. They have dark brown to black backs and light yellow to pale brown bellies. Look for a feathery fin from their midsection down and under the tail. Their mouth is circular with circular rows of teeth. They have large reddish eyes.
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Evidence: Lampreys attach themselves to other fish and suck on their blood and body fluids. They leave rounded scars on the fish. When they first arrived on the Great Lakes scene, they killed large numbers of predatory sport fish. People began to notice the lack of large fish and the scars on others. Lampreys preyed on whitefish, lake trout and chub populations in lakes Superior and Michigan. The lamprey invasion made it hard on the people who fished the Great Lakes to make a living.
One sea lamprey can upset an ecosystem and food chain by eating an estimated 40 pounds of fish or more in its lifetime. Multiply that times 22,000 lamprey found in just one river and you have a lot of dead fish. Because of lower large fish populations, small fish, like the alewife, were able to increase in numbers. Alewives are also invader species which compete with native fish for food and habitat.

Invaded Territory: The Great Lakes and clear, cold streams throughout the Great Lakes region. Construction and improvements on the Erie and Welland Canal (between Lake Ontario and Lake Erie) around 1921 allowed sea lampreys to get through the canal to the next lake.
Here's a list of their arrival dates in each lake:

- Lake Erie, 1921
- Lake Huron, 1932
- Lake Ontario, 1935
- Lake Michigan, 1936
- Lake Superior, 1938

Sea lampreys will lay over 100,000 eggs when spawning, much more than the native lamprey species.
Extermination Techniques: Lampricides (poison) was first used in the late 1950s to kill larval lampreys. The chemical was not harmful to humans and didn't effect many plants, invertebrates, fish or waterfowl populations. The chemical worked, but it was costly and did kill some young fish. In 1958 biologists estimated that the Brule River in Wisconsin produced over 22,000 lampreys each year. The Great Lakes Fishery Commission said that this

population made up 30-50 percent of all the lampreys captured on American tributaries. Something had to be done!
In 1986, DNR fish managers, technicians and engineers designed a new lamprey barrier which let fish migrate through to spawn, but captured the lamprey. On that first day, 2,000 lamprey were caught! The new barrier was expected to reduce the number of lamprey above the barrier to nearly zero. Today, biologists are still looking for ways to stop the spread of lampreys in lakes, streams, and rivers. The lamprey population is under control, but they are still a threat to aquatic ecosystems. Several million dollars are spent each year on these control methods. Native predatory fish, like the whitefish and lake trout, have been restocked by fisheries professionals to help maintain a healthy level of these species.

1) Why is the Sea Lamprey bad for the Great Lakes?

They can eat an estimated 40 pounds or more of fish in their lifetime, which upsets the ecosystem by killing off large fish and allows smaller fish, including Alewives, to thrive. Alewives are an invasive species that compete with native fish for food and resources.

2) How did the Sea Lamprey make it to the Great Lakes?

Sea Lampreys got to the Great Lakes through the Erie and Welland Canals, which were going through construction improvements.

3) Why are Sea Lampreys bad for people?

Sea Lampreys are bad for people because their feeding habits (an estimated 40+ pounds of fish in their lifetime) were making it hard for fishermen to make a living on the Great Lakes. The Sea Lampreys were decreasing the large sport fish populations.

4) Why is the Sea Lamprey a difficult species to control?

It's a difficult species to control because there are many, many Sea Lampreys—scientists estimated that a certain river in Wisconsin produced over 22,000 every year. In addition, lampricides, first used in the 1950's, was an effective but costly chemical that killed some young fish, so it wasn't the best solution.

5) What is being done to control the spread of the Sea Lamprey?

Scientists first tried using lampricides, an effective but costly chemical, but in 1986 a new method was revealed: a lamprey barrier, which allowed fish to swim through to spawn but caught lamprey. The barrier has been effective and the population of Sea Lamprey is under control.

Perfect Parasite PowerPoint Preparation Page

Please investigate three parasites. Make a quick sketch and add a description in the boxes below.

Common Name of parasite chosen:_____

Science Name of parasite chosen:_____

How is this parasite transmitted? / How do you get it?_____

_____

_____

Website: Author: Year:

What are the health effects / symptoms?

Website: Author: Year:

What treatments are available?

Website: Author: Year:

What is the life cycle of this parasite?

Website: Author: Year:

Please draw and describe some info about parasites from the student PowerPoint presentations or teacher slideshow.

Part 4 Lesson 6 Diseases and Wrap-Up

Diseases can be spread by…

- Insects
  - Lyme disease: Caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged ticks.

Which is a deer tick (Carries Lyme Disease) and which is a Wood Tick

The one on the left is a Deer Tick	The One on the Right is a Wood or Dog Tick

Diseases can be spread by…

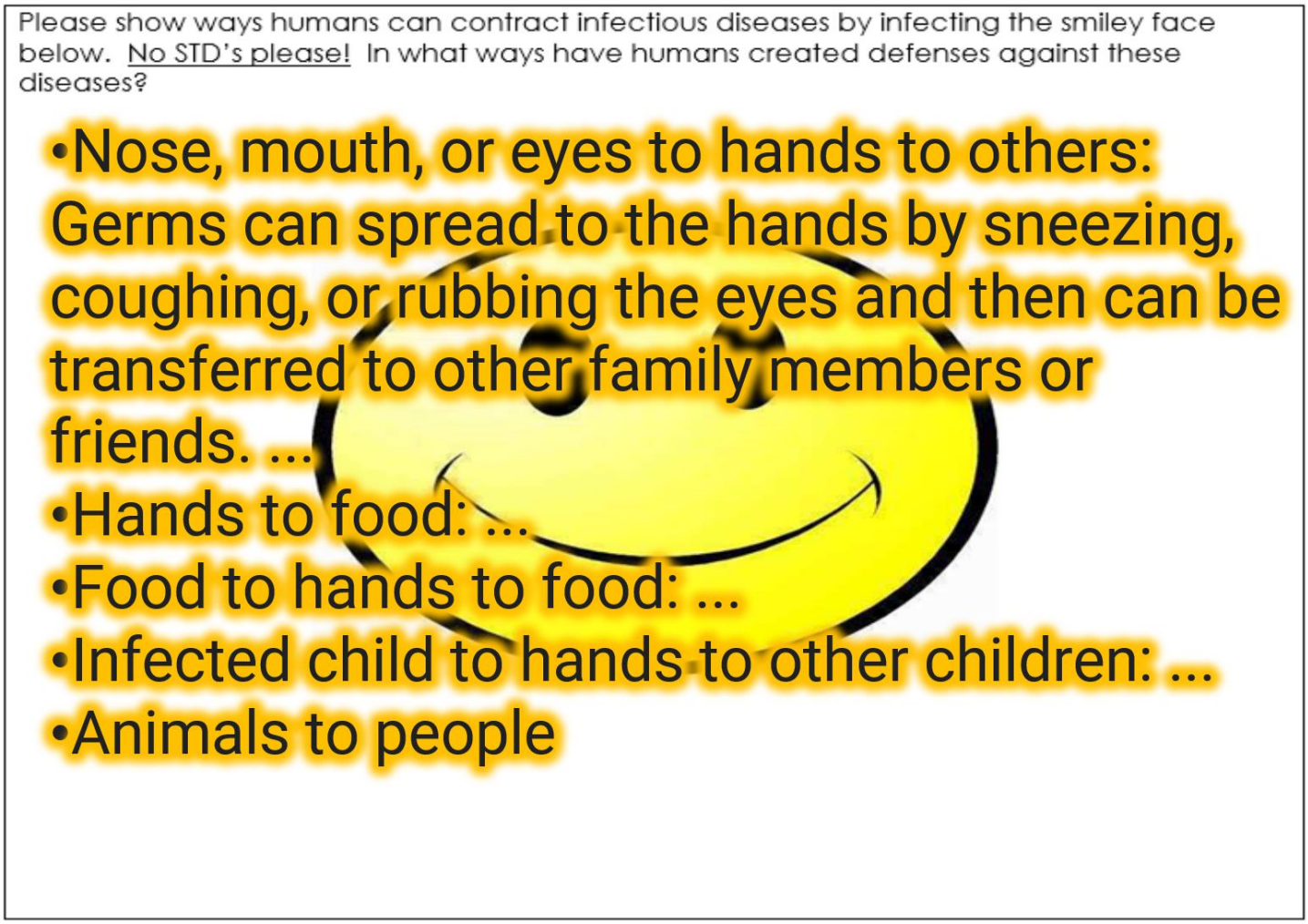
- Insects
- Air
- Water
- Food
- Person to Person
- Animal to Person

Hantavirus: A deadly virus found on the feces of mice. Avoid close contact (airborne as well) with these droppings.

Rabies: A deadly virus spread to people from the saliva of infected animals. Rabies is usually spread through an animal bite. Animals most likely to spread rabies include dogs, bats, coyotes, foxes, skunks, and raccoons.

Symptoms include fever, headache, excess salivation, muscle spasms, paralysis, and mental confusion. Seek immediate medical attention after a bite or suspected bite. There is no specific treatment for rabies. Once symptoms appear, it's nearly always fatal. A vaccine can prevent infection.

Please show ways humans can contract infectious diseases by infecting the smiley face below. No STD's please! In what ways have humans created defenses against these diseases?



Across

1. Joseph _____ (1827-1912) -Changed the 50% death rate of early surgeries. -He realized that microbes (small organisms) were to blame for high post surgery death rates. -Pioneered the use of antiseptic and cleanliness. (Carbolic Acid Sprayer)
4. _____ is a severe allergic reaction that occurs rapidly and causes a life-threatening response involving the whole body.
6. _____ Cells: These cells function to obtain antigen in tissues, they then migrate to lymphoid organs and activate T cells.
9. _____ system: A system that protects the body from diseases. It's a complex network of cells, tissues, organs, and the substances they make that helps the body fight infections and other diseases.
10. Large specialized cells that engulf invaders.
12. I_____: Your immune system is now familiar with the invaders and can summon antibodies quickly.

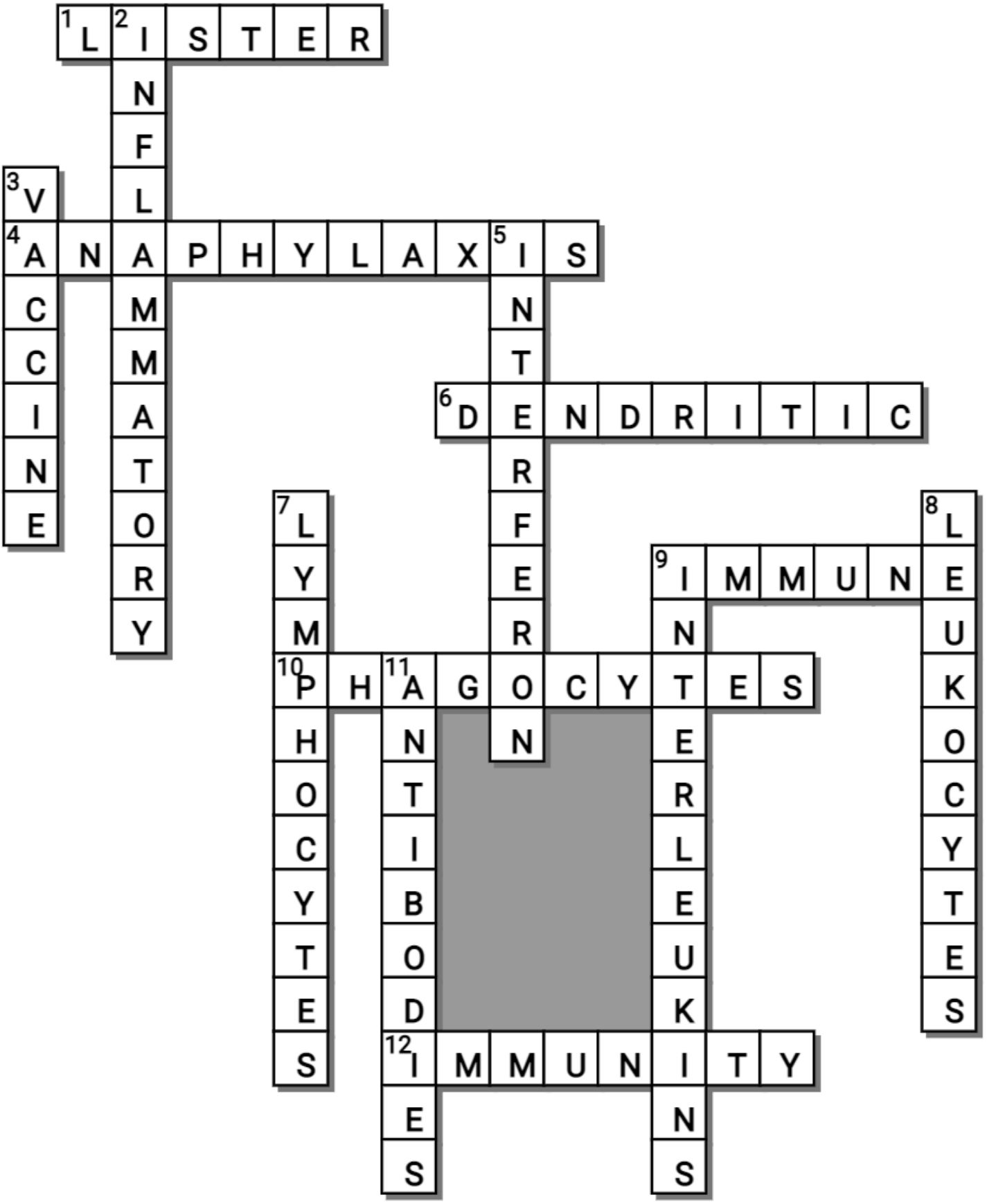
Down

2. The Second Line of Defense. The _____ response: Damaged cells release chemicals.
3. A suspension of weakened or dead pathogenic cells are injected in order to stimulate the production of antibodies and boost immunity
5. The body also has another defense mechanism called and _____ response. – Cells produce a substance that interferes with the ability of viruses to reproduce.
7. Cells that remember the invaders and help the body destroy them if they come back.
8. White blood cells (made in bone marrow)
9. These tell the body it's under attack. – These give you the aches and pains. "Time to rest!" (Warning System)
11. These proteins can cling to virus making it difficult to attach to cell.

----------teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

ANAPHYLAXIS, ANTIBODIES, DENDRITIC, IMMUNE, IMMUNITY, INTERLEUKINS, LEUKOCYTES, LISTER, LYMPHOCYTES, PHAGOCYTES, VACCINE, INFLAMMATORY, INTERFERON


1 L 2 I S T E R
N
F
3 V L
4 A N A P H Y L A X 5 I S
C M N
C M T
I A 6 D E N D R I T I C
N T R
E O F 7 L 8 L
R E Y E 9 I M M U N E
Y R M R N U
10 P H 11 A G O C Y T E S K
H N N E O
O T R C
C I L Y
Y B E T
T O U E
E D K S
S 12 I M M U N I T Y
E N
S S

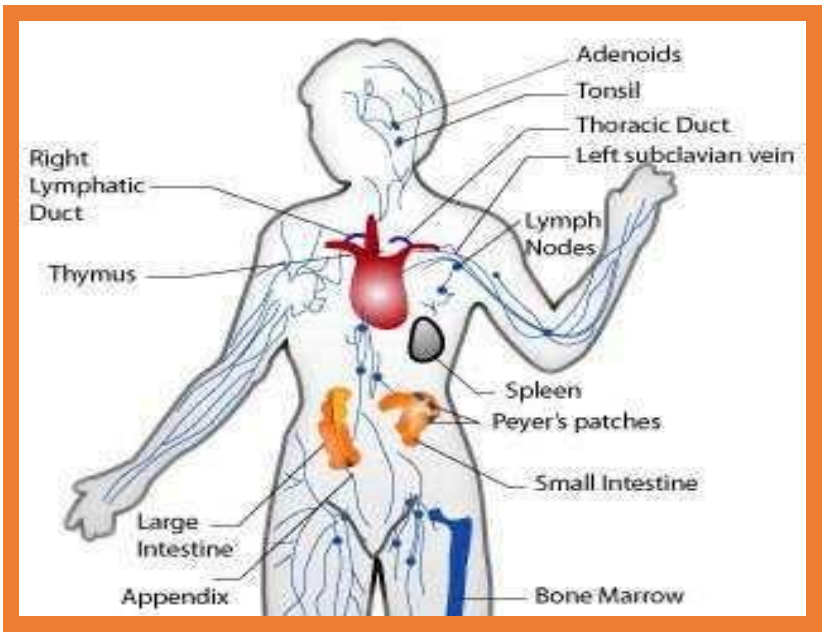
Part 4 Review Game Lesson 4

Name:

1-10 = 10 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

DIPLOMATIC IMMUNITY	FIGHT BACT	FAMOUS PARASITES Bonus round 1 pt each
1) D: Joseph Lister	6) Inflammatory response	*11) The Tick
2) B: Pancreatic juices	7) Lymphocytes	*12) The Worm
3) Viruses, bacteria, parasites	8) Lymph	*13) Hotel Transylvania
4) Skin	9) Macrophage "phagocyte"	*14) Kong: Skull Island
5) Friend from foe	10) Dendritic	*15) The Mandalorian



Final Question Wager ___ /5 Answer: