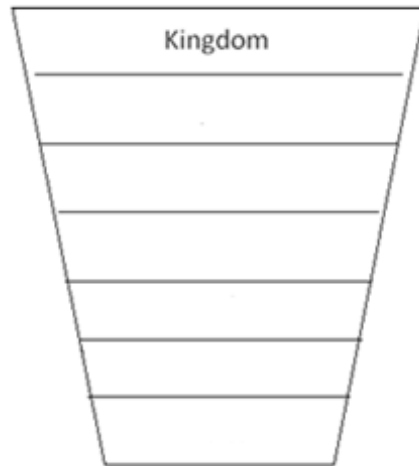


## Classification Review

**YOU NEED TO BE ABLE TO DO THESE QUESTIONS WITHOUT LOOKING AT YOUR NOTES**

1. Fill in the blanks



2. fill in the chart for the Five Kingdoms

	<b>Prokaryote</b> (simple cell) <b>or</b> <b>Eukaryote</b> (complex cells)	<b>Unicellular</b> (one cell) <b>or</b> <b>Multicellular</b> (lots of cells)	<b>Autotrophic</b> (makes own food) <b>or</b> <b>Heterotrophic</b> (eats other things for food)	<b>Examples</b>
<b>Kingdom Monera</b>				
<b>Kingdom Protista</b>				
<b>Kingdom Fungi</b>				
<b>Kingdom Plantae</b>				
<b>Kingdom Animalia</b>				

3. What are the **TWO** main way(s) that organisms are classified is based on:

1.

2.

**Multiple Choice: Please circle the correct answer**

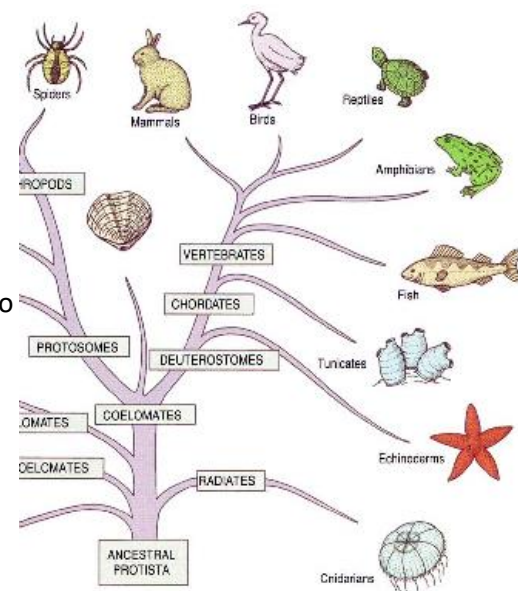
- In which of the following are the classification categories arranged in increasing order (**smallest to largest**):
  - phylum, class, order, family
  - species, genus, order, class
  - order, family, species, genus
  - phylum, class, family, order
- A timber wolf would have the **least in common** with:
  - another organism from the same **Class**
  - another organism from the same **Phylum**
  - another organism from the same **Family**
  - another organism from the same **Genus**
- Which of these categories of classification contains organisms that are **least alike**?
  - class
  - family
  - genus
  - order
- As you proceed **from kingdom to species**, the organisms grouped together share:
  - different characteristics
  - fewer (less) characteristics
  - less important characteristics
  - more characteristics

- If you know that the **FIRST NAME** of two organisms is the same, you know that these organisms are in the same:
  - class
  - family
  - genus
  - order
- Which of the following categories includes the **fewest number of different kinds** of organisms?
  - genus
  - family
  - phylum
  - class
- Usually the members of a phylum of organisms have **more in common** than the members of a
  - genus
  - order
  - class
  - kingdom
- Which of the following is **not** one of the 5 kingdoms?
  - fungi
  - protists
  - viruses
  - plants

The **NEXT THREE QUESTIONS** are based on the following chart showing the classification of four organisms.

	Dandelion	Dog	Wolf	Human
Kingdom	Plantae	Animalia	Animalia	Animalia
Phylum	Tracheophyta	Chordata	Chordata	Chordata
Class	Angiospermae	Mammalia	Mammalia	Mammalia
Order	Asterales	Carnivora	Carnivora	Primates
Family	Compositae	Canidae	Canidae	Hominidae
Genus	<i>Taraxacum</i>	<i>Canis</i>	<i>Canis</i>	<i>Homo</i>
Species	<i>officinale</i>	<i>familiaris</i>	<i>lupus</i>	<i>sapiens</i>

- All three animals** listed in this chart:
  - are in the same family
  - eat mainly meat
  - have mammary glands
- The two animals **most closely related** are the:
  - dog and wolf
  - dog and human
  - wolf and human
- The organism **least closely related** to the others is the:
  - dandelion
  - dog
  - wolf
  - human
- An organism's scientific name is *Mediterranean crassa*. What is its **species name**?
  - Mediterranean
  - both of these designate the genus
  - crassa
  - neither designate the genus
- Two animals are probably of the **same species** if:
  - they resemble each other
  - they can interbreed
  - they have similar characteristics
  - they resemble their ancestors
- Dichotomous keys:
  - provide the user with a fail-safe identification method
  - provide the user with two choices to help identify an organism
  - use physical features and habitat information to guide the user
  - provide the user with every possible organism in the world
- According to the picture to the right, echinoderms are most closely related to
  - tunicates
  - fish
  - amphibians
  - reptiles
- According to the picture to the right, fish are most closely related to
  - mammals
  - amphibians
  - echinoderms
  - reptiles
- Members of the same kingdom
  - look very similar
  - look very different
  - can look similar or different
  - you can't see them



**BE ABLE TO KEY OUT ORGANISMS USING A DICHOTOMOUS KEY**

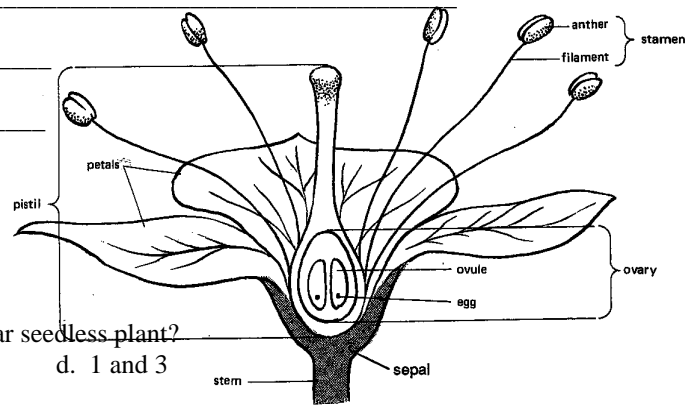
## **Bacteria Review**

1. Monera is the **only kingdom** that is prokaryotic. What does **prokaryotic** mean?
  - a. deadly cells
  - b. cells which **have** a nucleus and other membrane bound organelles
  - c. helpful cells
  - d. cells which **don't have** a nucleus and other membrane bound organelles
2. **Our bodies** fight germs with special chemicals called:
  - a. vaccines
  - b. bacteria
  - c. viruses
  - d. antibodies
3. **Rod** shaped bacteria are called :
  - a. rodilli
  - b. cocci
  - c. bacilli
  - d. spirilli
4. **Sphere** shaped bacteria are called :
  - a. rodilli
  - b. cocci
  - c. bacilli
  - d. spirilli
5. **Spiral** shaped bacteria are called :
  - a. rodilli
  - b. cocci
  - c. bacilli
  - d. spirilli
6. What is a **flagella**?
  - a. type of cell wall
  - b. slime-like coating
  - c. whip-like tail
  - d. hook-like claw
7. Humans identify that **bacteria as a group are**:
  - a. harmful only
  - b. both harmful and helpful
  - c. helpful only
  - d. neither harmful nor helpful
8. Which of the following does **NOT** cause diseases?
  - a. over-cooking your food
  - b. infections
  - c. eating unhealthy
  - d. inheriting from parents
  - e. your environment
9. Most **germs enter through**: All of the following
  - a. eyes
  - b. ears
  - c. mouth
10. Diseases are **passed from person to person** by:
  - a. All of the following
  - b. Air or water
  - c. Touching things or people
  - d. Disease-carrying organisms
11. The best way to **prevent getting sick** is:
  - a. Take antibiotics often
  - b. Wash your hands
  - c. Stay away from people
  - d. Use lots of antibacterial products
12. You "catch" a disease. A year later, most students in your class get that same disease, but you do not get it again. Which best explains **why you do not get the disease again**?
  - a. You willed the disease away because you had an exam coming up
  - b. Diseases aren't passed on in schools
  - c. You had been eating lots of junk food
  - d. The immune system has a memory
13. **Resistance** means:
  - a. Your ability to fight off a disease
  - b. Your ability to fight off antibiotics
  - c. Your ability to fight off cleanliness
  - d. Your ability to fight off the police
14. When you are **injected with dead or weakened pathogens (diseases)** in order to cause an artificial immune response, it is called a(n)
  - a. antibody
  - b. vaccine
  - c. bacteriophage
  - d. prophage
15. If you feel better after a few days, **should you finish** taking an antibiotic prescription?
  - a. No, taking too many antibiotics can harm your immune system.
  - b. No, taking too many antibiotics selects for the antibiotic resistant bacteria.
  - c. Yes, most bacteria are not killed until the last day of taking an antibiotic prescription.
  - d. Yes, not finishing your antibiotic prescription kills the weakest bacteria, leaving only the strongest behind increasing the chances of the bacteria becoming resistant to that antibiotic.

## Plant Review

- Plants are (circle all which apply):  
 autotrophic                      heterotrophic                      unicellular                      multicellular
- Chlorophyll is the substance in a plant that: \_\_\_\_\_
- Roots are important plant structures because they \_\_\_\_\_.
- Leaves are important plant structures because they \_\_\_\_\_.
- What are the four things that vascular plants have?
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- What kind of gas do plants take in? \_\_\_\_\_
- What kind of gas do plants release? \_\_\_\_\_
- What is the food making process of plants called? \_\_\_\_\_
- In the special process that plants perform what 2 substances are produced?
  - \_\_\_\_\_
  - \_\_\_\_\_
- The energy-producing process in living things is called? \_\_\_\_\_

- What is the male part of a flower called? \_\_\_\_\_
- What is the female part of a flower called? \_\_\_\_\_
- In a flowering plant, a fertilized flower turns into a  
 \_\_\_\_\_ covered by a \_\_\_\_\_.



**NOTE: Xylem and Phloem are connecting tubes in a plant**

- Look at **PICTURE 1** and state which of these is a vascular seedless plant?
  - 1
  - 2
  - 3
  - 1 and 3
- Look at **PICTURE 2** and state which of these is a flowering seedbearing plant?
  - 1
  - 2
  - 3
  - 2 and 3
- Look at **PICTURE 3** and state which of these is a non-vascular seedless plant?
  - 1
  - 2
  - 3
  - 1 and 3
- Look at **PICTURE 3** and state which of these is a non-flowering seedbearing plant?
  - 1
  - 2
  - 3
  - 2 and 3

Picture 1

<b>1. Horsetails</b> Has xylem and phloem Contains silica in stems Has spores	
<b>2. Ginkgo tree</b> Has xylem and phloem Have separate male and female trees Produce seeds	
<b>3. Moss</b> Does not have xylem and phloem Has spores Lives in moist areas	

Picture 2

<b>1. Cherry tree</b> Has xylem and phloem Has an edible fruit Has a woody stem	
<b>2. Pine tree</b> Has xylem and phloem Produces male and female cones Can grow very tall	
<b>3. Moss</b> Does not have xylem and phloem Has spores Lives in moist areas	

Picture 3

<b>1. Fern</b> Has xylem and phloem Has spores Has rhizomes	
<b>2. Pine tree</b> Has xylem and phloem Has cones Can grow very tall	
<b>3. Moss</b> Lacks xylem and phloem Has spores Has rhizoids	

## Animal Review

1. List the four characteristics of an animal:

Use your **Classification of Invertebrates Chart** to answer the following questions:



Figure A



Figure B

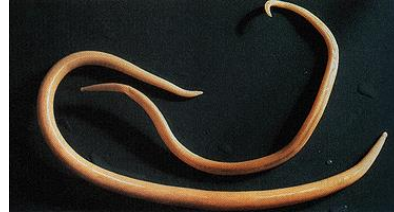


Figure C



Figure D



Figure E



Figure F



Figure G



Figure H

2. Which is a flatworm?

A B C D E F G H

3. Which animal has a hard outer covering?

A B C D E F G H

4. Which animal lives mostly attached to objects on the ocean floor?

A B C D E F G H

5. Which animal has an internal skeleton made up of spines?

A B C D E F G H

6. Which animal has many tentacles?

A B C D E F G H

7. Which animal has a long, tubelike body that is divided into segments?

A B C D E F G H

8. Which of the animals shown is the simplest organism with a well-developed nervous system?

A B C D E F G H

9. Which animal is a cnidarian?

A B C D E F G H

Use your **Arthropods Chart** to answer the following questions:

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

**Column A**

- \_\_\_\_\_ 11. Arachnids
- \_\_\_\_\_ 12. Centipedes
- \_\_\_\_\_ 13. Millipedes
- \_\_\_\_\_ 14. Insects
- \_\_\_\_\_ 15. Crustaceans

**Column B**

- a) have two pairs of legs on each segment
- b) have two body sections
- c) have flat bodies with segments
- d) have two main body parts
- e) some have wings

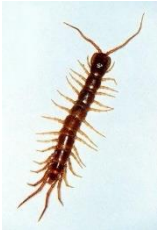


Figure I



Figure J



Figure K



Figure L  
Lowwater shrimp



Figure M

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 16. Which organism belongs to the group crustaceans? | I | J | K | L | M |
| 17. Which organism belongs to the group arachnids?   | I | J | K | L | M |
| 18. Which organism belongs to the group millipedes?  | I | J | K | L | M |
| 19. Which organism belongs to the group centipedes?  | I | J | K | L | M |
| 20. Which organism belongs to the group insects?     | I | J | K | L | M |

**Use your Classification of Vertebrates Chart to answer the following questions:**

21. Which are the only vertebrates that have hair?

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

22. Which are the only vertebrates that have lightweight bones?

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

23. Which are the only vertebrates that can breathe with gills **and** with lungs?

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

24. Which are the only vertebrates that nurse their babies?

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

25. Which vertebrates are warm-blooded? (Choose **MORE THAN ONE**)

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

26. Which vertebrates are cold-blooded? (Choose **MORE THAN ONE**)

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

27. Which vertebrates breathe **only** in water through gills?

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

28. Which vertebrates have internal fertilization? (Choose **MORE THAN ONE**)

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

29. Which vertebrates have external fertilization? (Choose **MORE THAN ONE**)

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

30. Which groups of vertebrates have a backbone? (Choose **MORE THAN ONE**)

Fish	Amphibians	Reptiles	Birds	Mammals
------	------------	----------	-------	---------

31. What do mammary glands secrete?

## Relationships Review

Predation (+,-)	Parasitism (+,-)	Competition (-, -)	Neutralism (0, 0)
Commensalism (0, +)	Mutualism (+, +)	Amensalism (0, -)	

- Predation is how \_\_\_\_\_ is transferred through a \_\_\_\_\_.
- It involves a predator, the organism doing the \_\_\_\_\_ and a prey, the organism that is \_\_\_\_\_.
- The success of a predator depends on its ability to  
1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_
- Two species or two individuals of the same species fight for something in short supply. The relationship described here is: a. predation b. competition c. commensalism d. amensalism e. mutualism
- One organism is benefited and the other is unaffected. The relationship described here is:  
a. predation b. competition c. commensalism d. amensalism e. mutualism
- Organisms of different species that don't have much to do with each other. The relationship described is:  
a. predation b. parasitism c. commensalism d. amensalism e. neutralism
- Both organisms of species benefit. The relationship described here is:  
a. predation b. parasitism c. commensalism d. amensalism e. mutualism
- One population harms the other while remaining unaffected itself. The relationship described here is:  
a. predation b. parasitism c. commensalism d. amensalism e. mutualism
- One organisms gains energy from another and usually **does not kill** the other organism. The relationship described here is:  
a. predation b. parasitism c. commensalism d. amensalism e. mutualism
- The gopher and the antelope live near one another in the Saskatchewan prairies and for the most part, put up with each other's presence with no effect. This relationship could best be described as:  
a. neutralism b. commensalism c. amensalism d. mutualism e. parasitism
- The pig tapeworm has two hosts (the definitive host the human and an alternate host, the pig). The tapeworm cannot survive on its own. Which term **best** describes the tapeworm?  
a. producer b. parasite c. predator d. prey e. host
- The scientific name for the organism from which a parasite obtains nutrients.  
a. producer b. parasite c. predator d. prey e. host
- The scientific name for the organism which lives on or in another organism to obtain nutrients.  
a. carnivore b. parasite c. predator d. prey e. host
- An epiphyte is an air plant which makes its own food but grows upon another living plant (that itself is unaffected) for support. This relationship could best be described as:  
a. neutralism b. commensalism c. amensalism d. mutualism e. parasitism
- As you complete this review, head lice could be sucking the blood from your scalp (feel free to scratch that itch you now feel on your scalp). The head lice could best be described as:  
a. producer b. parasite c. predator d. prey e. host
- A cow has a good digestive system because of the bacteria in it that eat food from the stomach and help digest the food, particularly in the fore stomachs. The relationship between the cow and the bacteria in it could best be described as: a. neutralism b. commensalism c. amensalism d. mutualism e. parasitism

17. The koala bear only eats Eucalyptus leaves. Some say it eats so many leaves, it smells like the leaves. The koala will eat 2.5 pounds of food a day. The relationship between the koala and the eucalyptus tree could best be described as:
- a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism
18. Lynx and bobcat, both found in North America, both hunt rabbit. The relationship between the lynx and the bobcat could best be described as:
- a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism
19. The roots of the black walnut contain a chemical called juglone that kills the roots of other plants that touch the roots of black walnut trees. The relationship between the black walnut and the evergreens could best be described as:
- a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism

**Short Answer**

20. Predator/Prey Adaptations

- 1) List 3 **predator adaptations** that we discussed or that you have seen in a video this year. **Be sure you are listing adaptations and not hunting strategies.** For example, both stalking and pack hunting are strategies not adaptations.
- 2) Provide an example species for each adaptation. The example species must be **known** to benefit from that adaptation. For example, do not use speed for a turtle.
- 3) Describe **specifically** how the adaptation allows the predator to be successful (**find, capture or kill**).

Predator Adaptations	Example Species	How the Predator Benefits (Find, Capture or Kill)		
		Find	Capture	Kill
		Find	Capture	Kill
		Find	Capture	Kill
		Find	Capture	Kill

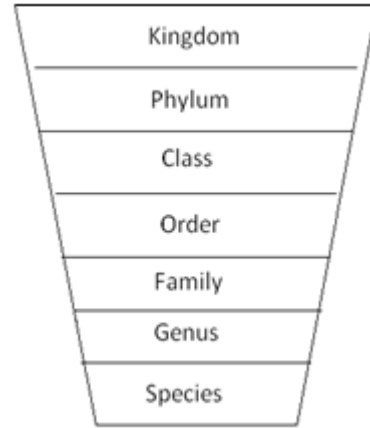
- 1) List 3 **prey adaptations** that you have seen in a video this year. **Be sure you are listing adaptations and not prey strategies.** For example, both flocking and schooling are strategies, not adaptations.
- 2) Provide an example species for each adaptation. The example species must be **known** to benefit from that adaptation. For example, do not use speed for a turtle.
- 3) Choose the answer that best describes how the adaptation allows the prey to be successful (avoid being **found, captured or killed**).

Prey Adaptations	Example Species	How the Prey Benefits (Avoid being Found, Captured or Killed)		
		avoid being found	avoid capture	avoid being killed
		avoid being found	avoid capture	avoid being killed
		avoid being found	avoid capture	avoid being killed
		avoid being found	avoid capture	avoid being killed



**Classification KEY**

1. WITHOUT LOOKING AT YOUR NOTES, fill in the blanks



2. WITHOUT LOOKING AT YOUR NOTES, fill in the chart for the Five Kingdoms

	<b>Prokaryote</b> (simple cell) or <b>Eukaryote</b> (complex cells)	<b>Unicellular</b> (one cell) or <b>Multicellular</b> (lots of cells)	<b>Autotrophic</b> (makes own food) or <b>Heterotrophic</b> (eats other things for food)	<b>Examples</b>
<b>Kingdom Monera</b>	<b>Prokaryote</b>	<b>unicellular</b>	<b>Mostly heterotrophic (both)</b>	<b>bacteria</b>
<b>Kingdom Protista</b>	<b>Eukaryote</b>	<b>Both</b>	<b>Heterotrophic</b>	<b>Pond organisms</b>
<b>Kingdom Fungi</b>	<b>Eukaryote</b>	<b>Multicellular (except yeast)</b>	<b>Heterotrophic</b>	<b>Mushrooms Yeast</b>
<b>Kingdom Plantae</b>	<b>Eukaryote</b>	<b>Multicellular</b>	<b>Autotrophic</b>	<b>Roses (flowers) Trees</b>
<b>Kingdom Animalia</b>	<b>Eukaryote</b>	<b>Multicellular</b>	<b>Heterotrophic</b>	<b>Humans Bears lizards</b>

3. What are the **TWO** main way(s) that organisms are classified is based on:

1. **structure**
2. **DNA**

**Multiple Choice: Please circle the correct answer**

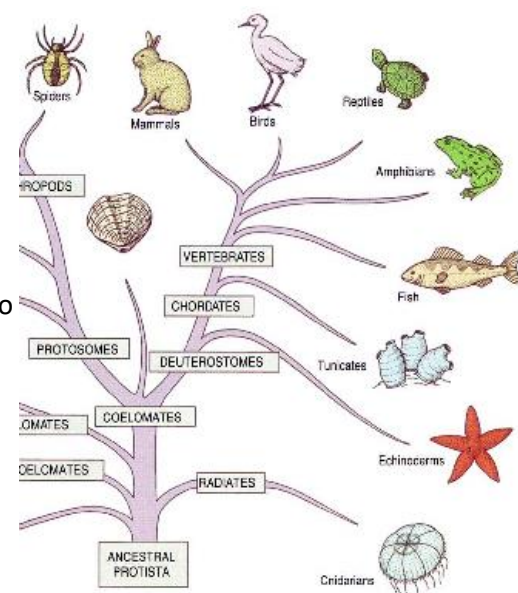
1. In which of the following are the classification categories arranged in increasing order (**smallest to largest**):
  - a. phylum, class, order, family
  - b. **species, genus, order, class**
  - c. order, family, species, genus
  - d. phylum, class, family, order
2. A timber wolf would have the **least in common** with:
  - a. another organism from the same **Class**
  - b. **another organism from the same Phylum**
  - c. another organism from the same **Family**
  - d. another organism from the same **Genus**
3. Which of these categories of classification contains organisms that are **least alike**?
  - a. **class**
  - b. family
  - c. genus
  - d. order
4. As you proceed **from kingdom to species**, the organisms grouped together share:
  - a. different characteristics
  - b. fewer (less) characteristics
  - c. less important characteristics
  - d. **more characteristics**

- If you know that the **FIRST NAME** of two organisms is the same, you know that these organisms are in the same:
  - class
  - family
  - genus
  - order
- Which of the following categories includes the **fewest number of different kinds** of organisms?
  - genus
  - family
  - phylum
  - class
- Usually the members of a phylum of organisms have **more in common** than the members of a
  - genus
  - order
  - class
  - kingdom
- Which of the following is **not** one of the 5 kingdoms?
  - fungi
  - protists
  - viruses
  - plants

The **NEXT THREE QUESTIONS** are based on the following chart showing the classification of four organisms.

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Order	Asterales	Carnivora	Carnivora	Primates
Family	Compositae	Canidae	Canidae	Hominidae
Genus	<i>Taraxacum</i>	<i>Canis</i>	<i>Canis</i>	<i>Homo</i>
Species	<i>officinale</i>	<i>familiaris</i>	<i>lupus</i>	<i>sapiens</i>

- All three animals** listed in this chart:
  - are in the same family
  - eat mainly meat
  - have mammary glands
- The two animals **most closely related** are the:
  - dog and wolf
  - dog and human
  - wolf and human
- The organism **least closely related** to the others is the:
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  - dog
  - wolf
  - human
- An organism's scientific name is *Mediterranean crassa*. What is its **species name**?
  - Mediterranean
  - both of these designate the genus
  - crassa
  - neither designate the genus
- Two animals are probably of the **same species** if:
  - they resemble each other
  - they can interbreed
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  - they resemble their ancestors
- Dichotomous keys:
  - provide the user with a fail-safe identification method
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- According to the picture to the right, echinoderms are most closely related to
  - tunicates
  - fish
  - amphibians
  - reptiles
- According to the picture to the right, fish are most closely related to
  - mammals
  - amphibians
  - echinoderms
  - reptiles
- Members of the same kingdom
  - look very similar
  - look very different
  - can look similar or different
  - you can't see them



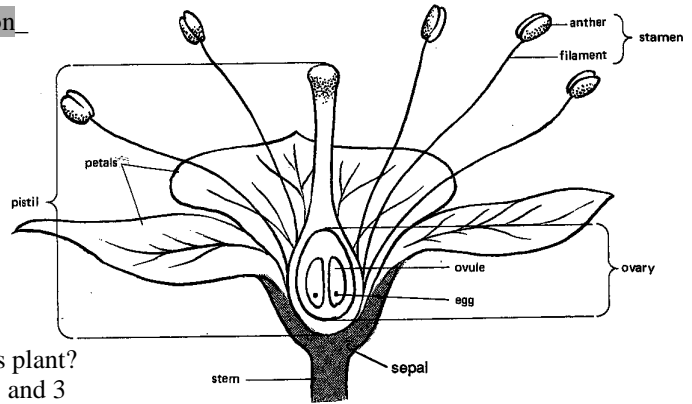
**BE ABLE TO KEY OUT ORGANISMS USING A DICHOTOMOUS KEY**

## Bacteria KEY

- Monera is the **only kingdom** that is prokaryotic. What does **prokaryotic** mean?
  - deadly cells
  - cells which **have** a nucleus and other membrane bound organelles
  - helpful cells
  - cells which **don't have** a nucleus and other membrane bound organelles
- Our bodies fight germs with special chemicals called:
  - vaccines
  - bacteria
  - viruses
  - antibodies**
- Rod** shaped bacteria are called :
  - rodilli
  - cocci
  - bacilli**
  - spirilli
- Sphere** shaped bacteria are called :
  - rodilli
  - cocci**
  - bacilli
  - spirilli
- Spiral** shaped bacteria are called :
  - rodilli
  - cocci
  - bacilli
  - spirilli**
- What is a flagella?
  - type of cell wall
  - slime-like coating
  - whip-like tail**
  - hook-like claw
- Humans identify that **bacteria as a group are**:
  - harmful only
  - both harmful and helpful**
  - helpful only
  - neither harmful nor helpful
- Diseases **can be caused** by all of the following **except**:
  - over-cooking your food**
  - infections
  - eating unhealthy
  - inheriting from parents
  - your environment
- Most germs enter through:
  - All of the following**
  - eyes
  - ears
  - mouth
- Diseases are passed from person to person by:
  - All of the following**
  - Air or water
  - Touching things or people
  - Disease-carrying organisms
- The best way to prevent getting sick is:
  - Take antibiotics often
  - Wash your hands**
  - Stay away from people
  - Use antibacterial cleaning products
- You "catch" a disease. A year later, most students in your class get that same disease, but you do not get it again. Which best explains **why you do not get the disease again**?
  - You willed the disease away because you had an exam coming up
  - Diseases aren't passed on in schools
  - You had been eating lots of junk food
  - The immune system has a memory**
- Resistance means:
  - Your ability to fight off a disease**
  - Your ability to fight off antibiotics
  - Your ability to fight off cleanliness
  - Your ability to fight off the police
- When you are **injected with dead or weakened pathogens (diseases)** in order to cause an artificial immune response, it is called a(n)
  - antibody
  - vaccine**
  - bacteriophage
  - prophage
- If you feel better after a few days, **should you finish** taking an antibiotic prescription?
  - No, taking too many antibiotics can harm your immune system.
  - No, taking too many antibiotics selects for the antibiotic resistant bacteria.
  - Yes, most bacteria are not killed until the last day of taking an antibiotic prescription.
  - Yes, not finishing your antibiotic prescription kills the weakest bacteria, leaving only the strongest behind increasing the chances of the bacteria becoming resistant to that antibiotic.**

# Plant KEY

- Plants are (circle all which apply):  
autotrophic      heterotrophic      unicellular      multicellular
- Chlorophyll is the substance in a plant that: is green and allows plants to photosynthesize
- Roots are important plant structures because they absorb water from the ground.
- Leaves are important plant structures because they allow plants to photosynthesize (collect energy from the sun).
- What are the four things that vascular plants have?  
Roots, stems, leaves, a series of connecting tubes
- What kind of gas do plants take in? carbon dioxide
- What kind of gas do plants release? oxygen
- What is the food making process of plants called? photosynthesis
- In the special process that plants perform plants what 2 substances are produced?  
Oxygen and glucose (food)
- The energy-producing process in living things is called? respiration
- What is the male part of a flower called? stamen
- What is the female part of a flower called? pistil
- In a flowering plant, a fertilized flower turns into a  
seed covered by a fruit



## NOTE: Xylem and Phloem are connecting tubes in a plant

- Look at **PICTURE 1** and state which of these is a vascular seedless plant?  
 a. **1**      b. 2      c. 3      d. 1 and 3
- Look at **PICTURE 2** and state which of these is a flowering seedbearing plant?  
 a. **1**      b. 2      c. 3      d. 2 and 3
- Look at **PICTURE 3** and state which of these is a non-vascular seedless plant?  
 a. 1      b. 2      c. **3**      d. 1 and 3
- Look at **PICTURE 3** and state which of these is a non-flowering seedbearing plant?  
 a. 1      b. **2**      c. 3      d. 2 and 3

Picture 1

1. Horsetails Has xylem and phloem Contains silica in stems Has spores	
2. Ginkgo tree Has xylem and phloem Have separate male and female trees Produce seeds	
3. Moss Does not have xylem and phloem Has spores Lives in moist areas	

Picture 2

1. Cherry tree Has xylem and phloem Has an edible fruit Has a woody stem	
2. Pine tree Has xylem and phloem Produces male and female cones Can grow very tall	
3. Moss Does not have xylem and phloem Has spores Lives in moist areas	

Picture 3

1. Fern Has xylem and phloem Has spores Has rhizomes	
2. Pine tree Has xylem and phloem Has cones Can grow very tall	
3. Moss Lacks xylem and phloem Has spores Has rhizoids	

**Animal Key**

1. List the four characteristics of an animal:

- consist of more than one cell
- consist of cells with organelles
- need to ingest food (are heterotrophic)
- most are mobile (can move)

Use your **Classification of Invertebrates Chart** to answer the following questions:



Figure A



Figure B



Figure C



Figure D



Figure E



Figure F



Figure G



Figure H

2. Which is a flatworm?

- A B C D E **F** G H

3. Which animal has a hard outer covering?

- A** B C D E F G H

4. Which animal lives mostly attached to objects on the ocean floor?

- A **B** C D E F G H

5. Which animal has an internal skeleton made up of spines?

- A B C **D** E F G H

6. Which animal has many tentacles?

- A B C D E F **G** H

7. Which animal has a long, tubelike body that is divided into segments?

- A B C D E F G **H**

8. Which of the animals shown is the simplest organism with a well-developed nervous system?

- A B C D E F G **H**

9. Which animal is a cnidarian?

- A B C D E F **G** H

Use your **Arthropods Chart** to answer the following questions:

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

**Column A**

- b   11. Arachnids
- c   12. Centipedes
- a   13. Millipedes
- e   14. Insects
- d   15. Crustaceans

**Column B**

- a) have two pairs of legs on each segment
- b) have two body sections
- c) have flat bodies with segments
- d) have two main body parts
- e) some have wings



Figure I

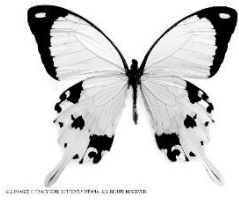


Figure J



Figure K



Figure L  
water shrimp



Figure M

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 16. Which organism belongs to the group crustaceans? | I | J | K | L | M |
| 17. Which organism belongs to the group arachnids?   | I | J | K | L | M |
| 18. Which organism belongs to the group millipedes?  | I | J | K | L | M |
| 19. Which organism belongs to the group centipedes?  | I | J | K | L | M |
| 20. Which organism belongs to the group insects?     | I | J | K | L | M |

Use your Classification of Vertebrates Chart to answer the following questions:

- |   |      |            |          |       |         |
|---|------|------------|----------|-------|---------|
| 21. Which are the only vertebrates that have hair?                                    | Fish | Amphibians | Reptiles | Birds | Mammals |
| 22. Which are the only vertebrates that have lightweight bones?                       | Fish | Amphibians | Reptiles | Birds | Mammals |
| 23. Which are the only vertebrates that can breathe with gills <u>and</u> with lungs? | Fish | Amphibians | Reptiles | Birds | Mammals |
| 24. Which are the only vertebrates that nurse their babies?                           | Fish | Amphibians | Reptiles | Birds | Mammals |
| 25. Which vertebrates are warm-blooded? (Choose <u>MORE THAN ONE</u> )                | Fish | Amphibians | Reptiles | Birds | Mammals |
| 26. Which vertebrates are cold-blooded? (Choose <u>MORE THAN ONE</u> )                | Fish | Amphibians | Reptiles | Birds | Mammals |
| 27. Which vertebrates breathe <u>only</u> in water through gills?                     | Fish | Amphibians | Reptiles | Birds | Mammals |
| 28. Which vertebrates have internal fertilization? (Choose <u>MORE THAN ONE</u> )     | Fish | Amphibians | Reptiles | Birds | Mammals |
| 29. Which vertebrates have external fertilization? (Choose <u>MORE THAN ONE</u> )     | Fish | Amphibians | Reptiles | Birds | Mammals |
| 30. Which groups of vertebrates have a backbone? (Choose <u>MORE THAN ONE</u> )       | Fish | Amphibians | Reptiles | Birds | Mammals |
| 31. What do mammary glands secrete?   | milk |            |          |       |         |

## Relationships KEY

Predation (+,-)	Parasitism (+,-)	Competition (-, -)	Neutralism (0, 0)
Commensalism (0, +)	Mutualism (+, +)	Amensalism (0, -)	

- Predation is how energy is transferred through a food web.
- It involves a predator, the organism doing the killing and a prey, the organism that is killed.
- The success of a predator depends on its ability to
  - find the prey
  - capture the prey
  - kill the prey
- Two species or two individuals of the same species fight for something in short supply. The relationship described here is:
  - predation
  - competition
  - commensalism
  - amensalism
  - mutualism
- One organism is benefited and the other is unaffected. The relationship described here is:
  - predation
  - competition
  - commensalism
  - amensalism
  - mutualism
- Organisms of different species that don't have much to do with each other. The relationship described here is:
  - predation
  - parasitism
  - commensalism
  - amensalism
  - neutralism
- Both organisms of species benefit. The relationship described here is:
  - predation
  - parasitism
  - commensalism
  - amensalism
  - mutualism
- One population harms the other while remaining unaffected itself. The relationship described here is:
  - predation
  - parasitism
  - commensalism
  - amensalism
  - mutualism
- One organisms gains energy from another and usually **does not kill** the other organism. The relationship described here is:
  - predation
  - parasitism
  - commensalism
  - amensalism
  - mutualism
- The gopher and the antelope live near one another in the Saskatchewan prairies and for the most part, put up with each other's presence with no effect. This relationship could best be described as:
  - neutralism
  - commensalism
  - amensalism
  - mutualism
  - parasitism
- The pig tapeworm has two hosts (the definitive host the human and an alternate host, the pig). The tapeworm cannot survive on its own. Which term **best** describes the tapeworm?
  - producer
  - parasite
  - predator
  - prey
  - host
- The scientific name for the organism from which a parasite obtains nutrients.
  - producer
  - parasite
  - predator
  - prey
  - host
- The scientific name for the organism which lives on or in another organism to obtain nutrients.
  - carnivore
  - parasite
  - predator
  - prey
  - host
- An epiphyte is an air plant which makes its own food but grows upon another living plant (that itself is unaffected) for support. This relationship could best be described as:
  - neutralism
  - commensalism
  - amensalism
  - mutualism
  - parasitism
- As you complete this review, head lice could be sucking the blood from your scalp (feel free to scratch that itch you now feel on your scalp). The head lice could best be described as:
  - producer
  - parasite
  - predator
  - prey
  - host
- A cow has a good digestive system because of the bacteria in it that eat food from the stomach and help digest the food, particularly in the fore stomachs. The relationship between the cow and the bacteria in it could best be described as:
  - neutralism
  - commensalism
  - amensalism
  - mutualism
  - parasitism

17. The koala bear only eats Eucalyptus leaves. Some say it eats so many leaves, it smells like the leaves. The koala will eat 2.5 pounds of food a day. The relationship between the koala and the eucalyptus tree could best be described as:  
 a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism
18. Lynx and bobcat, both found in North America, both hunt rabbit. The relationship between the lynx and the bobcat could best be described as:  
 a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism
19. The roots of the black walnut contain a chemical called juglone that kills the roots of other plants that touch the roots of black walnut trees. The relationship between the black walnut and the evergreens could best be described as:  
 a. predation      b. commensalism      c. amensalism      d. competition      e. parasitism

20. Predator/Prey Adaptations (12 marks)

- 1) List 2 predator adaptations that we discussed or have seen in a video this semester. Be sure you are listing physical adaptations and not hunting strategies. For example, both stalking and pack hunting are strategies not adaptations.
- 2) Provide an example species for each adaptation. The example species must be known to benefit from that adaptation. For example, do not use speed for a turtle.
- 3) Describe specifically how the adaptation allows the predator to be successful (**find, capture or kill**).

Predator Adaptations	Example Species	How the Predator Benefits (Find, Capture or Kill)
Good eyesight -	Hawk	Find
Good hearing/sonar -	wild dogs, bat	find
Claws -	cat	capture
Coloration -	Leopard	capture
Web production -	Orb weaver	capture
Speed -	Cheetah	capture
Lack of odour -	Boa constrictor	capture
Jaws -	shark	kill
Venom production -	Snake	kill

- 1) List 2 prey defenses or adaptations that we discussed or have seen in a video this semester.
- 2) Provide an example species for each defense or adaptation. The example species must be known to benefit from that defense or adaptation. For example, do not use speed for a turtle.
- 3) Describe specifically how the defense or adaptation allows the prey to be successful (not **found, captured or killed**).

Prey Adaptations	Example Species	How the Prey Benefits (Avoid being Found, Captured or Killed)
Social Systems -	Ants, gophers	Avoid capture
Flocking, herding, schooling -	Geese, water buffalo, fish	Avoid capture
Nocturnal/diurnal -	mouse and fox	Avoid found/capture
Size -	puffer fish, frilled lizard	Avoid capture/kill
Hiding -	gopher	Avoid found/capture
Body Form -	leaf bug	Avoid found
Mimicry -	monarch look alike, robber fly & wasp, drone fly & honey bee	Avoid capture/kill
Camouflage -	moth	Avoid found
Mobbing -	black birds mob a crow	Avoid capture/kill
Toxins -	milkweed, monarch butterfly	Avoid capture/kill
Spines -	rose, cactus, porcupine, skunk, bee	Avoid capture/kill
Coloration -		Avoid capture/kill