Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

April 13-17, 2020

Course: Biology

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Weekly Plan:

Monday, April 13

☐ Quiz - types of selection

Tuesday, April 14

☐ Aristotle, briefly

☐ p. 340 - history of classification questions 1 + 2

Wednesday, April 15

☐ pp. 337-339 Linnaean Taxonomy - copy chart from p. 338 (choose a species, go Domain → Species)

☐ Etymologies at each level

☐ p. 339 #3, 4, 6

Thursday, April 16

☐ Modern Taxonomy pp. 346-350

☐ Landscape worksheet including cell type, body plan, nutrition circle the option activity

Friday, April 17

☐ Dichotomous Keys - pp. 354-355 Part B

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

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Student Signature

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Parent Signature

Monday, April 13 - Selection quiz

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Choose two of the examples below. For each, identify the type of selection described by the example, and write 1-2 sentences explaining how you can tell. Then, sketch a line graph describing the change in population over time for each example.

1. A population of ground-dwelling lizards has been found with tails of various lengths. A long-term study showed that lizards with longer tails tended to survive and reproduce more. The researchers noticed that predators often left the longer-tailed lizards alone once they caught sight of the lizards' squiggly, patterned tails. Some lizards even dangled and wiggled their tails to ward of predators. Over multiple generations, the overall average tail length for this population got longer.

2. A botanist noticed that a large group of flowers tended to grow to the same height across the whole population. She noticed that shorter plants wilted and remained puny, probably because they do not get the same exposure to sunlight as the taller plants. The very tall plants were observed as growing beautifully, but were oftentimes bent and broken by the wind or passing animals. Over multiple generations, the botanist saw the average height of the plants remain almost the same, with minimal variation between individuals.

3. There is a population of mice living at the beach where there is light-colored sand mixed with patches of tall grass. It has been found that light-colored mice tend to survive and reproduce readily, as do dark-colored mice. Medium-colored mice, on the other hand, have a hard time finding a place to hide. Not as many of these mice and therefore do not reproduce as frequently.

Tuesday, April 14 - Aristotle's Distinctions between Animals

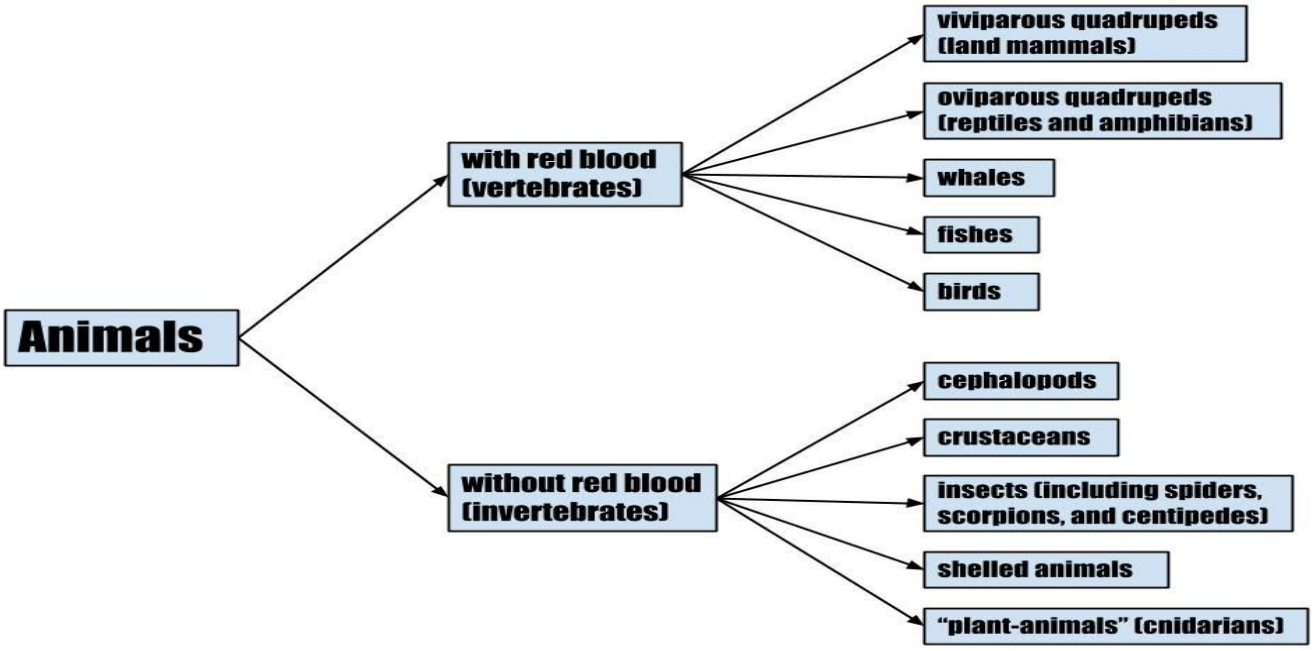
Aristotle was one of the first biologists we know about to attempt to construct a system of classification. He attempted to categorize all animals into common groups based on observable traits, stating

"Animals differ from one another in their modes of subsistence, in their actions, in their habits, and in their parts. Concerning these differences we shall first speak in broad and general terms, and subsequently we shall treat of the same with close reference to each particular genus."

Within the largest category (all animals), the first distinction he made was between animals with red blood and those without. After that he distinguished different animals based on other traits, like whether or not their young came from eggs, or what their outermost layers are made of. He made simple observations, and reasoned about the animals in questions based on those observations. Here's one of many examples from *On the History of Animals*:

"Of animals that live on dry land some take in air and emit it, which phenomena are termed 'inhalation' and 'exhalation'; as, for instance, man and all such land animals as are furnished with lungs. Others, again, do not inhale air, yet live and find their sustenance on dry land; as, for instance, the wasp, the bee, and all other insects.

Here's a summary of how Aristotle organized all the animals:



In your notes, answer the following:

1. Is this an accurate system for organizing all the animals? Why or why not?
2. What makes animals different?
3. Is Aristotle's system missing anything? What's missing?

Then, read p. 340 in the textbook, and complete question #1 and #2 in your notes, just below #1-3 from above.

Wednesday, April 15

Read p. 337-339 and take good notes, including terms. Be sure to copy the chart from page 338. Then, complete p. 339 #3, 4, 6.

Because we've agreed on Latin and Greek names as standard nomenclature, etymologies become very helpful guides when discussing taxonomy. Take the German Wasp for example. The language of its taxonomy might seem complex, but the realities each name describes are easily grasped.

German Wasp

Domain: Eukaryota

"characterized by well-defined cells (with nuclei and cell walls)," 1957, from French *eucaryote* (1925), from Greek *eu* "well, good" (see **eu-**) + *karyon* "nut, kernel"

Kingdom: Metazoa

Meta- from Greek *meta* (prep.) "in the midst of; in common with; next after, behind," in compounds most often meaning "change" of place, condition, etc.

Zoon - animal form containing all elements of a typical organism of its group," 1864, from Greek *zōon* "animal," from PIE root ***gwei-** "to live."

Phylum: Arthropoda

literally "those with jointed feet," from Greek *arthron* "a joint" + *podos* genitive of *pous* "foot".

Subphylum: Uniramia

Latin "one branch" or "one twig" referring to the legs only having one branch past the joint.

Class: Insecta

c. 1600, from Latin insectum "(animal) with a notched or divided body," literally "cut into," noun use of neuter past participle of insectare "to cut into, to cut up," from in- "into" + secare "to cut".

Order: Hymenoptera

Order of insects that includes ants, wasps, and bees, 1773, coined in Modern Latin 1748 by Linnæus from Greek hymen (genitive hymenos) "membrane" (see hymen) + pteron "wing".

Family: Vespidae

Old English wæps, wæsp "wasp," altered (probably by influence of Latin vespa) from Proto-Germanic *wabis- (source also of Old Saxon waspa, Middle Dutch wespe, Dutch wesp)

Genus: Vespula

See above

Species: Vespula germanica

"German wasp"

Thursday, April 16

Read and take notes over pp. 346-350. Record in your notes vocabulary terms and their definitions. Summarize in your notes the three key insights about the relationships between major groups.

Using the table on p. 349, complete the Kingdom and Domain Characteristics worksheet attached to the packet. If you do not have a printer, recreate the handout on a separate paper.

Friday, April 17

Complete the Dichotomous Key Lab. You will need to gather six to ten shoes from your own wardrobe or from members or your family. Be sure to ask permission to use whichever shoes you choose. Your lab report should be written on lined paper to be turned in at a later date. Follow the direction as listed on the lab handout.

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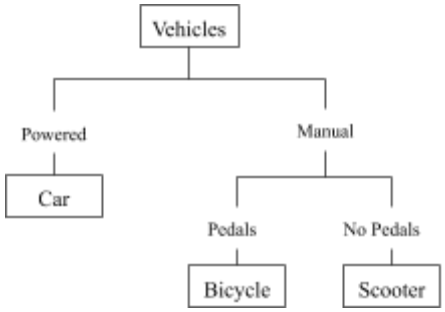
Dichotomous Key Lab

Directions: Assemble the appropriate materials and follow the lab procedure. Your lab report should be written on separate lined paper to be turned in at a later date. Your lab report must include a title, table, and your dichotomous key. You do not need to write the materials list or methods in your lab report.

Materials

Pencil
Paper
Shoes
Masking tape
Marker

Example Dichotomous Key



Methods

1. Gather between six and ten single shoes.
2. Using tape and a marker, label the soles of the shoes with a unique number.
3. In your lab report, make a table like the one below that lists some of the shoes' general characteristics, such as the type and size. You may add your own columns to the table.

Distinguishing Features of a Sample of Shoes

Shoe Number	Men's / Women's	Laced / Slip-on	Color	Size	[add your own features if necessary]
1					
2					
etc.					

4. Use the information in your table to make a dichotomous key that can be used to identify the shoe. Remember that a dichotomous key includes pairs of opposing descriptions. At the end of each description the key should either identify an object or give direction to go to another specific pair of descriptions. Write your dichotomous key in your lab report.
5. After you have completed your key, have a family member use the key to identify a shoe's number. Verify the accuracy of their identification by reading the label on the shoe. If the key led them to an inaccurate identification, make the appropriate corrections.bel on the shoe. If the key led them to an inaccurate identification, make the appropriate corrections.

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Kingdom and Domain Characteristics

Directions: Using the table on p. 349, circle the correct options for each characteristic of the following kingdom and domains. If both options apply, circle both. On the blanks, specify the type of heterotrophy or autotrophy utilized by life belonging to that domain or kingdom (e.g. photosynthesis, chemosynthesis, phagocytosis).