**Freshman Biology – Wednesday, 8/28/19 – HawkWatch Analysis**

*Students – Please follow these directions, in order. Do not skip ahead. Everyone in your group must complete each step before you proceed to the next one. Don’t worry if you don’t finish, we’ll continue to investigate Utah’s raptors for the next few days.*

1. Go to [*mrscbiology.com*](mrscbiology.com); click on the “HawkWatch” tab; download the HawkWatch Slideshow.
   1. If you cannot login to your computer, you may share one with another student in your group.
2. Discuss the following questions and subjects with your group. Do an internet search, if you need further information.
   1. **Slide #1**
      1. What is an indicator species?
      2. How do indicator species show the health of an ecosystem?
      3. Why are raptors used as an indicator species?
      4. If there is a decline in raptor numbers for a given area, what might be some of the reasons?
      5. Once you have discussed these questions in your group, write your answers and reasons, in detail, in your lab books.
   2. **Slide #6**
      1. What types of raptors are found in Utah?
      2. Have all these raptor types evolved from the same ancestor?
      3. What is “convergent evolution?” As a group, watch this short video to help you find the answer: [*https://www.youtube.com/watch?v=X-XtZyHcck4*](https://www.youtube.com/watch?v=X-XtZyHcck4)
      4. Once you have discussed these questions in your group, write your answers and reasons, in detail, in your lab books.
   3. **Slide #12**
      1. Utah’s raptors do not all come from the same evolutionary ancestor, yet they have separately developed three traits that allow them to be included in the category of “raptor.” What are these three traits?
      2. Once you have discussed these questions in your group, write your answers and reasons, in detail, in your lab books.
   4. **Slide #14**
      1. What is an “obligate carnivore?”
      2. Discuss this as a group, then write your answer in your lab book.
   5. **Slide #15**
      1. Are the birds depicted here raptors? Why or why not?
   6. **Slide #16**
      1. Draw this food chain in your lab book, using both words and pictures.
   7. **Slide #17**
      1. Draw this energy pyramid in your lab book, using both words and pictures.
   8. **Slide #18**
      1. Which of these food choices would each species of raptor (from slides 7 thru 11) eat? Explain why.
      2. Why would hawks, eagles or vultures choose to eat roadkill, rather than a live meal? Explain your answer in terms of “energy conservation.”
      3. Once you have discussed these questions in your group, write your answers and reasons, in detail, in your lab books.
   9. **Slide #19**
      1. Do an internet search to discover what dho gaza traps, mist nets and bow nets are and how they’re used.
      2. Find a video for each type of net on YouTube and watch them as a group. (In the interest of time, you don’t need to watch a full video, as long as you get the idea.)
   10. **Slide #20**
       1. What is an “invasive species?”
       2. Write the definition in your lab book.
       3. In your group, discuss examples you are familiar with, whether animal or plant.
       4. Write your answers and reasons, in detail, in your lab books.
       5. This slide shows a house sparrow, European starling, pigeon, and the Eurasian collared dove, all invasive bird species. Where did each of these birds originate and how did they get to the United States?
       6. Why would invasive birds be used as lures (bait) for raptor traps?

If you get this far, we’ll discuss the remaining slides tomorrow.