Name: _____

CASE

Project 4.3.5 Mapping Reactions

Purpose

You may have noticed how the systems of the body seem to overlap and interrelate. Nerves send messages; endocrine glands release hormones in response to the messages, the kidneys produce hormones, all of which affects respiration and circulation. Interrelation of the systems is vast and occurs often within the body; but what does it look like?

One way to represent the systems of the body is through concept mapping. A concept map is a method to link related ideas graphically as a means of developing a fuller definition of an idea. Can you design a map that will aid you in remembering how the body systems of animals respond to various stimuli?

Materials

Per pair of students:

- Computer with Internet access and concept mapping software

Per student:

- Pencil
- *Agriscience Notebook*

Procedure

In this project, you will work with a partner to design a concept map that relates the responses of an animal to the body systems you have studied.

Part One – Using Concept Maps

Your teacher will provide options of concept mapping software and/or websites. Below are general procedures for developing a concept map using most software.

1. Notice the “Main Idea” bubble is already centered in the page.
2. Type the main idea of the map in this bubble (i.e., Brain).
3. Change the shape or color of the concept bubbles using the symbols top or to the left of the screen. Try changing the shape and color of the bubbles.
4. To build secondary concepts click on the main idea bubble.
5. Press enter and the software should automatically create a link to a second bubble with the secondary concept included.
6. You can build off this secondary concept by clicking on the secondary bubble and repeating Step 4 and Step 5.

With different software and websites there may be a “Create” icon. Explore the icons across the top menu and learn how they can alter the layout of your map. Concept mapping is a tool that you can use for later presentations and organization of information.

Part Two – Case Study

Read the following case study and determine the roles of the nervous, endocrine, and renal systems in the response of the sheep. You should also take into consideration how those systems affect the respiratory and circulatory systems as well.

Mr. Brown recently purchased a flock of Cheviot sheep to graze the back meadows of his property. The sheep are a little flighty, but as long as he remains calm and deliberate, they handle fairly well. This morning, he went out to check on them. He found they were huddled tightly and as he approached, they ran to the far corner of the pasture. Standing in the corner panting, the sheep looked as if they had never seen a person before. While he was wondering what stirred the animals, he heard a coyote cry out close by.

Based on this scene, what response triggered his sheep to behave differently? How has the body systems of the sheep reacted to that response? Design a concept map with your partner to depict the relationships between the responses and systems of the body.

Part Three – Developing the Map

Include these important features on the concept map.

- Components and interactions of the nervous, endocrine, and renal systems
- Circulatory and respiratory systems
- Actions occurring in response to the scenario of the case study
- Labels for objects and connections on your map

You may find your notes from this lesson as well as *Lesson 3.2 Manipulating Manners*, and *Lesson 4.2 Putting the Puzzle Together* helpful in formulating your answer to this question and designing the map. You may also want to use your school's Agriscience Library in your research and map making.

Conclusion

1. How were the nervous, endocrine, and renal systems involved in the response of the sheep to the coyote?

2. How do these systems affect the respiratory and circulatory systems?

3. Should Mr. Brown work to train his sheep better to make them less flighty in this situation? If so, why? If not, why not?