

Name _____ Date _____ Period _____

AP BIOLOGY - SYSTEMS PROJECT

GOAL:

The purpose of this assignment is for students to become acquainted with some of the body systems of vertebrates and invertebrates. The students will also be introduced to the methods used by organisms in the other kingdoms to accomplish similar goals. The systems that are listed below will likely NOT be covered in class prior to the AP Biology exam in May.

ORGAN SYSTEMS:

- Circulatory System
- Respiratory System
- Digestive System
- Reproductive System
- Excretory System

ANIMALS:

- *Homo sapiens*
- *Gallus gallus domesticus*
- *Drosophila melanogaster*
- *Caenorhabditis elegans*

PLANT:

- *Malus domestica*

FUNGUS:

- *Agaricus bisporus*

PROKARYOTE:

- *Escherichia coli*

ASSIGNMENT:

1. Determine which THREE systems you will study for the 2nd marking period and which TWO systems you will study for the 3rd marking period. Create one large poster for each of the organ systems listed above. Each poster should be double-sided. Do not combine the posters into one giant one. Use standard-sized posters, not tri-folds, foam boards, etc.
2. For each system, describe and illustrate the ANATOMY (structure) and PHYSIOLOGY (function) used by each of the animals to accomplish that function. Include the level of detail that would be appropriate for an AP Biology student.
3. For each system, describe and illustrate the process by which the plant, fungus, and prokaryote accomplish those same functions. Again, include both the anatomy and physiology with the appropriate level of detail.

4. For each organ system, clearly indicate ONE example of negative feedback as it relates to *Homo sapiens*. Include a visual aid along with your explanation.
5. For each organ system, clearly indicate the major themes that we have discussed in AP Biology. Include a visual aid along with your explanation of each theme.
 - structure-function relationships
 - surface area to volume ratio
 - lock-and-key fit
 - levels of organization
 - evolutionary relationships
6. All of the writing on the posters must be YOUR OWN WORDS. If you think that you might be plagiarizing something, type it into Google. If it shows up as a search result, then you probably plagiarized.
7. Each picture must be accompanied by a caption or label. You must include a **minimum** of three pictures for each organism for each system. Therefore, each poster should contain a minimum of 27 pictures: 21 for the organisms, 1 for negative feedback, and 5 for the themes.
8. As always, please keep your poster glitter-free! 😊
9. Remember that your posters will be graded for content and creativity. Refer to the attached rubric when creating your posters in order to self-assess your work.

RECOMMENDED SCHEDULE:

The following is a recommended schedule for completing the AP Biology Systems Project. There is a lot of work to be completed. By following the suggested timeline, you will ensure that you have enough time to complete the work before the due dates.

SYSTEMS PROJECT	SUGGESTED TIMELINE
1. Complete all research on the 7 organisms.	Thanksgiving break
2. Print out pictures and type facts.	late November – early December
3. Create 3 posters.	Christmas break
4. Create 2 posters.	late January – early February

DUE DATES:

- 3 Posters (2nd Marking Period): _____
- 2 Posters (3rd Marking Period): _____

Name _____ Date _____ Period _____

SYSTEMS PROJECT RUBRIC

<i>SYSTEMS</i>	Anatomy (4 points)	Physiology (4 points)	Pictures (4 points)	Explanation (4 points)
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CIRCULATORY SYSTEM				
Human – <i>Homo sapiens</i>				
Chicken – <i>Gallus gallus domesticus</i>				
Fruit Fly – <i>Drosophila melanogaster</i>				
Roundworm – <i>Caenorhabditis elegans</i>				
Apple Tree – <i>Malus domestica</i>				
Mushroom – <i>Agaricus bisporus</i>				
E. Coli – <i>Escherichia coli</i>				

RESPIRATORY SYSTEM				
Human – <i>Homo sapiens</i>				
Chicken – <i>Gallus gallus domesticus</i>				
Fruit Fly – <i>Drosophila melanogaster</i>				
Roundworm – <i>Caenorhabditis elegans</i>				
Apple Tree – <i>Malus domestica</i>				
Mushroom – <i>Agaricus bisporus</i>				
E. Coli – <i>Escherichia coli</i>				

DIGESTIVE SYSTEM				
Human – <i>Homo sapiens</i>				
Chicken – <i>Gallus gallus domesticus</i>				
Fruit Fly – <i>Drosophila melanogaster</i>				
Roundworm – <i>Caenorhabditis elegans</i>				
Apple Tree – <i>Malus domestica</i>				
Mushroom – <i>Agaricus bisporus</i>				
E. Coli – <i>Escherichia coli</i>				

REPRODUCTIVE SYSTEM				
Human – <i>Homo sapiens</i>				
Chicken – <i>Gallus gallus domesticus</i>				
Fruit Fly – <i>Drosophila melanogaster</i>				
Roundworm – <i>Caenorhabditis elegans</i>				
Apple Tree – <i>Malus domestica</i>				
Mushroom – <i>Agaricus bisporus</i>				
E. Coli – <i>Escherichia coli</i>				

<i>SYSTEMS</i>	Anatomy (4 points)	Physiology (4 points)	Pictures (4 points)	Explanation (4 points)
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EXCRETORY SYSTEM				
Human – <i>Homo sapiens</i>				
Chicken – <i>Gallus gallus domesticus</i>				
Fruit Fly – <i>Drosophila melanogaster</i>				
Roundworm – <i>Caenorhabditis elegans</i>				
Apple Tree – <i>Malus domestica</i>				
Mushroom – <i>Agaricus bisporus</i>				
E. Coli – <i>Escherichia coli</i>				

TOTAL POINTS EARNED				
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<i>MISCELLANEOUS ITEMS</i>	Circulatory (4 points)	Respiratory (4 points)	Digestive (4 points)	Reproductive (4 points)	Excretory (4 points)
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THEMES					
Negative Feedback					
Structure-Function Relationship					
Surface Area to Volume Ratio					
Lock-and-Key Fit					
Levels of Organization					
Evolutionary Relationships					

TOTAL POINTS EARNED					
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Total Points – Systems	/ 336
Total Points – Miscellaneous Items	/ 72
Creativity & Overall Appearance	/ 40
TOTAL POINTS EARNED – PART 1	/ 448

PART 1 GRADE	/ 100
PART 2 GRADE	/ 100

Total Points – Systems	/ 224
Total Points – Miscellaneous Items	/ 48
Creativity & Overall Appearance	/ 40
TOTAL POINTS EARNED – PART 2	/ 312

COMMENTS
