**Biology 1** Name:

**Welcome Back to the Book Web Site** Name:

**Virtual Investigation #2** Date:

Hour:

Our *Modern Biology* book has a fairly comprehensive website. You will be able to find the book on-line and utilize numerous resources.

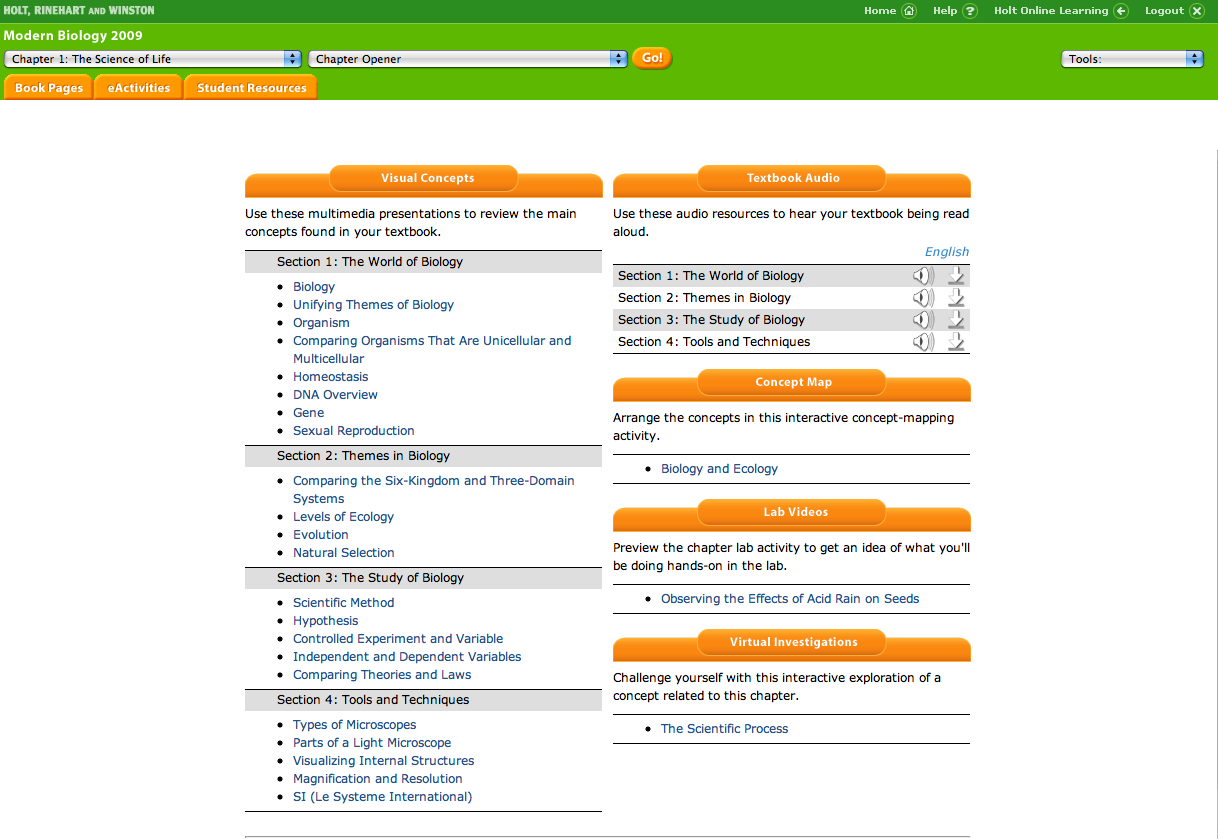
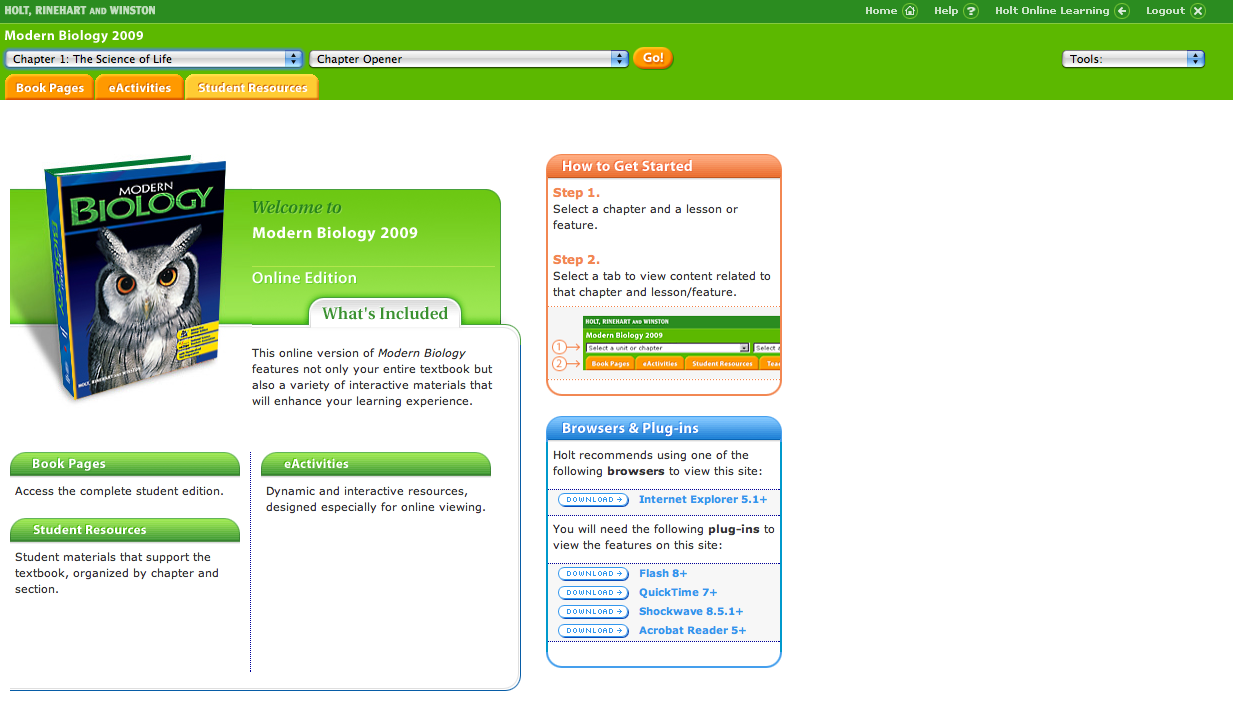
Go to the following website: **my.hrw.com**

Your user name is: **astudents90**

Your Password is: **a7k7**

Click ‘Go to the Online Textbook’. Here you will find a digital copy of your book. This will also give you access to audio files of vocabulary, digital copies of worksheets and virtual investigations (like the one we are doing today).

From the drop down menu at the top, select *‘Chapter 43: Mammals’*. Then click the **eActivities** tab.



Now you are ready to try out our first Virtual Investigation. Click on ‘Respiration in Vertebrates’ link.

Navigate through the Virtual Investigation for *The Scientific Process* on the Holt website. Answer these questions as you proceed. This should serve as a refresher on the ‘Scientific Method’ as well as a reinforcement of the concepts related to photosynthesis that we’ve been talking about in class the past few days.

**Remember, for full credit you must use complete sentences!**

**Part 1 of 5**

\_\_\_\_\_\_\_\_\_\_\_ are the structures used by terrestrial animals for respiration *(ventilate).*

\_\_\_\_\_\_\_\_\_\_\_ are the structures used by aquatic animals for respiration *(ventilate)*.

Why do animals need a circulatory system?

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**Part 2 of 5**

What is the purpose of cellular respiration? What byproduct is produced by respiration *(and must be exhaled)*?

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**Part 3 of 5**

What does metabolism have to do with body temperature?

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Which organisms require more energy, terrestrial or aquatic? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Which organisms require more energy, endotherms or exotherms? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Part 4 of 5**

**Energy Requirements**

***Arrange the organisms on the interactive webpage until you have correctly determined the order from lowest to highest energy requirements. Record your findings (by name) in the diagram below.***

Lowest Highest

What do you notice about the hummingbird’s respiratory system that is different from yours?

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What factors affect the efficiency of circulation of oxygen throughout the body?

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**Part 5 of 5** - Fill in this table using information from the virtual investigation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Fish** | **Amphibian** | **Reptile** | **Bird** | **Mammal** |
| *Oxygen source* |  |  |  |  |  |
| *Respiratory organ* |  |  |  |  |  |
| *Circulatory loops* |  |  |  |  |  |
| *# of Atria* |  |  |  |  |  |
| *# of Ventrcles* |  |  |  |  |  |
| *Mix oxygen-rich & oxygen-poor blood* |  |  |  |  |  |
| *Mix oxygen-rich & oxygen-poor air* |  |  |  |  |  |
| *Ventilation* |  |  |  |  |  |
| *Relative Efficiency* |  |  |  |  |  |

What difference(s) allow ***amphibians*** to respire more efficiently than ***fish***?

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What difference(s) allow ***reptiles*** to respire more efficiently than ***amphibians***?

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What difference(s) allow ***mammals*** to respire more efficiently than ***reptiles***?

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What difference(s) allow ***birds*** to respire more efficiently than ***mammals***?

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