

Basic Biology Series

AMPHIBIANS

NAME _____ SCHOOL _____

DATE STARTED _____ DATE COMPLETED _____

PREREQUISITE: Animal Kingdom.

HOW TO DO THIS COURSE: Do the steps one at a time, in order. When you finish a step, put your initials and the date on the sign-off line on the right. A split line means to get a pass (and an initial) from another student (or your supervisor if it says that). Essays are turned in to the supervisor.

PURPOSE: Learn something about the nature and importance of amphibians in the world, and become familiar with a variety of the more common amphibians.

ESTIMATED TIME: 10 hours.

MATERIALS NEEDED FOR THIS COURSE

A guide book on amphibians (*Golden Guide* series published by Golden Books or *Peterson's First Guides* published by Houghton Mifflin are suggested). An encyclopedia with good pictures and data on amphibian metamorphosis (if your guide book doesn't show it), such as *New Standard*, *World Book* or *Compton's*. Binoculars (a kind that will focus close up), coloring crayons and drawing paper.

Heron text-pack with these Data Sheets:

2977 2798 2981 2979 2980

Exams: 2982, 2755 (review)

NOTE TO THE SUPERVISOR

At the end of Part A there is a practical application referring to a list of practical application projects (DS #2981 Amphibians, Practical Application Projects). The student is to do at least three of them. Many of these projects work well with a group. Try to plan group activities for students who are doing or will soon do this course.

The "special project" option (project #8) allows you and the students to be innovative. Make this a group project if there is a special or unusual opportunity to study amphibians in your area that you want to take advantage of. Do not let students use this option to shortcut the requirement by doing something too minor.

It is expected that the student will complete three of these, but if there is one of them that the student cannot reasonably finish in time to meet the course completion target (for instance if it depends on a planned group excursion which takes place too late) you can sign off the step at your discretion if the project is well planned and you are confident it will be done (and the other two are fully done).

A. ABOUT AMPHIBIANS

1. READ: Data Sheet #2977 How All Amphibians Are Alike. _____
2. DEMONSTRATE (with whatever objects you wish to use): What "amphibian" means. _____

3. DEMONSTRATE (with objects): Six ways that all amphibians are alike. _____
4. READ: Data Sheet #2978 The Life of an Amphibian. _____
5. DEMONSTRATE (with objects): What “metamorphosis” means. _____
6. DEMONSTRATE: Look up “frog” in an encyclopedia with pictures that show metamorphosis. See the pictures of frogs and tadpoles. See how the tadpoles look in each step of metamorphosis. _____
7. DEMONSTRATE USING CLAY: Six steps of metamorphosis of a frog. Show the egg and the adult frog and four steps in between. _____
8. DEMONSTRATE: Draw a picture that shows the difference between what tadpoles eat and what adult amphibians eat. _____
9. OPTIONAL PRACTICAL APPLICATION: If it is the right time of year, go outside in the evening and listen for frogs that are croaking or peeping. If you hear them, try to find them. (They may not be easy to find.) _____
10. PRACTICAL APPLICATION: Choose three things to do from the list in Data Sheet #2981 Amphibians, Practical Application Projects, or choose two of these and one more practical application activity having to do with amphibians that you think of yourself. (If you think of your own, your supervisor must approve.) Write down what projects you want to do and when you plan to do them, and turn that in to your supervisor. Do what it says to do for each project that you choose. Do these projects as soon as you can, but not during course time. The sign-off line here is for planning your projects. There is another sign-off line at the end of the course steps for completing them. **Supervisor pass.** _____

B. DIFFERENT KINDS OF AMPHIBIANS

1. READ: Data Sheet #2979 Different Kinds of Amphibians, to the heading “Toads.” _____
2. DEMONSTRATE: Look up frogs in a guide book and see how many kinds there are. Get a pass from your supervisor or someone who has done this course to make sure you know how to use the guide book. Notice how they are similar and how they are different. Notice which ones are tree frogs. _____

3. DEMONSTRATE: The differences between bullfrogs and tree frogs. _____
4. READ: Data Sheet #2979, the section "Toads." _____
5. DEMONSTRATE: Look up toads in a guide book and see how many kinds there are. Notice how they are similar and how they are different. _____
6. DEMONSTRATE (with objects): Three differences between toads and frogs. _____
7. DEMONSTRATE (with objects): How toads protect themselves from being eaten. _____
8. READ: Data Sheet #2979, the section "Salamanders." _____
9. DEMONSTRATE: Look up salamanders in a guide book and see how many kinds there are. Find each of the different kinds named in the data sheet. Notice how they are similar and how they are different. _____
10. DEMONSTRATE (with objects): How a salamander is different from a lizard. _____
11. DEMONSTRATE (with objects): How a mud puppy is different from a land salamander. _____
12. DEMONSTRATE: Draw a picture of:
 - a) a newt tadpole _____
 - b) a young eastern newt (an eft) _____
 - c) an adult newt _____

Color each one the correct color. Show what each one eats and where it lives. _____

13. DEMONSTRATE: Look up at least ten other different amphibians in your guide book that were not included in the data sheet. Some that you might find are toads such as the spadefoot toad or the narrow-mouthed toad, tree frogs such as the spring peeper, the little frogs called chorus frogs (because they all sing together), other kinds of frogs such as the green frog or the leopard frog (named for its spots), or different kinds of salamanders such as dusky salamanders, woodland salamanders, spring salamanders, and brook salamanders. Particularly look for amphibians that might be common in your area. Make a list of the amphibians you pick and write something about each one that tells

how it is different from other amphibians. Count each one you write about as a separate demonstration. Turn what you wrote in to your supervisor. **Supervisor pass.**

14. DEMONSTRATE: Pick your five favorite amphibians of all the amphibians you have studied. Draw a picture of each one. Try to make your pictures show what makes each one special. Count each picture as a separate demonstration. Save your pictures for the next step.

15. ESSAY: Write a short essay about each amphibian you drew. Tell why you picked it and some things you were interested in about it. Tell where it lives, and what it is doing in your picture. Turn your pictures in along with your essays.

16. DEMONSTRATE USING CLAY:

a) a frog _____ b) a toad _____ c) a salamander _____

17. DRILL: Have your supervisor or someone who has done this course show you ten or more pictures of different kinds of amphibians that you have studied. For each one tell what type of amphibian it is. You pass the drill when you can tell the differences between frogs, tree frogs, toads, land salamanders and water salamanders, and answer correctly for each amphibian that you are shown.

C. AMPHIBIANS IN THE WORLD

1. READ: Data Sheet #2980 Living with Amphibians.

2. DEMONSTRATE USING CLAY: Three ways that amphibians affect (or are affected by) other creatures (including people).

3. ESSAY: Tell what you think the world might be like today if the amphibians had never learned how to leave the water and live on land.

4. PRACTICAL APPLICATION: Completion of projects from Part A, step 10. Write a report on each project telling what you did and what you learned about amphibians from doing it. If one of your projects isn't done when you get to this point, write a report saying what you have done so far and when you expect to finish the project. Turn your reports in to your supervisor. Your supervisor will decide if it is okay to sign off this step before the last project is finished. (You must complete at least two of the projects to complete the course.) **Supervisor pass.**

I have done all the steps of this course. I understand what I studied. I can use what I studied.

Student _____ Date _____

The student has completed the steps of this course and knows and can use what was studied.

Supervisor _____ Date _____

This student has passed the exam for this course.

Examiner _____ Date _____

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