

# Introduction

Welcome to the wonderful world of underwater creatures! *Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day* will take you on a journey through the oceans and streams of the world to discover many of the charming, exotic, fascinating, and fanciful creatures God created on the fifth day.

You will find this to be an easy-to-use science curriculum for your entire family. The text is written directly to the student, making it very appealing to kids from six to thirteen. The material is presented in a conversational, engaging style that will make science enchanting and memorable for your students, creating an environment in which learning is a joy.



## Zoology 2 Prerequisite

This course on aquatic animals follows the first book in the series, *Exploring Creation With Zoology 1: Flying Creatures of the Fifth Day*. It is highly recommended that you begin your study of zoology with Zoology 1. This is because foundational concepts, such as animal classification, nomenclature, instincts, endangered species, parasites, and other important ideas are explained in the first book. Attainment of this knowledge is assumed in Zoology 2. However, if zoology has been covered to some degree, and parents feel they are equipped to fill in the gaps where this information is mentioned without explanation in Zoology 2, they are welcome to begin with whichever book they prefer.

## Lesson Increments

There are 13 lessons in this text. Each lesson should be broken up into manageable time slots depending on your children's age and attention span. This will vary from family to family.

Most lessons can be divided into two-week segments. You can do the reading and the notebook assignments during the first week, and you can do the experiments and the data recording during the second week. If you do science two or three days per week, you might read four to six pages a day to finish a lesson and begin the experiment. This will give you 32



weeks for the entire book. Older students can work through the book more quickly if they wish. Sixth graders are encouraged to read the book on their own in preparation for the independence with which they will do science the following year if they use *Exploring Creation With General Science*.

When you have finished reading a lesson, the student will orally relate the information they learned (narration) and complete a creative assignment associated with the lesson (notebooking). Narrations and notebooking replace the traditional and less effective method of filling in blanks in a workbook. I believe this is a superior method of facilitating retention and providing documentation of your child's education. For a more detailed discussion of how to use this course, please see the step-by-step guide at the end of this introduction.

### **Narrations**

Older elementary students can do the entire book and most experiments on their own, while younger students will enjoy an older sibling or parent reading it to them. Each lesson begins with a reading of the text. Throughout the reading, the students will be asked to retell or narrate the information they just studied. This helps them assimilate the information in their minds. The act of verbalizing it in their own words propels them forward in their ability to effectively and clearly communicate with others that which they know. It also serves to lock the information into their minds.

### **Notebooks**

At the end of each lesson, notebook activities are used to give the learners further experience with the material. The notebook activities will offer your child an opportunity to communicate through illustrations and written narratives. This is an important tool for providing both a record of progress and learning, as well as documentation for review. Students of all ages will create their own notebook, providing an opportunity for each child in a family to work on the same material at his or her own level. Each notebook will be a reflection of the child's knowledge, learning, creativity, and personality. The notebook activities generally occur at the end of a lesson, but they are sometimes used to break up lessons. Though simple sheets of blank paper will work just fine, you can print templates that provide a space for drawing and lines for writing information by visiting <http://www.apologia.com>.

### **Project Ocean Box**



Each student or family is encouraged to create clay or paper models of the animals they have studied. The first lesson begins with the students using a box to create an “aquarium” in which they will display their animal creations. I call this aquarium an “ocean box.” After completing each lesson, the students will add the animals about which they learned to the ocean box. At the end of

the course, they will have a tangible model of all that they learned in science throughout the year. The materials your student or family uses to create the animals for display will vary according to the preferences of your family. You can use clay, images cut out from magazines, or even plastic animal replicas which are often available at dollar stores. Obviously, if your family wishes not to participate in this activity, you may skip this section of each lesson.

## Experiments

Every Zoology 2 lesson ends with an experiment. These experiments will help your children develop the skills needed to conduct valid and scientifically accurate experiments. It is recommended that your students complete at least a few, if not all, of these experiments so as to become familiar with the scientific method. This will further their understanding of how to perform experiments and what makes and does not make a good experiment.

The projects and experiments in this book use mostly common, household items. As a result, they are fairly inexpensive, but you will have to hunt down everything that you need. To aid you in this, at the front of the book is a list of the materials that you need for the experiments and projects in each lesson. If you would rather spend some money for the sake of convenience, you can purchase a kit that goes with this course. It is sold through a company called “Creation Sensation,” and you can contact them at 501-776-3147. Alternatively, you can visit their website at <http://www.creationsensation.com/>.



## The Immersion Approach Is it Okay to Spend a Year on Just a Part of Zoology?

Many educators promote the spiral or survey approach to education, wherein a child is exposed over and over again to minute amounts of a variety of science topics. The theory goes that we just want to “expose” the child to science at this age, each year giving a bit more information than was given the year before. This method has been largely unsuccessful in public and private schools, as National Center for Education Statistics (NCES) data indicate that eighth graders are consistently less than 50% proficient in science.

This method assumes the young child is unable to understand profound scientific truths. Presenting a child with scant and insufficient science fails to develop a love for the subject. If the learning is skimpy, the subject seems monotonous. The child is simply scratching the surface of the amazing and fascinating information available in science. Sadly, students taught in this way are led to

believe they “know all about” that subject, when in reality the subject is much richer than they were allowed to explore.



The National Science Foundation (NSF) says the problem with our methods of teaching science is that science curriculum is “a mile wide and an inch deep.” There is too much information covered, with no opportunity for true sustenance to be taught. That is why I recommend that kids, even young children, are given an in-depth, above their perceived grade level exploration into each science topic. You, the educator, have the opportunity to abandon methods that

don't work so that your students can learn in the ways that have been proven effective. The immersion approach is the way everyone, even young kids, learn best. That is why we major in one field in college and take many classes in that field alone. If you immerse your child in one field of science for an entire year, he will develop a love for that subject and a love for learning in general.

Additionally, a child that has focused on one subject throughout an entire year is being challenged mentally in ways that will develop his ability to think critically and retain complex information. This will actually benefit the child and give him an advantage on achievement tests. He will be able to make more intelligent inferences about the right answer on science questions, as God has created an orderly world that works very similarly throughout all matters of science. A child who has not been given the deeper, more profound information will not understand how the scientific world operates.

# How To Use This Book

## A Step-By-Step Guide

1. If you have not purchased a supplies kit, you will want to scan the materials list located at the front of the book to see what you need for the lesson you are going to do.
2. Begin by reading the lesson to the students (older students may read the lesson themselves). There will be places during the lesson where the students are asked to “tell back” or narrate what they have learned up to that point. These are not written narrations; they are impromptu oral presentations.
3. Very occasionally there will be a “Try This!” activity wherein the learners are encouraged to get a few supplies and try a little project or experiment to demonstrate a point made in that section of the book. Ideally, the project should be done right then. However, don't be discouraged if you do not have the materials. You can always go back and do the project later.
4. You will continue reading until you feel a natural break is at hand. Each family will differ in the amount of reading done in each session. Some families become extremely engrossed and will want to read an entire lesson. Most families will read a quarter to half the lesson. There are many places within each lesson that are natural stopping points. You decide when to stop reading. The book is designed to give a lot of flexibility with this, so that you can complete the book in a year in a way that works for your family.
5. When you end for the day, ask your children to orally tell you what they learned. They do not need to write anything down until they reach the end of the lesson.
6. When you reach the end of a lesson, you will come to a “What Do You Remember?” section. This is a series of specific questions to ask your children in order to prompt their memories about the lesson. Don't expect young children to remember most of these. Don't expect older children to remember all of them. However, this is a great time to enter into discussion about what they learned. These are also oral, not written.
7. After your children tell you what they remember, it's time for the notebooking activity. In this activity, each child will be asked to record in writing all that she wants to remember about the lesson. I would not force her to record every detail of the “What Do You Remember?” section. Also, do not have her write down what you want her to remember. Allow her to decide what she thought was interesting and important. Let her decide what she wants to remember. For non-writers or slow writers, you can type out or write out what they tell you. If your child is struggling to recount his learning, you can encourage him with questions. Make this an enjoyable experience

without a lot of correction and nit-picking. Eventually, your child will be able to accurately and systematically recount what he learned. Many children graduate from high school never learning this skill.

8. Occasionally, the notebooking activity will also include some sort of work beyond just recording the information they found interesting or want to remember. They might be asked to diagram something or produce a creative work associated with the subject.
9. Many times, older students are encouraged to do further work associated with the lesson. You, the parent, will decide if your child should complete this additional assignment.
10. The students will then add the animal or animals studied to their ocean box.
11. The last thing students should do is the experiment for the lesson.