

Kolbe Academy Home School

GRADE THREE HARCOURT SCIENCE *Harcourt Science 3/4 (Red)*

TABLE OF CONTENTS

I. Syllabus	2
II. Daily Course Plan	
A. Quarter 1	4
B. Quarter 2	8
C. Quarter 3	13
D. Quarter 4	17
III. Tests	
IV. Answer Keys	
V. Investigation Materials List	

Teachers' Notes: Begin every class with a prayer. This is a good way to help the child memorize new prayers. Repeat the same ones every day until they are known. Be sure to explain the meanings of the prayers. Repetition in all areas of study is most beneficial. In most cases, Fridays have been left open. You may do a four-day week or use Friday as a "catch-up" day. While art and music should be worked in during the week, Friday is also a good day to concentrate on those subjects.

Your student may not need all of Week 8 for review. You can use this time to catch up and then go over the subject matter. If you intend to use the sample tests provided, look them over before teaching the subjects and make sure you teach the material in the tests. Some children have a difficult time doing written exams, but it is important for them to learn how to take them. If your third grader does poorly on them, give them to him orally a couple of days after he has taken them and average the grades.

COURSE TITLE: Science

COURSE DESCRIPTION:

Third grade science is a basic introduction to the life, earth, and physical sciences. The most important part of teaching science in the early years is helping the student see the wonders of God's world, and making him unafraid of the subject when he pursues in depth science in later years. Children learn more from doing the experiments and investigations alongside the reading of the textbook. Science, like history, does not need to be done every day and can be set aside if the student is being challenged by the basics in other subjects.

The Harcourt Science series has the availability of several online learning tools to anyone who purchases the textbook. The first is provided by the publisher, Harcourt. Simply go to www.harcourtschool.com and click on the Learning Site. This will take you to a login page in which you will be instructed how to gain access to the site. *Be sure to put Kolbe Academy as the school!* This will help create fewer problems when you are trying to gain access to the website. There are several supplementary activities for the student and teacher on this website. Another website is provided by the National Science Teachers Association (NSTA) at www.scilinks.org/harcourt. This website allows you to select the topic you are studying in the book, and will take you to a page of selected website links that can help you to enhance and further develop the topics that your child is studying. Be sure to select **Grade 4** to see the topics that correspond to the book you are using. The online resources are a wonderful addition to the activities provided within the text itself.

COURSE OBJECTIVES:

This course is a continuation of the work of the first and second grades in the further development of scientific skills necessary to apply the scientific method:

- ❖ the observation and examination of data
- ❖ experimentation
- ❖ formulations of explanations by means of hypotheses and theories
- ❖ testing the hypotheses

Introduction to scientific concepts

- ❖ introduction to basic science vocabulary in preparation for later coursework
- ❖ introduction to the three main disciplines in science: life, earth, and physical science

SCOPE AND SEQUENCE:

1. **Life Science:** World of Living Things
 - a. Living Things: Cells, Animals, Plants, Fungi
 - b. Animal Growth and Adaptations: Basic needs, anatomy, behavior
 - c. Plant Growth and Adaptations: Needs to live, structure, reproduction
 - d. Human Body Systems: Skeletal, Muscular, Respiratory, Circulatory, Nervous, and Digestive systems.

2. **Earth Science:** The Earth's Surface
 - a. Earthquakes and Volcanoes: causes and formations of
 - b. Fossils: formation, fossil fuels

3. **Physical Science:** Matter and Energy
 - a. Matter and Its Changes: States, measurement, chemical and physical properties
 - b. Heat – Energy on the Move: heat transfer, thermal energy
 - c. Sound: Sound wave travel
 - d. Light: Behavior, color

SKILLS TO BE DEVELOPED:

- ❖ Observation and forming of hypotheses
- ❖ Keeping accurate notes
- ❖ Analyzing scientific data accurately
- ❖ Measuring with precision
- ❖ Drawing conclusions
- ❖ Reporting findings

INVESTIGATION MATERIALS:

The following are a list of the harder to find materials used in the corresponding investigations throughout the course. If at any point finding the materials becomes a hardship, the parent should feel free to skip the investigation for that week. **A comprehensive list of materials for the investigations is included at the very end of the course plan (located after the quarterly exams).**

SUGGESTED MATERIALS NEEDED FOR INVESTIGATIONS	INVESTIGATION PAGE
Safety Goggles	Most!
Hand lens (magnifying glass)	A12, A18, A24
Pine cone	A18
Alfalfa Seed	A82
Bean Seed	A82
Stopwatch (or clock with a second hand).	A12, E54
Plastic Metric Ruler	E68
Stick of Modeling Clay	C18, E98
Funnel	C18
Bike (air) pump	C18
Glue gun	C34
Animal Footprint Stamps and Stamp-pad	C40
Balloon (hot – dog style)	E41
Thermometer	E54

COURSE TEXT: *Harcourt Science, 4th Grade* (Copyright 2005), Red book with parrot on cover

COURSE PLAN METHODOLOGY: *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first line of the week’s daily course plan. The specific daily assignments are outlined in the following lines indicated by the **MON, TUES, WED,** and **THUR** abbreviations.

Kolbe Academy has worked diligently to create the best possible course plans with the home schooling family in mind. Remember, however, that our program is intended to be flexible. Per the principle of subsidiarity, these course plans are a **suggested** course of study. As the teacher, you should adapt and modify these course plans to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

◆ ◆ ◆ FIRST QUARTER ◆ ◆ ◆

WEEK 1		
Throughout the year, there will be several opportunities for hands-on scientific investigations. These investigations will be a wonderful tool for understanding the material in each lesson. This week the students will concentrate mainly on reading about the processes involved in making a proper scientific investigation. This includes working safely and appropriately in the laboratory.		
INTRO	Pages x – xvii Pages xxii – xxiv	Goals: To learn about the scientific method and to understand how to be safe when performing investigations.
MON	Read pages x – xii. Go over the steps of the scientific method with the student before beginning any investigations. You may choose to do the marigold seed experiment outlined on these pages if you wish, although it is for demonstration of the scientific method.	
TUES	Read pages xiii – xvii. These pages give good examples of the scientific method in action. For future investigations, students can be asked to research what materials that may be needed for the upcoming week’s investigation.	
WED	Read pages xxii – xxiii. There will be some application of the students’ mathematics skills throughout the lessons and investigations. These pages will explain the importance of accurate measurements and application of math skills to interpret collected data.	
THUR	Read page xxiv. It is very important for the student to develop a sense of responsibility within the laboratory. Although the investigations are fairly safe, understanding safety at this age will ensure that they will work safely in a laboratory environment in later years. Discuss each safety rule with the child and ask him what would happen if each rule were not followed.	
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Notes</div>		
WEEK 2		
◆ ◆ ◆ UNIT A: A World of Living Things ◆ ◆ ◆		
HAR	Chapter 1 Lesson 1	Goals: To understand the cell as the basic building block of living things. To understand the parts of different types of cells.
MON	Investigation pages A4 – A5: Make a Model Cell. Have the student draw conclusions by	

	answering the questions at the end of the investigation. This investigation will teach the student to use a model to understand the cell and to make conclusions about the parts of a cell.	
TUES	Read pages A6 – A8. Have the student answer the embedded “check” questions orally after reading these pages. Discussion: The student should understand that all living things are made up of cells. The cell membrane and cytoplasm are common to all cells.	
WED	Read pages A9 – A10. Have the student answer the embedded “check” questions orally after reading these pages. Discussion: The students should understand that different types of cells may have different parts (i.e. in animals cells there are no cell walls or chloroplasts as there are in plant cells).	
THUR	Page A11. Read the summary. Answer Review questions at the end of the lesson on a separate piece of paper. Go over the questions to be sure the student understands the correct answers.	
Notes		
WEEK 3		
HAR	Chapter 1 Lesson 2	The investigation for lesson 2 is optional as it requires real sponge, a material that is not always readily available in the home. However, this investigation does provide a good introduction as to how body features and support systems are used to classify animals. Goals: To understand the structure of simple animals and to understand the role of seeds in plants.
	Chapter 1 Lesson 3	
MON	Read pages A14 – A17. Have the student draw conclusions by answering the questions at the end of the investigation. Discussion: This chapter explains that the simplest animal is a sponge. It continues to describe some differences between simple and more complex animals. On page A16, have the students identify which animals show are arthropods and which are invertebrates.	
TUES	Lesson 2. Have the student answer the Review Questions at the end of the lesson on a separate piece of paper. Go over the questions with the student so he understands the correct answers.	
WED	Lesson 3 Investigation, Pages A18 – A19: Cones and Fruits. Have the student draw conclusions by answering the questions at the end of the investigation orally. This investigation will help students understand plants that contain seeds. Lesson 3. Read pages A20 – A21. Have the student answer the embedded “check” questions orally after reading these pages.	
THUR	Lesson 3. Read page A23 – A24. Have the student answer the embedded “check” questions orally after reading these pages. Have the student answer the Review Questions at the end of the lesson on a separate piece of paper. Go over the questions with the student so he understands the correct answers.	
Notes		