

# Kolbe Academy Home School

## GRADE ONE SCIENCE *Harcourt Science 1/2 (Yellow)*

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**Resale & Copying Policy:** This course plan and all accompanying materials are not intended for resale or copying. Copying represents copyright infringement, which is illegal. Regarding reselling the materials, Kolbe Academy relies upon the continued purchase of our course plans for financial stability. As a Catholic Apostolate, we ask you to refrain from reselling Kolbe's course plans. While we cannot stop you from copying or reselling this course plan, we do strongly implore you not to do so.

**COURSE TITLE:** Science

**COURSE TEXT:** *Harcourt Science*, 1<sup>st</sup> Grade (Harcourt Publishing, 2005), (T4822)  
*Harcourt Science*, 1<sup>st</sup> Grade Workbook (T4822B) - Optional

**COURSE DESCRIPTION:**

First 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 science in more depth later. 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](http://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](http://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 2** 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:**

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:**

Kolbe Academy uses the 2<sup>nd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> grade books from the Harcourt series over the course of 6 years. This allows students to be introduced to the several topics in science but not to be bogged down in the elementary years. The first grade lesson plans, therefore, take the parent through Units A, C, and E of the Harcourt Science 2<sup>nd</sup> grade book, covering the following topics:

**Quarter 1**

**Unit A: Life Science:** Living Things Grow and Change

- a. Plants Grow and Change
- b. Animals Grow and Change

**Quarter 2****Unit A: Life Science:** Living Things Grow and Change

- a. People Grow and Change

**Quarter 3****Unit C: Earth Science:** Exploring Earth's Surface

- a. Earth's Resources
- b. Earth Long Ago

**Quarter 4****Unit E: Physical Science:** Exploring Matter

- a. Observing and Measuring Matter
- b. Changes in Matter

**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.

Material	Investigation Page Number
Magazines and/or catalogs with pictures of living and nonliving things, especially with different kinds of plants and animals.	A 4, A 8, A14, A 24
Lima bean or other fast germinating and growing seeds. Small containers and potting soil. Cotton	A 8
Mealworms and hand lens. Alternative: caterpillars	A 30
Centimeter ruler	A 36
Balloon, tape, 3 rubber bands, 2 paper towel tubes	A 48
Sweet potato	A 70
Clay	C 4, C 24, C 30
Milk carton, plant parts, glue, birdseed	C 8
Books about dinosaurs and chenille sticks	C 36
Balance	E 8
Measuring cups, food coloring	E 14

**COURSE PLAN METHODOLOGY:**

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 them to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

In the course plans that follow, *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals and notes for that week. The specific daily assignments are outlined in the following lines indicated by the **DAY 1** and **DAY 2** abbreviations. Parent daily guidelines are given to the left of the student assignments. Most families will use

Days 1 and 2 as a Monday/Wednesday or Tuesday/Thursday schooling schedule. This leaves Friday open for review, catch-up, field trips, or other activities. A family's schedule can and should vary as needed.

A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is considered a review week and week 9 is dedicated strictly to examination. Your student may not need all of Week 8 for review. You can use this time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over *before* teaching the subjects and make sure you review the material in the tests throughout the quarter.** Some children have a difficult time doing written exams, but it is important for them to learn how to take them. If your first grader does poorly on them, give them to him orally a couple of days after he has taken them and average the grades.

Finally, 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.

# Kolbe Academy Home School

## GRADE TWO SCIENCE *Harcourt Science 1/2 (Yellow)*

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D. Quarter 4 Answer Key	

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**COURSE TITLE:** Science

**COURSE TEXT:** *Harcourt Science, 2<sup>nd</sup> Grade* (Harcourt Publishing, 2005), (T4822)  
*Harcourt Science, 2<sup>nd</sup> Grade Workbook* (T4822B) - Optional

**COURSE DESCRIPTION:**

Second grade science continues the 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 science in more depth later. Children learn more from doing the experiments and investigations alongside the reading of the textbook.

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](http://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](http://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 2** 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 grade 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:**

Kolbe Academy uses the 2<sup>nd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> grade books from the Harcourt series over the course of 6 years. This allows students to be introduced to the several topics in science but not to be bogged down in the elementary years. The second grade lesson plans, therefore, take the parent through Units B, D, and F of the Harcourt Science 2<sup>nd</sup> grade book, covering the following topics:

**Quarter 1 and 2**

- Unit B: Life Science:** Homes for Living Things
- a. Habitats for Plants and Animals
  - b. Changes in Habitats

**Quarter 3**

- Unit D: Earth Science:** Space and Weather
- a. The Solar System
  - b. Earth's Weather

**Quarter 4**

- Unit F: Physical Science:** Energy in Motion
- a. Forces and Motion
  - b. Hearing and Sound

**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.

<b>Material</b>	<b>Investigation Page Number</b>
Magazines and/or catalogs with pictures of animals and their habitats to be cut out, glue, crayons, paper, and pencil	B4, B8
Lettuce leaves	B 14
Construction paper –black and red, clock or timer	B 20
Birdseed, berries	B 28
Seeds, 2 paper plates, paper towels, spray bottle	B 40
Box, soil, trowel	B 46, B 62
Used items, markers or paint, glue, newspaper	B 52
Petroleum jelly	B 63
Earthworms	B 62
Paper cups, flashlight, black paper, tape	D 4, D 24
Foam ball, lamp	D 18, D 24
Foil	D 24
Markers	D 36
2 zip-top bags, food coloring, tape	D 42
Thermometer	D 46
Weather picture cards, clothing picture cards (can be cut from magazines)	D 52
2 bar magnets	F 12
A board, 6 books, a meterstick or yardstick, a toy truck	F 18
Ruler	F 31
Rubber bands, box lid	F 46

**COURSE PLAN METHODOLOGY:**

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In the course plans that follow, *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals and notes for that week. The specific daily assignments are outlined in the following lines indicated by the **DAY 1** and **DAY 2** abbreviations. Parent daily guidelines are given to the left of the student assignments. Most families will use Days 1 and 2 as a Monday/Wednesday or Tuesday/Thursday schooling schedule. This leaves Friday open for review, catch-up, field trips, or other activities. A family's schedule can and should vary as needed.

A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is considered a review week and week 9 is dedicated strictly to examination. Your student may not need all of Week 8 for review. You can use this time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over before teaching the subjects and make sure you review the material in the tests throughout the quarter.** Some children have a difficult time doing written exams, but it is important for them to learn how to take them. If your second grader does poorly on them, give them to him orally a couple of days after he has taken them and average the grades.

Finally, 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.



# Kolbe Academy Home School

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

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**COURSE TITLE:** Science

**COURSE TEXT:** *Harcourt Science, 4<sup>th</sup> Grade*, Harcourt Publishing, 2005  
 Kolbe Academy Answer Key for Harcourt Science 3/4, Optional  
*Harcourt Science Workbook 4<sup>th</sup> Grade*, Harcourt Publishing, Optional  
*Harcourt Science, 4<sup>th</sup> Grade Workbook Teacher Manual*, Optional

**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.

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

**SCOPE AND SEQUENCE:**

**This course plan covers the following units in the Harcourt Science Grade 4 textbook:**

**Unit A: Life Science:** World of Living Things

**Unit C: Earth Science:** The Earth's Surface

**Unit E: Physical Science:** Matter and Energy

**Quarter 1**

1. Unit A, Chapter 1: Cells, Animals, Plants, Fungi
2. Unit A, Chapter 2: Animal Growth and Adaptations: Basic needs, anatomy, behavior

**Quarter 2**

1. Unit A, Chapter 3: Plant Growth and Adaptations: Needs to live, structure, reproduction
2. Unit A, Chapter 4: Human Body Systems: Skeletal, Muscular, Respiratory, Circulatory, Nervous, and Digestive systems.
3. Unit C, Chapter 1: Earthquakes and Volcanoes: causes and formations

**Quarter 3**

1. Unit C, Chapter 2: Fossils: formation, fossil fuels
2. Unit E, Chapter 1: Matter and Its Changes: States, measurement, chemical and physical properties

**Quarter 4**

1. Unit E, Chapter 2: Heat – Energy on the Move: heat transfer, thermal energy
2. Unit E, Chapter 3: Sound: Sound wave travel
3. Unit E, Chapter 4: 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 PLAN METHODOLOGY:**

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In the course plans that follow, *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals and notes for that week. The specific daily assignments for the student are outlined in the following lines indicated by the **DAY 1, DAY 2, DAY 3, and DAY 4** abbreviations. Parent daily guidelines are given to the left of the student assignments. Most families will use Days 1-4 as a Monday through Thursday schooling schedule. This leaves Friday open for review, catch-up, field trips, or other activities. A family's schedule can and should vary as needed.

A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is considered a review week and week 9 is dedicated strictly to examination. Your student may not need all of Week 8 for review. You can use this time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over *before* teaching the subjects and make sure you review the material in the tests throughout the quarter.** 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.

Finally, 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.

# Kolbe Academy Home School

## GRADE FOUR SCIENCE *Harcourt Science 3/4 (Red)*

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V. Investigations Materials List	

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**COURSE TITLE:** Science

**COURSE TEXT:** *Harcourt Science, 4<sup>th</sup> Grade*, Harcourt Publishing, 2005, (T4824)  
 Kolbe Academy Answer Key for Harcourt Science 3/4, (T4824A), Optional  
*Harcourt Science Workbook 4<sup>th</sup> Grade*, Harcourt Publishing, (T4824B), Optional  
*Harcourt Science, 4<sup>th</sup> Grade Workbook Teacher Manual*, (T4824C), Optional

**COURSE DESCRIPTION:**

Fourth grade science continues the 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 science in more depth later. Children learn more from doing the experiments and investigations alongside the reading of the textbook.

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](http://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](http://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, second, and third 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:**

**This course plan covers the following units in the Harcourt Science Grade 4 textbook:**

**Unit B: Life Science:** Looking at Ecosystems

**Unit D: Earth Science:** Patterns on Earth and in Space

**Unit F: Physical Science:** Forces and Motion

**Quarter 1**

1. Unit B, Chapter 1: Ecosystems: Components, habitats, rain forests, coral reefs
2. Unit B, Chapter 2: Protecting Ecosystems: Conservation

**Quarter 2**

1. Unit D, Chapter 1: Weather Conditions: The atmosphere, air masses and fronts, and weather prediction
2. Unit D, Chapter 2: The Oceans: Water cycle, ocean floor

**Quarter 3**

1. Unit D, Chapter 3: Planets and Other Objects in Space: Earth, moon, planets
2. Unit F, Chapter 1: Electricity and Magnetism

**Quarter 4**

1. Unit F, Chapter 2: Motion and Forces at Work:
2. Unit F, Chapter 3: Simple Machines: Levers, pulleys, and wheels

**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
Gravel, Sand, Soil	B4
6 small plants	B4
Meterstick	B10, B50
Hand trowel	B10
Hand lens	B10
Modeling clay	B26, D32, D46
Fishing line	B26
Pipe cleaners (chenille stems)	B26
Aquarium gravel	B50
Plastic green plants	B50
Colored ice cube	D38
Grid or graphing paper	D38
D-cell battery	F10, F22
Miniature light bulb	F10

Bar magnet	F16, F22
Insulated electrical wire	F10, F22
Compass	F22
2 spring scales (a fishing scale works well)	F44

**COURSE PLAN METHODOLOGY:**

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In the course plans that follow, *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals and notes for that week. The specific daily assignments for the student are outlined in the following lines indicated by the **DAY 1, DAY 2, DAY 3, and DAY 4** abbreviations. Parent daily guidelines are given to the left of the student assignments. Most families will use Days 1-4 as a Monday through Thursday schooling schedule. This leaves Friday open for review, catch-up, field trips, or other activities. A family's schedule can and should vary as needed.

A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is considered a review week and week 9 is dedicated strictly to examination. Your student may not need all of Week 8 for review. You can use this time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over before teaching the subjects and make sure you review the material in the tests throughout the quarter.** Some children have a difficult time doing written exams, but it is important for them to learn how to take them. If your fourth grader does poorly on them, give them to him orally a couple of days after he has taken them and average the grades.

Finally, 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.



# Kolbe Academy Home School

## GRADE FIVE SCIENCE *Harcourt Science 5/6 (Purple)*

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**Resale & Copying Policy:** This course plan and all accompanying materials are not intended for resale or copying. Copying represents copyright infringement, which is illegal. Regarding reselling the materials, Kolbe Academy relies upon the continued purchase of our course plans for financial stability. As a Catholic Apostolate, we ask you to refrain from reselling Kolbe's course plans. While we cannot stop you from copying or reselling this course plan, we do strongly implore you not to do so.

**COURSE TITLE:** Science

**COURSE TEXT:** *Harcourt Science*, Student Book, Harcourt Publishing, 2005, (T4826)  
 Kolbe Academy Answer Key for Harcourt Science 3/4, (T4826A), Optional  
*Harcourt Science Workbook 6<sup>th</sup> Grade*, Harcourt Publishing, (T4826B), Optional  
*Harcourt Science, 6<sup>th</sup> Grade Workbook Answer Key*, (T4826C), Optional

**COURSE DESCRIPTION:**

Fifth-grade Science is an intermediate 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 along with the reading of the textbook.

The Harcourt Science series has several FREE online learning tools available to anyone who purchases the textbook. The first is provided by the publisher. Simply go to [www.harcourtschool.com](http://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 access the site. *Be sure to put Kolbe Academy as the school!* This will help create fewer problems when you are trying to access 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](http://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 6** 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 alone.

**COURSE OBJECTIVES:**

This course is a continuation of the work of the third and fourth 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:**

This course plan covers the following units in the Harcourt Science Grade 6 textbook:

**Unit A: Life Science:** Understanding Living Things

**Unit C: Earth Science:** The Living Planet

**Unit E: Physical Science:** Matter and Energy

**Quarter 1**

1. Unit A, Chapter 1: Cells, Genetics, and Heredity: Plant and animal cells, reproduction, trait inheritance
2. Unit A, Chapter 2: Classification: Kingdoms and subdivisions of kingdoms

**Quarter 2**

1. Unit C, Chapter 1: Ecosystems-Characteristics and Cycles: natural cycles, natural resources
2. Unit C, Chapter 2: Interactions in Ecosystems: Energy for Organisms, Symbiosis
3. Unit C, Chapter 3: Earth's Oceans: Ocean Ecosystems

**Quarter 3**

1. Unit C, Chapter 4: Weather Changes: Atmosphere, weather fronts, weather prediction, and severe storms
2. Unit E, Chapter 1: Atoms, Elements, and Compounds: Components and properties of atoms, states of matter

**Quarter 4**

1. Unit E, Chapter 2: Matter-Properties and Changes: Physical and chemical properties of matter
2. Unit E, Chapter 3: Energy: Thermal energy and heat, magnetism and electricity, chemical and nuclear energy
3. Unit E, Chapter 4: Sound and Light: Properties of waves, sound waves, light

**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)	Several
Bar magnet	E12, E58
Red and green clay	A4
2 cups of mixed dry beans	A40
Toy wooden blocks (Jenga pieces would work well)	E4
Marbles	E4
Thermometer or other temperature sensor	C106, E20
Iron filings	E58
Galvanometer, battery tester or other voltage meter	E82, E90 (optional investigations)
Slinky	E106

**COURSE PLAN METHODOLOGY:**

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 them to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

In the course plans that follow, *Harcourt Science* is represented by the abbreviation **HAR**. Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals and notes for that week. The specific daily assignments for the student are outlined in the following lines indicated by the **DAY 1, DAY 2, DAY 3, and DAY 4** abbreviations. Parent daily guidelines are given to the left of the student assignments. Most families will use Days 1-4 as a Monday through Thursday schooling schedule. This leaves Friday open for review, catch-up, field trips, or other activities. A family's schedule can and should vary as needed.

A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is considered a review week and week 9 is dedicated strictly to examination. Your student may not need all of Week 8 for review. You can use this time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over *before* teaching the subjects and make sure you review the material in the tests throughout the quarter.** Some children have a difficult time doing written exams, but it is important for them to learn how to take them. If your fifth grader does poorly on them, give them to him orally a couple of days after he has taken them and average the grades.

Finally, 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.

# Kolbe Academy Home School

## GRADE SIX SCIENCE *Harcourt Science 5/6 (Purple)*

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**COURSE TITLE:** Science**COURSE TEXT:**

*Harcourt Science, 6<sup>th</sup> Grade (Copyright 2005), Purple book with tiger on cover, T4826*

*Harcourt Science, 6<sup>th</sup> Grade Answer Key, T4826A, Optional*

*Harcourt Science, 6<sup>th</sup> Grade (Copyright 2005) Workbook, T4826B, Optional*

*Harcourt Science, 6<sup>th</sup> Grade (Copyright 2005) Workbook Answer Key, T4826C, Optional*

**COURSE DESCRIPTION:**

Sixth-grade Science is the continuation of an intermediate introduction to the life, earth, and physical sciences. The most important part of teaching science 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 along with the reading of the textbook.

The Harcourt Science series has several FREE online learning tools available to anyone who purchases the textbook. The first is provided by the publisher. Simply go to [www.harcourtschool.com](http://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 access the site. *Be sure to put Kolbe Academy as the school!* This will help create fewer problems when you are trying to access 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](http://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 6** 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 alone.

**COURSE OBJECTIVES:**

This course is a continuation of the work of the third and fourth 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
- ❖ making observations
- ❖ analyzing data
- ❖ drawing conclusions

Introduction to scientific concepts

- ❖ furthering science vocabulary in preparation for later coursework
- ❖ experience with the three main disciplines in science: life, earth, and physical science

**SCOPE AND SEQUENCE:**

1. **Life Science:** Living Things Grow and Respond
  - a. Plant growth and responses: plant responses to their environment
  - b. Types of plants: mosses, ferns, gymnosperms, angiosperms
  - c. Invertebrates: sponges, cnidarians, worms, mollusks, arthropods, echinoderms
  - d. Vertebrates: fish, amphibians, reptiles, birds, and mammals
  
2. **Earth Science:** Cycles in Earth and Space
  - a. Movement of Earth's crust: Earth's layers, plate movement, earthquakes, and volcanoes
  - b. Rocks and rock cycle: igneous, sedimentary, and metamorphic rocks, and the rock cycle
  - c. Cycles in the Solar System: parts of the Solar System, planetary cycles, seasons, moon phases
  - d. Exploring the Universe: life cycle of a star, features of the galaxies, studying space
  
3. **Physical Science:** Forces and Machines
  - a. Forces and motion: gravity, describing motion, and forces interact
  - b. Machines and work: levers, inclined planes, compound machines

**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, Hand lens (magnifying glass)	Several
Pinecone, pine needles, fern frond	B32
Flower (preferably a large lily or gladiolus)	B42
Lima bean, corn kernel	B50
20 bean seeds, Assorted colors of modeling clay	B4, D4, D12, D54, D128
Ruler with inches and centimeters	D4, D12
Drawing compass	D10, D76
2 blocks of wood	D54, F56
Packing peanuts	D54
3 rock samples	D62
2 thermometers	D92

3" plastic foam ball	D100
Marble	F12
Magnetic compass	F12
Toy car or roller skate	F22, F48
Wooden plank	F22
Spring or fish scale	F38, F48, F56

**COURSE PLAN METHODOLOGY:**

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 them to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

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A weekly grade book is included at the end of the week's course plan *as a convenience*. Parents should use the grade book only as a help to their homeschooling and not as a hindrance. It includes a cumulative list of written assignments from the week's course plan as well as space for additional assignments, if needed. **Kolbe Academy does not require that you keep record of all student work.** If you intend to report your student's work to Kolbe Academy for an official record, only one sample of written and graded work is required per quarter per course along with the signed and filled out report card. The weighting suggestion in the end of quarter grade book is there for *convenience* and may be modified as the parent deems fit. Please consult the welcome packet for a full tutorial on using the grade book.

This science course contains 36 weeks broken into four 9-week quarters. Week 8 is a lighter week, and usually includes a few days for review. You should use the review days as time to catch up if necessary and then go over the subject matter. **If you intend to use the tests provided, look them over *before* teaching the subjects and make sure you review the material in the tests throughout the quarter.**

Finally, 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.