



LIFE·PAC®

Select



Alpha Omega Publications®

Life Science

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Alpha Omega Publications®

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Dear Instructor,

Thank you for your interest in electives using the LIFEPAC Select Series.

The courses in this series have been compiled by schools using Alpha Omega's LIFEPAC Curriculum. These courses are an excellent example of the flexibility of the LIFEPAC Curriculum for specialized teaching purposes.

The unique design of the worktext format has allowed instructors to mix and match LIFEPACs from five core subjects (Bible, Language Arts, Science, and History & Geography) to create alternative courses for junior high and high school credit.

These courses work particularly well as unit studies, as supplementary electives, or for meeting various school and state requirements. Another benefit of the courses—and any LIFEPAC subject, for that matter—is the ability to use them with any curriculum, at any time during the year, for any of several purposes:

- Elective Courses
- Make-up Courses
- Substitution Courses
- Unit Studies
- Summer School Courses
- Remedial Courses
- Multi-level Teaching
- Thematic Studies

<i>Course Titles</i>	<i>Suggested Credits</i>
Astronomy (Jr. High and above)	1/2 credit
Composition	1/2 credit
Geography	1/2 credit
Geology	1/2 credit
Life of Christ (Jr. High and above)	1/2 credit
Life Science	1/2 credit
Mankind: Anthropology and Sociology	1/2 credit

Life Science

High School Level (1/2 credit)

What is Science?

Science LIFEPAC 701

Tools of a Scientist

- Observation
- Questions
- Measurement
- Classification
- Inductive Method
- Deductive Method

Methods of a Scientist

- Stating the Problem
- Forming the Hypothesis
- Conducting an Experiment
- Interpreting the Data
- Drawing Conclusions

Work of a Scientist

- The Scientist
- The Four Major Areas of Science

Careers in Science

- The Professional
- The Profession

Human Anatomy 1

Science LIFEPAC 708

Human Building Blocks

- Cell Structure
- Cell Functions

Human Framework

- Skeletal System
- Muscles
- Skin

Human Nervous System

- Central Nervous System
- Senses

Human Anatomy 2

Science LIFEPAC 709

The Respiratory System

- The Nose
- Throat Structures
- The Lungs

The Circulatory System

- The Heart
- Blood Vessels
- Blood

The Digestive System

- The Mouth
- The Stomach
- The Small Intestine
- The Large Intestine

The Excretory System

- Kidneys
- Bladder
- Skin

The Endocrine System

- The Pituitary Gland
- The Thyroid and Parathyroid Glands
- The Adrenal Glands

Balance in Nature

Science LIFEPAC 809

Photosynthesis and Food

- Photosynthesis
- Food

Natural Cycles

- The Nitrogen Cycle
- The Decay Cycle
- The Water Cycle
- The Carbon and Oxygen Cycle

Balance and Disruption

- Nature in Balance
- Human Disruption
- Resources

Science and Tomorrow

Science LIFEPAC 909

People and Their Land

- Ecology
- Agriculture
- Waste
- Population

People and Their Environment

- Energy Sources
- Industry
- Transportation
- Urbanization

People and Their New Frontiers

- Outer Space
- Inner Space
- Self Exploration

Materials Need for LIFE PAC

Required:
None

Suggested:
box containing a variety of objects for students to classify—for example: a nail, a piece of wood, a tin can, a seed, a piece of cloth, a sponge, a comb, a stone, a pencil, a plastic bag, a book of matches, and so on
a book or other resource containing information about George Washington Carver

Additional Learning Activities

Section I Tools of a Scientist

1. Arrange ten objects on a tray. Show the tray to a group of friends for fifteen seconds and cover the tray. Ask your friends to list as many of the objects as they can remember.
2. Gather leaves from ten different plants. List as many similarities and differences as possible. Name ways to classify your leaves.

Section II Methods of a Scientist

1. Show the class a magazine picture and ask the students to write as many questions as they can about the picture.
2. With a friend use the scientific method to solve a problem.
3. Write a skit involving a problem. Solve the problem with the scientific method. Present the skit to the rest of the class.
4. Make a poster illustrating the scientific method.
5. Write a one-page report on the importance of curiosity to a scientist.

Section III Work of a Scientist

1. Discuss the ways scientists have improved the quality of life. Topics might include: curing disease, predicting earthquakes and volcanic eruptions, developing varieties of plants that produce higher yields, forecasting the weather, and so on.
2. Make a bulletin board of famous scientists and their contributions.
3. Select one famous Christian scientist and write a one-page report about him. You may use an encyclopedia or other library books for this assignment.

Section IV Careers in Science

1. Discuss with the students the difference between a technician and an engineer (Training differences can be seen in a university catalog or a junior college catalog.)
2. Read a brief biography of a scientist in an encyclopedia. With friends act out an important event in the life of that scientist.
3. Look in pamphlets like those from the federal or state governments, colleges, or Metropolitan Life Insurance Co. Select one field of science and read about different occupations within that field.
4. Make a poster using the information given in Section IV to illustrate the need for scientists.

SECTION ONE

- | | |
|--|--|
| <p>1.1 Fahrenheit was a German physicist who developed the Fahrenheit temperature scale. He made the measurement of temperature more accurate by developing a mercury thermometer.</p> | <p>1.09 Observations will vary</p> |
| <p>1.2 Galileo is called the Father of Experimental Science. He discovered the law of the pendulum. He made the first practical use of the telescope in astronomy He built larger and better? telescopes.</p> | <p>1.10 Observations will vary.</p> |
| <p>1.3 Otto Von Guericke proved that a vacuum could exist. Creating a vacuum was foundationl for research into electronics and other related new scientific fields.</p> | <p>1.11 Hint:
Write about the taste and smell of pine needles. Write about the taste and texture of the tree’s fruit. Write about the sound and feel of a breaking twig.</p> |
| <p>1.4 Robert Hooke constructed the first reflecting telescope.</p> | <p>1.12 Examples:
How old is the tree?
How many rings does the tree have?
Are there any birds’ nests in the tree?
Is the tree climbable?</p> |
| <p>1.5 Johannes Kepler was a German astronomer who discovered thethree laws of planetary motion. He discovered a better combination of lenses for a telescope.</p> | <p>1.13 Questions will vary.</p> |
| <p>1.6 Anton Van Leeuwenhoek was a Dutch scientist who revealed the world of microscopic life through his observations and drawings. He developed a precise grinding process to make high quality lenses.</p> | <p>1.14 observation</p> |
| <p>1.7 Torricelli was an Italian physicist who discovered the principle of the barometer. He invented the mercurial barometer. A barometer is used to measure air pressure.</p> | <p>1.15 Any order:
a. seeing
b. hearing
c. smelling
d. tasting
e. feeling</p> |
| <p>1.8 Hint:
Discuss the tree’s color, height, location, leaf shape, and color and taste, bark texture, condition of crumbliness (friability).
Discuss the form, color, taste of seeds; attributes of fruits (if present); animal population; parasites (dead or alive).
Tell whether the tree is denuded.</p> | <p>1.16 instruments</p> |
| | <p>1.17 Any order:
a. collect accurate data
b. recognize evidence or to think
c. make comparisons</p> |
| | <p>1.18 Either order:
a. observation
b. thinking</p> |
| | <p>1.19 meter</p> |
| | <p>1.20 kilogram</p> |
| | <p>1.21 liter</p> |
| | <p>1.22 one-millionth</p> |
| | <p>1.23 one-thousandth</p> |

Science 701 Answer Key

- 1.24 one-hundredth
1.25 one thousand
1.26 An angstrom is one-hundred millionth of a centimeter.
1.27 A light year is the distance light travels in a year: almost 6,000,000,000,000 miles or 9,654,000,000,000 meters
1.28 A micron is one-millionth of a meter.
1.29 Classifications of objects can be made according to color, shape, size, or use of material. Objects belong to the mineral kingdom, the vegetable kingdom, or the animal kingdom.
1.30 Any order:
a. mineral
b. plant or vegetable
c. animal
1.31 a. grow
b. grow and live
c. grow, live, and have feeling
1.32 Similarities Differences
Examples: Examples:
a. animal coloring
b. live in Africa sound each make
c. warm-blooded food each eat
1.33 Classifications will vary.
1.34 Observation will vary: however, observations will describe the differences between a paper clip and a ruler.
1.35 Answers will vary.
1.36 Answers will vary.
1.37 Answers will vary.
1.38 a. observation or question or data or experiments
b. generalization or conclusion
1.39 conservation of matter
1.40 The deductive method of reasoning starts with a general principle that is accepted as true, applies it to a particular case, and arrives at a conclusion. This means the reasoning proceeds from the general to the specific.
1.41 The inductive method of reasoning is one in which one collects many particular cases, finds out what is common, and forms a general rule that is taken to be true. This has the reasoning proceeding from the specific to the general.
1.42 deductive
1.43 deductive
1.44 inductive
1.45 deductive
1.46 inductive
1.47 balance
1.48 Either order:
a. gains
b. loses
1.49 conservation of matter
1.50 inductive
1.51 inductive
1.52 deductive
1.53 Example:
All Christians love God.
Mary is a Christian.
Therefore, Mary loves God.
1.54 Example:
Mary, Joe, Bill, Jan, and Jim are Christians.
Mary, Joe, Bill, Jan, and Jim love God.
Therefore, all Christians love God.