



# SCIENCE

TEACHER'S GUIDE

▶ **8th Grade**

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# **SCIENCE 800**

## Teacher's Guide

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# **LIFEPAC<sup>®</sup>**

# **Management**



## ***STRUCTURE OF THE LIFEPAC CURRICULUM***

The LIFEPAC curriculum is conveniently structured to provide one teacher handbook containing teacher support material with answer keys and ten student worktexts for each subject at grade levels two through twelve. The worktext format of the LIFEPACs allows the student to read the textual information and complete workbook activities all in the same booklet. The easy to follow LIFEPAC numbering system lists the grade as the first number(s) and the last two digits as the number of the series. For example, the Language Arts LIFEPAC at the 6th grade level, 5th book in the series would be LAN0605.

Each LIFEPAC is divided into 3 to 5 sections and begins with an introduction or overview of the booklet as well as a series of specific learning objectives to give a purpose to the study of the LIFEPAC. The introduction and objectives are followed by a vocabulary section which may be found at the beginning of each section at the lower levels, at the beginning of the LIFEPAC in the middle grades, or in the glossary at the high school level. Vocabulary words are used to develop word recognition and should not be confused with the spelling words introduced later in the LIFEPAC. The student should learn all vocabulary words before working the LIFEPAC sections to improve comprehension, retention, and reading skills.

Each activity or written assignment has a number for easy identification, such as 1.1. The first number corresponds to the LIFEPAC section and the number to the right of the decimal is the number of the activity.

Teacher checkpoints, which are essential to maintain quality learning, are found at various locations throughout the LIFEPAC. The teacher should check 1) neatness of work and penmanship, 2) quality of understanding (tested with a short oral quiz), 3) thoroughness of answers (complete sentences and paragraphs, correct spelling, etc.), 4) completion of activities (no blank spaces), and 5) accuracy of answers as compared to the answer key (all answers correct).

The self test questions are also number coded for easy reference. For example, 2.015 means that this is the 15th question in the self test of Section II. The first number corresponds to the LIFEPAC section, the zero indicates that it is a self test question, and the number to the right of the zero the question number.

The LIFEPAC test is packaged at the centerfold of each LIFEPAC. It should be removed and put aside before giving the booklet to the student for study.

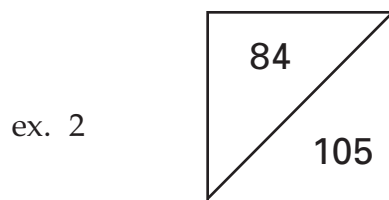
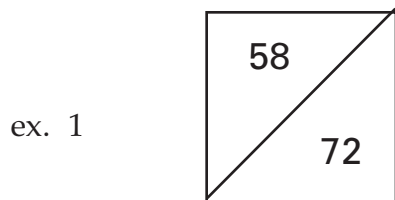
Answer and test keys have the same numbering system as the LIFEPACs and appear at the back of this handbook. The student may be given access to the answer keys (not the test keys) under teacher supervision so that he can score his own work.

A thorough study of the Curriculum Overview by the teacher before instruction begins is essential to the success of the student. The teacher should become familiar with expected skill mastery and understand how these grade level skills fit into the overall skill development of the curriculum. The teacher should also preview the objectives that appear at the beginning of each LIFEPAC for additional preparation and planning.

**TEST SCORING and GRADING**

Answer keys and test keys give examples of correct answers. They convey the idea, but the student may use many ways to express a correct answer. The teacher should check for the essence of the answer, not for the exact wording. Many questions are high level and require thinking and creativity on the part of the student. Each answer should be scored based on whether or not the main idea written by the student matches the model example. "Any Order" or "Either Order" in a key indicates that no particular order is necessary to be correct.

Most self tests and LIFEPAC tests at the lower elementary levels are scored at 1 point per question; however, the upper levels may have a point system awarding 2 to 5 points for various questions. Further, the total test points will vary; they may not always equal 100 points. They may be 78, 85, 100, 105, etc.



A score box similar to ex.1 above is located at the end of each self test and on the front of the LIFEPAC test. The bottom score, 72, represents the total number of points possible on the test. The upper score, 58, represents the number of points your student will need to receive an 80% or passing grade. If you wish to establish the exact percentage that your student has achieved, find the total points of his correct answers and divide it by the bottom number (in this case 72.) For example, if your student has a point total of 65, divide 65 by 72 for a grade of 90%. Referring to ex. 2, on a test with a total of 105 possible points, the student would have to receive a minimum of 84 correct points for an 80% or passing grade. If your student has received 93 points, simply divide the 93 by 105 for a percentage grade of 89%. Students who receive a score below 80% should review the LIFEPAC and retest using the appropriate Alternate Test found in the Teacher's Guide.

The following is a guideline to assign letter grades for completed LIFEPACs based on a maximum total score of 100 points.

- LIFEPAC Test = 60% of the Total Score (or percent grade)
- Self Test = 25% of the Total Score (average percent of self tests)
- Reports = 10% or 10\* points per LIFEPAC
- Oral Work = 5% or 5\* points per LIFEPAC

\*Determined by the teacher's subjective evaluation of the student's daily work.

Example:

LIFEPAC Test Score	=	92%	92	x	.60	=	55 points
Self Test Average	=	90%	90	x	.25	=	23 points
Reports						=	8 points
Oral Work						=	4 points

---

TOTAL POINTS = 90 points

Grade Scale based on point system:	100	-	94	=	A
	93	-	86	=	B
	85	-	77	=	C
	76	-	70	=	D
	Below		70	=	F



*TEACHER HINTS and STUDYING TECHNIQUES*

LIFEPAC Activities are written to check the level of understanding of the preceding text. The student may look back to the text as necessary to complete these activities; however, a student should never attempt to do the activities without reading (studying) the text first. Self tests and LIFEPAC tests are never open book tests.

Language arts activities (skill integration) often appear within other subject curriculum. The purpose is to give the student an opportunity to test his skill mastery outside of the context in which it was presented.

Writing complete answers (paragraphs) to some questions is an integral part of the LIFEPAC Curriculum in all subjects. This builds communication and organization skills, increases understanding and retention of ideas, and helps enforce good penmanship. Complete sentences should be encouraged for this type of activity. Obviously, single words or phrases do not meet the intent of the activity, since multiple lines are given for the response.

Review is essential to student success. Time invested in review where review is suggested will be time saved in correcting errors later. Self tests, unlike the section activities, are closed book. This procedure helps to identify weaknesses before they become too great to overcome. Certain objectives from self tests are cumulative and test previous sections; therefore, good preparation for a self test must include all material studied up to that testing point.

The following procedure checklist has been found to be successful in developing good study habits in the LIFEPAC curriculum.

1. Read the introduction and Table of Contents.
2. Read the objectives.
3. Recite and study the entire vocabulary (glossary) list.
4. Study each section as follows:
  - a. Read the introduction and study the section objectives.
  - b. Read all the text for the entire section, but answer none of the activities.
  - c. Return to the beginning of the section and memorize each vocabulary word and definition.
  - d. Reread the section, complete the activities, check the answers with the answer key, correct all errors, and have the teacher check.
  - e. Read the self test but do not answer the questions.
  - f. Go to the beginning of the first section and reread the text and answers to the activities up to the self test you have not yet done.
  - g. Answer the questions to the self test without looking back.
  - h. Have the self test checked by the teacher.
  - i. Correct the self test and have the teacher check the corrections.
  - j. Repeat steps a–i for each section.

5. Use the SQ3R\* method to prepare for the LIFEPAC test.
6. Take the LIFEPAC test as a closed book test.
7. LIFEPAC tests are administered and scored under direct teacher supervision. Students who receive scores below 80% should review the LIFEPAC using the SQ3R\* study method and take the Alternate Test located in the Teacher Handbook. The final test grade may be the grade on the Alternate Test or an average of the grades from the original LIFEPAC test and the Alternate Test.

\*SQ3R: Scan the whole LIFEPAC.  
Question yourself on the objectives.  
Read the whole LIFEPAC again.  
Recite through an oral examination.  
Review weak areas.

### *GOAL SETTING and SCHEDULES*

Each school must develop its own schedule, because no single set of procedures will fit every situation. The following is an example of a daily schedule that includes the five LIFEPAC subjects as well as time slotted for special activities.

#### Possible Daily Schedule

8:15	–	8:25	Pledges, prayer, songs, devotions, etc.
8:25	–	9:10	Bible
9:10	–	9:55	Language Arts
9:55	–	10:15	Recess (juice break)
10:15	–	11:00	Mathematics
11:00	–	11:45	Social Studies
11:45	–	12:30	Lunch, recess, quiet time
12:30	–	1:15	Science
1:15	–		Drill, remedial work, enrichment*

\*Enrichment: Computer time, physical education, field trips, fun reading, games and puzzles, family business, hobbies, resource persons, guests, crafts, creative work, electives, music appreciation, projects.

Basically, two factors need to be considered when assigning work to a student in the LIFEPAC curriculum.

The first is time. An average of 45 minutes should be devoted to each subject, each day. Remember, this is only an average. Because of extenuating circumstances a student may spend only 15 minutes on a subject one day and the next day spend 90 minutes on the same subject.

The second factor is the number of pages to be worked in each subject. A single LIFEPAC is designed to take 3 to 4 weeks to complete. Allowing about 3-4 days for LIFEPAC introduction, review, and tests, the student has approximately 15 days to complete the LIFEPAC pages. Simply take the number of pages in the LIFEPAC, divide it by 15 and you will have the number of pages that must be completed on a daily basis to keep the student on schedule. For example, a LIFEPAC containing 45 pages will require 3 completed pages per day. Again, this is only an average. While working a 45 page LIFEPAC, the student may complete only 1 page the first day if the text has a lot of activities or reports, but go on to complete 5 pages the next day.

Long range planning requires some organization. Because the traditional school year originates in the early fall of one year and continues to late spring of the following year, a calendar should be devised that covers this period of time. Approximate beginning and completion dates can be noted on the calendar as well as special occasions such as holidays, vacations and birthdays. Since each LIFEPAC takes 3-4 weeks or eighteen days to complete, it should take about 180 school days to finish a set of ten LIFEPACs. Starting at the beginning school date, mark off eighteen school days on the calendar and that will become the targeted completion date for the first LIFEPAC. Continue marking the calendar until you have established dates for the remaining nine LIFEPACs making adjustments for previously noted holidays and vacations. If all five subjects are being used, the ten established target dates should be the same for the LIFEPACs in each subject.

## **FORMS**

The sample weekly lesson plan and student grading sheet forms are included in this section as teacher support materials and may be duplicated at the convenience of the teacher.

The student grading sheet is provided for those who desire to follow the suggested guidelines for assignment of letter grades found on page 3 of this section. The student's self test scores should be posted as percentage grades. When the LIFEPAC is completed the teacher should average the self test grades, multiply the average by .25 and post the points in the box marked self test points. The LIFEPAC percentage grade should be multiplied by .60 and posted. Next, the teacher should award and post points for written reports and oral work. A report may be any type of written work assigned to the student whether it is a LIFEPAC or additional learning activity. Oral work includes the student's ability to respond orally to questions which may or may not be related to LIFEPAC activities or any type of oral report assigned by the teacher. The points may then be totaled and a final grade entered along with the date that the LIFEPAC was completed.

The Student Record Book which was specifically designed for use with the Alpha Omega curriculum provides space to record weekly progress for one student over a nine week period as well as a place to post self test and LIFEPAC scores. The Student Record Books are available through the current Alpha Omega catalog; however, unlike the enclosed forms these books are not for duplication and should be purchased in sets of four to cover a full academic year.



# WEEKLY LESSON PLANNER

**Week of:**

Subject	Subject	Subject	Subject
Monday			
Subject	Subject	Subject	Subject
Tuesday			
Subject	Subject	Subject	Subject
Wednesday			
Subject	Subject	Subject	Subject
Thursday			
Subject	Subject	Subject	Subject
Friday			

# WEEKLY LESSON PLANNER

**Week of:**

Subject	Subject	Subject	Subject
Monday			
Subject	Subject	Subject	Subject
Tuesday			
Subject	Subject	Subject	Subject
Wednesday			
Subject	Subject	Subject	Subject
Thursday			
Subject	Subject	Subject	Subject
Friday			

Student Name \_\_\_\_\_

Year \_\_\_\_\_

**Bible**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											

**History & Geography**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											

**Language Arts**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											



Student Name \_\_\_\_\_

Year \_\_\_\_\_

**Mathematics**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											

**Science**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											

**Spelling/Electives**

LP #	Self Test Scores by Sections					Self Test Points	LIFEPAC Test	Oral Points	Report Points	Final Grade	Date
	1	2	3	4	5						
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											

# **Teacher Notes**



## **INSTRUCTIONS FOR SCIENCE**

The LIFEPAC curriculum from grades two through twelve is structured so that the daily instructional material is written directly into the LIFEPACs. The student is encouraged to read and follow this instructional material in order to develop independent study habits. The teacher should introduce the LIFEPAC to the student, set a required completion schedule, complete teacher checks, be available for questions regarding both content and procedures, administer and grade tests, and develop additional learning activities as desired. Teachers working with several students may schedule their time so that students are assigned to a quiet work activity when it is necessary to spend instructional time with one particular student.

The Teacher Notes section of the Teacher's Guide lists the required or suggested materials for the LIFEPACs and provides additional learning activities for the students. The materials section refers only to LIFEPAC materials and does not include materials which may be needed for the additional activities. Additional learning activities provide a change from the daily school routine, encourage the student's interest in learning and may be used as a reward for good study habits.

If you have limited facilities and are not able to perform all the experiments contained in the LIFEPAC curriculum, the Science Project List may be a useful tool for you. This list prioritizes experiments into three categories: those essential to perform, those which should be performed as time and facilities permit, and those not essential for mastery of LIFEPACs. Of course, for complete understanding of concepts and student participation in the curriculum, all experiments should be performed whenever practical. Materials for the experiments are shown in Teacher Notes – Materials Needed.

A suggested support item for this course is the 8th Grade Science Experiments video, SD0801. The video includes presentations of many of the experiments in this course. Several of the experiments that require special equipment or materials are demonstrated on these videos. They can either be used for answering the questions of the lab report or as a demonstration of the procedure prior to performing the experiment. A notice is included with each experiment in the LIFEPAC where the video is available.

*Science Projects List*

Key

(1) = Those essential to perform for basic understanding of scientific principles.

(2) = Those which should be performed as time permits.

(3) = Those not essential for mastery of LIFEPACs.

S = Equipment needed for home school or Christian school lab.

E = Explanation or demonstration by instructor may replace student or class lab work.

H = Suitable for homework or for home school students. (No lab equipment needed.)

V = This experiment is available on the Science Experiments video.

**Science 801**

pp 23 (1) S & V

**Science 802**

pp 7 (1) H & V

8 (1) S

11 (1) S

14 (2) E & V

16 (1) H & V

18 (2) H

20 (2) S

38 (1) S

39 (2) H

48 (1) H & V

**Science 803**

pp 7 (1) H & V

11 (1) H

12 (3) E & V

17 (1) S & V

20 (1) S & V

25 (1) H & V

38 (1) H & V

39 (1) H & V

46 (1) S & V

48 (1) S

54 (1) S

**Science 804**

pp 12 (1) H

22 (1) H

**Science 805**

None

**Science 806**

pp 7 (1) S

8 (1) S

11 (1) S & V

24 (1) S & V

44 (2) H

**Science 807**

pp 23 (1) S

41 (1) S

**Science 808**

pp 8 (1) H

9 (1) H

12 (1) H

16 (2) H

30 (1) H or S

32 (1) H

36 (2) H

43 (1) H

**Science 809**

pp 7 (1) S

10 (1) H

53 (3) E

**Science 810**

pp 12 (1) S

16 (2) H

21 (1) S

23 (3) H

24 (2) S

33 (2) S

37 (1) H

41 (1) S

51 (1) H

### Materials Needed for LIFEPAAC:

Required:

Encyclopedia  
ruler at least 10 centimeters long  
graduated cylinder marked in  
milliliters  
balance scale (triple beam or  
other type)

Suggested:

8th Grade Science Experiments video

### Additional Learning Activities

#### Section I Science Today

1. Direct the student(s) to make a chart of events of science and technology in chronological order.
2. Use the charts to develop a time line of events in science and technology. This time line could be used also in the social sciences. Additional reference materials may be used to complete this activity.
3. Take a friend and a tape recorder and talk to someone who is over sixty years old. Ask questions about how the person lived when he or she was a child. What kind of medicine did the doctors have? Be certain to prepare a list of questions in advance.
4. Read a book on the history of science, one area of science, or one scientist.

#### Section II Science and Technology

1. With a friend develop a method to test the tensile strength of materials such as rubber bands, string, fine wire, etc. Test several items.
2. With friends make designs using potatoes. Slice the potatoes to make a flat surface. Cut in a design. Ink the potatoes with a stamp pad. Compare what can be done by this method with what can be done with Gutenberg's movable type.
3. Make squares one centimeter on each side on index cards. Spread the cards with petroleum jelly. Place the cards around school and home. Leave them for three days. Count the number of particles stuck to each square. Take the average of the cards. Where was the pollution greatest? Why?
4. Read the newspaper. Clip articles which relate to conflicts between science, technology, and society.
5. Design and build a model bridge. Test it to see how strong it is. Use straws, balsa, or toothpicks.

#### Section III Science and Technology of Tomorrow

1. From old magazines have students cut pictures of futuristic living. Explain how to make a collage. Have the students make a collage.
2. In the public library look up architecture. See changes that have taken place in buildings. Check names like Frank Lloyd Wright and Paolo Soleri.
3. From the encyclopedia or almanac get figures on the United States population for the ten-year intervals since 1790. Make a graph.

# Alternate Tests

**Reproducible Tests**  
for use with the Science 800  
Teacher's Guide





Name \_\_\_\_\_

Answer *true* or *false* (each answer, 1 point).

1. \_\_\_\_\_ Aristotle was an ancient philosopher.
2. \_\_\_\_\_ Newton used mathematics to develop the Law of Universal Gravitation.
3. \_\_\_\_\_ The theory of Lamarck was disproved.
4. \_\_\_\_\_ The number  $6.23 \cdot 10^4$  is the same as 62.34.
5. \_\_\_\_\_ Experiments are used to prove a hypothesis.
6. \_\_\_\_\_ Polio vaccine was developed by Salk.
7. \_\_\_\_\_ Copernicus invented the wheel.
8. \_\_\_\_\_ The first book printed on Gutenberg's press was the Bible.
9. \_\_\_\_\_ The production of cotton increased when the light bulb was invented.
10. \_\_\_\_\_ Our imperfect technology is a cause of pollution.

Solve these problems (each answer, 3 points).

11. Write  $5.34 \cdot 10^2$  in numerals. \_\_\_\_\_
12. How many millimeters make one meter? \_\_\_\_\_
13. Add and write the answer with the proper number of significant figures.

$$\begin{array}{r} 8.3 \\ 4.56 \\ +6.83 \\ \hline \end{array}$$

Match these terms (each answer, 3 points).

- |                              |   |
|------------------------------|---|
| 14. _____ technology         | a. scientifically correct                                 |
| 15. _____ biodegradable      | b. more certain than a hypothesis                         |
| 16. _____ Bible              | c. a goal of life science                                 |
| 17. _____ radium             | d. scientific notation                                    |
| 18. _____ theory             | e. Marie Curie  |
| 19. _____ $3.124 \cdot 10^2$ | f. capable of being broken down by the action of bacteria |
| 20. _____ cancer cure        | g. metric system  |
|                              | h. applied science  |

**Science 801 Alternate Test**

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Complete these statements choosing from the terms listed below (each answer, 3 points).

shaduf

Copernicus

solar energy

God

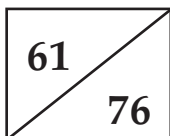
coal

Einstein

- 21. One in control of everything is \_\_\_\_\_.
- 22. The Egyptians developed the \_\_\_\_\_ for irrigation.
- 23. A non-polluting, safe form of energy is \_\_\_\_\_.
- 24. \_\_\_\_\_ developed the equation,  $E = mc^2$ .
- 25. Galileo agreed with the theory of \_\_\_\_\_ that the earth was not the center of the universe.

Answer these questions (each answer, 3 points).

- 26. What are three problems of modern society?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
- 27. What was the result of Johann Gutenberg's invention?  
\_\_\_\_\_  
\_\_\_\_\_
- 28. What are three benefits of modern technology?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_



Date \_\_\_\_\_  
Score \_\_\_\_\_

# **Answer Keys**



SECTION ONE

- 1.1 Science is knowledge.
- 1.2 Science is orderly knowledge.
- 1.3 Science is orderly knowledge proved by experiments.
- 1.4 experiment
- 1.5 knowledge
- 1.6 Either order:  
a. true  
b. false
- 1.7 Orderly knowledge demonstrated by repeated experiments.
- 1.8 I would feed fish to several cats and if they ate them, my hypothesis would be proved.
- 1.9 b.
- 1.10 a.
- 1.11 c.
- 1.12 b.
- 1.13 false
- 1.14 true
- 1.15 false
- 1.16 They were not able to prove their ideas, so many of their ideas were false.
- 1.17 d
- 1.18 f
- 1.19 a
- 1.20 c
- 1.21 e
- 1.22 b
- 1.23 Since the Moors brought more advanced ideas, Western scientists would have been saved the time required to discover these ideas.
- 1.24 Renaissance
- 1.25 Copernicus
- 1.26 Galileo
- 1.27 Universal Gravitation
- 1.28 Sir Isaac Newton
- 1.29 true
- 1.30 false
- 1.31 false
- 1.32 true
- 1.33 false
- 1.34 true
- 1.35 true
- 1.36 teacher check
- 1.37 That pitchblende, an ore of radium, gives off radiation.
- 1.38 It means energy equals mass times the square of the speed of light.  $E = mc^2$  is read, "energy equals mass times the square of the speed of light."
- 1.39 God is perfect and never makes the mistakes men do.
- 1.40 a. electron  
b. neutron  
c. proton
- 1.41 f
- 1.42 d
- 1.43 a

## Science 801 Answer Key

---

1.44	b	1.70	$4.3 \cdot 10^2$
1.45	Choose a problem.	1.71	$6.282 \cdot 10^3$
1.46	Make a hypothesis.	1.72	$5 \cdot 10^4$
1.47	Research what others have done.	1.73	$2.85 \cdot 10^2$
1.48	Perform experiments.	1.74	$7.96 \cdot 10^3$
1.49	If true, restate the hypothesis as a theory.	1.75	5,000
		1.76	3,230
1.50	If not true, state a new hypothesis and begin again.	1.77	582
		1.78	12,000
1.51	Write and publish a paper.	1.79	64,000,000
1.52	Change the theory should it be proved wrong.	1.80	4
1.53	Restate the theory as a law.		
1.54	c. A certain substance will kill a rat.	1.81	2
1.55	b. Similar substances have killed rats.	1.82	5
1.56	e. Give the substance to many rats.	1.83	2
1.57	a. The rats died.	1.84	1
1.58	d. State the theory of Rat-Kill.	1.85	7
1.59	g. Publish a paper.	1.86	630
1.60	f. State the law of Rat-Kill.	1.87	5,200
1.61	The use of the scientific method will help to ensure reliability of the findings and conclusions.	1.88	73
		1.89	8,500
		1.90	146.0
1.62	ten	1.91	1,007
1.63	defined	1.92	14.3569
1.64	derived	1.93	8
1.65	20	1.94	12.3
1.66	gram	1.95	2
1.67	one thousand	1.96	1
1.68	one-hundredth	1.97	4
1.69	one-thousandth	1.98	4

1.99	9	1.120	2
1.100	29	1.121	1
1.101 - 1.104	teacher check	1.122	3
1.105	approximately 1 kilogram, or 1,000 grams	1.123	4
1.106	approximately 20 g	1.124	5
1.107	approximately 4,000 g	1.125	C
1.108	$8.2 \cdot 10^1$	1.126	I
1.109	$1.263 \cdot 10^3$	1.127	I
1.110	$1 \cdot 10^6$	1.128	C
1.111	$5.41 \cdot 10^2$	1.129	8.43
1.112	$2.000004 \cdot 10^6$	1.130	90,900
1.113	$1.063 \cdot 10^2$	1.131	566
1.114	$8.205 \cdot 10^2$	1.132	10,400
1.115	410	1.133	$4.8 \cdot 10^2$
1.116	50,000,000,000	1.134	$8.4 \cdot 10^6$
1.117	183,000	1.135	$5.5 \cdot 10^3$
1.118	1,546.3	1.136	4.3
1.119	96,254.8		

## SECTION TWO

2.1	true	2.10	true
2.2	false	2.11	c
2.3	true	2.12	b
2.4	true	2.13	c
2.5	false	2.14	a
2.6	false	2.15	c
2.7	false	2.16	e
2.8	false	2.17	a
2.9	true	2.18	b

## Science 801 Answer Key

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- 2.19 Many ancient discoveries and knowledge were lost.
- 2.20 crossbow
- 2.21 wheel
- 2.22 water mill
- 2.23 Renaissance
- 2.24 God gave humans minds in order to fulfill the commandment to “subdue” the earth. We need to understand the Earth to subdue it.
- 2.25 b. printing press
- 2.26 a. the Bible
- 2.27 b. gunpowder
- 2.28 c. “animalcules”
- 2.29 b. Renaissance period
- 2.30 Answer should include some of the following ideas:  
Drew plans for a flying machine and a parachute. Designed artillery and planned the diversion of rivers.  
Produced many drawings of machines and of experimental inventions.
- 2.31 Either order:  
a. Thomas Newcomen  
b. James Watt
- 2.32 The gin cleans by separating the seeds from the fibers.
- 2.33 Faraday discovered the principle of the dynamo, or generator.
- 2.34 Either order:  
a. power stations  
b. light bulb
- 2.35 Examples:  
a. Science is supplying principles at a faster rate.  
b. Communication of ideas is faster and easier.  
c. People demand more conveniences.  
d. Our society can support research as never before.
- 2.36 true
- 2.37 true
- 2.38 false
- 2.39 false
- 2.40 false
- 2.41 food would be more scarce than it is
- 2.42 of advances in medicine, improvement in food supply, and machinery that has been invented to aid life
- 2.43 a steadily increasing population
- 2.44 Any order:  
a. food  
b. warmth  
c. clothing  
d. shelter  
e. air  
f. amusement  
g. communication  
h. transportation
- 2.45 b. rapid transit
- 2.46 b. TV dinners
- 2.47 a. coal
- 2.48 c. cancer
- 2.49 a. industrial wastes
- 2.50 b. biodegradable
- 2.51 Technology is not to blame. Humans abuse technology. Technology is the source of solutions to community and environmental problems.



**SECTION THREE**

3.1 teacher check

3.2 false

3.3 true

3.4 false

3.5 true

3.6 teacher check

3.7 are not perfect

3.8 God's Word

3.9 God's Word

3.10 God

3.11 d

3.12 b

3.13 a

3.14 c

3.15 Examples:

To find a cure for cancer,  
to develop new food sources

3.16 Examples:

To improve national defense,  
to explore space

3.17 Examples:

To control pollution,  
to develop natural resources

# **Self Test Keys**

**SELF TEST 1**

1.01	knowledge	1.014	a
1.02	experimentation	1.015	c
1.03	Aristotle	1.016	c
1.04	gold	1.017	b
1.05	hypothesis or theory	1.018	a
1.06	Renaissance	1.019	a
1.07	earth	1.020	c
1.08	Sir Isaac Newton	1.021	milliliters
1.09	Charles Darwin	1.022	$4.142 \times 10^3$
1.010	microorganisms or organisms	1.023	5,200
1.011	b	1.024	29.6
1.012	f	1.025	4
1.013	d		

**SELF TEST 2**

2.01	significant figures	2.014	false
2.02	technology	2.015	false
2.03	tensile strength	2.016	true
2.04	wheel	2.017	false
2.05	crossbow	2.018	true
2.06	Democritus	2.019	true
2.07	metric	2.020	false
2.08	dynamo (generator)	2.021	c. "animalcules"
2.09	Leeuwenhoek	2.022	a. irrigation
2.010	communication	2.023	a. 5
2.011	true	2.024	c. radiation
2.012	true	2.025	c. gunpowder
2.013	false		

**SELF TEST 3**

- |       |                                 |       |  |
|-------|---------------------------------|-------|--|
| 3.01  | cancer                          | 3.015 | Perform experiments.                             |
| 3.02  | pollution-control               | 3.016 | If true, restate the hypothesis as a theory.     |
| 3.03  | imperfect                       | 3.017 | If false, make a new hypothesis and begin again. |
| 3.04  | fuels                           | 3.018 | Write and publish a paper.                       |
| 3.05  | cloning                         | 3.019 | Change the theory if it should be proved wrong.  |
| 3.06  | space                           | 3.020 | Restate the theory as a law.                     |
| 3.07  | shaduf                          | 3.021 | e  |
| 3.08  | $8.24 \cdot 10^2$               | 3.022 | f  |
| 3.09  | Greek                           | 3.023 | b  |
| 3.010 | $E = mc^2$                      | 3.024 | d  |
| 3.011 | God's Word                      | 3.025 | c  |
| 3.012 | Choose a problem                |       |  |
| 3.013 | Make a hypothesis.              |       |  |
| 3.014 | Research what others have done. |       |  |

# **Test Keys**

1. false
2. true
3. true
4. false
5. true
6. false
7. true
8. false
9. false
10. true
11. 620,000
12. 1,000
13. 11.1
14. e
15. h
16. b
17. d
18. c
19. g
20. a
21. God's Word
22. Darwin
23. solar energy
24. inclined plane
25. Galileo
26. Any three; any order:  
good medicine, life-support  
machines, synthetic foods,  
improved food supply, comforts,  
conveniences
27. Many ancient writings were lost.
28. Example; any order:
  - a. pollution—produced by industry
  - b. food shortages from increased  
population
  - c. possible harm from synthetic  
foods

# **Alternate Test Keys**





1. true
2. true
3. true
4. false
5. true
6. true
7. false
8. true
9. false
10. true
11. 534
12. 1,000
13. 19.7
14. h
15. f
16. a
17. e
18. b
19. d
20. c
21. God
22. shaduf
23. solar energy
24. Einstein
25. Copernicus
  
26. Examples; any order:
  - a. food shortage
  - b. fuel shortage
  - c. transportation
  
27. Example:

The Bible was read more widely  
by people in their homes.  
Later other books were printed.
  
28. Examples; any order:
  - a. space exploration
  - b. communication
  - c. medical advances

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