

TEXT BOOK SECTION - PAGES 1 TO 16

TEST BOOKLET SECTION - PAGES 17 TO 25

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Science & Living In God's World 7 - Answer Key

IMPORTANT NOTE: The answers for questions in the textbook are on pages 1-16. The answers for the Student Quiz Booklet can be found in the back of this booklet on pages 17-25.

ANSWER KEY: Test Booklet Section**UNIT ONE: Science and the Scientific Way****Page 20: Thinking It Over**

1. Science means knowledge of facts arranged in an orderly way. It also means a branch of such knowledge and finally science means skill. In this book science is used to mean knowledge of God's world and its creatures and how they are related to each other.
2. The best way to discover the facts about a question is to use the scientific way. First, you collect facts about the question and next you try to discover more facts. Then you need to look over all the facts that you have gathered. You might start to notice a connection between some of the facts that you have gathered. You might find at this point that you can put aside many of the facts because they have no connection with the rest.
3. The next step in the scientific way is to form an idea that may explain your question. This is called a theory. To prove your theory you have to test it. You have to try an experiment. If the experiment proves that your theory is wrong, you will have to form a different theory. If the experiment shows your theory is correct, you will need to repeat the experiment many times. If you get the same result each time you repeat the experiment, you have proved that your theory is a scientific fact.
4. To achieve accurate results and to be able to make a correct assumption about something. An experiment needs to be repeated many times in the same conditions, with all the same elements present, in order to be accurate.
5. Scientific thinking not only uses facts, but also explains them. It looks for causes and reasons, it also proves that the causes that have been discovered are the true causes of things.
6. The scientific conclusion is what you get whenever you connect several facts in your mind and think them through so that you can figure out an answer to a question. If you can test your conclusion and prove that it is right, it is a fact that you have discovered by reasoning.
7. Answers will vary.
8. Answers will vary.

Page 27: Thinking It Over

1. Answers will vary.
2. It is important to be exact in order to be able to pass accurate information on to someone else. If a scientist has gathered enough facts, arranged them in an orderly way, reasoned them out to a conclusion, tested the conclusion, and made careful records, his work does not have to be repeated by everyone else. Instead, others can share his experience by reading about it.
3. If you take accurate notes in class you will be able to think things out in an orderly way. There are two ways in which you can sharpen your thinking and make it orderly. One is by being careful to be exact. The second way to sharpen your thinking is to arrange facts so that you can see a connection among them. This will help you to be a good scientist by increasing your attention to detail and by causing you to create your own theories about the world around you.
4. Arithmetic is a good example of being exact and arranging facts in an orderly way. As you learn more arithmetic and go on to higher mathematics, you will get good practice in thinking things out.
5. Answers will vary. In your lifetime new instruments and new knowledge will be discovered. In these ways science makes new experiences possible.
6. It is best to learn the truth by experiencing something yourself. In the study of science you will learn many things by repeating an experiment. The experiment will make the proof of a fact part of your own experience. But it is not always necessary for you to do an experiment yourself to learn what it proves. If a scientist has described his experiment exactly, you can share his experience by reading about it.
7. A good scientist needs the right purpose in his work. This purpose is to increase our knowledge of God's world and its creatures. The right purpose helps you because it shows the direction of the path that your reasoning is to follow. The right path helps you when the path to knowledge becomes difficult. You can be a good scientist if you understand that the purpose of science is not a gain for yourself but service to God by the

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discovery of the truth about God's world.

Page 35: Thinking It Over

1. When you study science, you will learn new ways of doing things. The new ways are better than the old ways because they save work or time, cut down waste, and help you enjoy living in God's world. It is sensible and useful to make the best possible use of things.
2. No, there would not, because everything is in some way influenced by the world around us.
3. Yes. You can add to your knowledge of science outside of school by observing and making conclusions about the world around you.
4. Since no one can be an expert in the whole study of science, we divide it into smaller parts. Science is divided up into many fields and each of these fields is enough for a lifetime of work for many scientists. In this way, science arranges in an orderly way all the facts that have been discovered about God's world so that they can be studied more easily.
5. The study of the universe: This includes the sun, stars, comets, meteors, planets, and the earth as one of the planets.
The study of the earth as a planet: This includes the solid part, from its core to its crust, and the earth's atmosphere.
The living creatures on the earth: All the varieties and their differences.
The study of man: This includes the structure of man's body, the blood system, the breathing system, nervous system and the digestive system.
6. After you have done an experiment you need to finish by writing a description of what you did and state your conclusion. Your experiment should have proved something to you. Whatever it proved is your own conclusion and you need to record this information because good scientists keep accurate information about everything. Then you will have that information for future reference.
7. According to the principle of Archimedes, a balloon rises until the air that it displaces is equal to the weight of the balloon and the gas inside it. That is why a balloon will stop rising when it has reached a certain altitude.

Page 47: Thinking It Over

1. When a scientist's observation and study show that certain conditions always produce the same result, he has discovered a law of nature. He can share his experience with other scientists by announcing what he has discovered. The scientist must be

very careful to state the law exactly. He must be careful that his statement of the law says exactly what is true and nothing more.

2. The way for a scientist to get help is from other scientists. The exchange of knowledge between scientists has another important advantage. It gives other scientists a chance to check a new theory, law of nature, or new facts. They can look for additional proof that a mistake has not been made. Sometimes other scientists are able to point out a mistake, or suggest a different theory.
3. One of the biggest is the search for a cure for cancer. Another is the search for new kinds of power, especially atomic power. Still another is to learn how man can travel into outer space. Dozens of different groups of scientists are working on these difficult problems.
4. Whenever he could, he went to neighboring villages to talk to anyone who was color-blind. He invented a test for color blindness. He mixed up pieces of yarn and asked people to sort them out into piles of the same color. He found that different people who were color-blind made different mistakes. Some could not see green and blue, and others could not see red and green. He learned that color-blindness seems to run in families, since the parents of color-blind people were often color-blind also.
5. During his lifetime, Dalton did not have the instruments or knowledge to prove his theory. However, during more than 150 years since his theory was announced, other scientists have learned many things that seem to prove the theory correct, with only a few changes.
6. Materials that cannot be broken down are called elements.
7. The smallest particle of a compound is called a molecule. A molecule is made up of two or more atoms.
The smallest particle of an element is an atom of that element.

UNIT TWO: The Structure of the Body

Page 58: Thinking It Over

1. Scientists divide animals into two groups according to their type of body. Vertebrates - Animals that have backbones. Invertebrates - Animals that do not have backbones.
2. Man's body sometimes seems to be delicate but man's body is really tough and rugged. It can lose sleep, work overtime, and even survive for weeks without food. It can fight germs and recover from burns and other injuries. Man can adjust himself to live under many different conditions. Man has been able to live in deserts, in tropical rain forests, and in frigid wasteland. He can make many different kinds of

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QUIZ #1 – pp. 7 - 27

Questions = 2 points each except #4

Total possible points = 20 (6 pts for #4)

1. What does science mean? Science means knowledge of facts arranged in an orderly way.
2. What is an experiment? An experiment is an orderly way to gain experience.
3. How must a good scientist think? A good scientist must think in the scientific way, must have experience, and must have the right purpose.
4. List the steps of the scientific way. (6 pts.)

a. <u>gathering facts</u>	b. <u>arranging facts in order</u>
c. <u>thinking facts through</u>	d. <u>forming a theory</u>
e. <u>testing the theory</u>	f. <u>arriving at a conclusion</u>

Match the scientists' names with what they are famous for by printing the correct letter in the blank.

- | | |
|-------------------------|--|
| <u>b</u> 5. Archimedes | a. developed an oath taken by physicians |
| <u>c</u> 6. Copernicus | b. first to prove by experiment why some things float |
| <u>d</u> 7. Galileo | c. said that all planets revolve around the sun |
| <u>a</u> 8. Hippocrates | d. was the first person to use the telescope to study the heavenly bodies. |

END

QUIZ #2 – pp. 27 - 48

Questions = 2 points each.

Total possible points = 16.

1. Why is putting facts in order important in science? It enables you to find the connection between facts, and it enables you to tackle the great amount of material that science includes.
2. What is the advantage of dividing science up into subjects? Since no one can be an expert in the whole study of science, it must be divided into smaller parts. Each field is enough for a life time work for many scientists. In this way, science arranges in an orderly way all the facts that have been discovered about God's world so that they can be studied more easily.
3. Why does a life preserver float? The life preserver displaces an amount of water which is heavier than the preserver. It helps the person wearing it to displace so much water that he is light enough to float.
4. What is John Dalton known for? He thought out the atomic theory, which explains the make-up of materials.
5. How did John Dalton gather facts about color blindness? Dalton went to neighboring villages to talk to anyone who was color blind. He invented a test for color blindness. He found that there were different types of color blindness and that it seemed to run in families.
6. What is the difference between compounds and elements? Materials that can be broken down are compounds, whereas materials that cannot be broken down are elements.
7. What is the smallest part of a compound? A molecule.
8. What is the smallest part of an element? An atom of that element.

END

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QUIZ #3 – pp. 51 - 70

Questions = 2 points each except #2 and #3

Total possible points = 24

1. What makes man different from other animals? God has given man free will and the power to think. Man alone has a spiritual soul. Animals act according to the instinct which God gave them.
2. List the nine systems of the human body. (9 pts.)

a. <u>skeleton</u>	b. <u>muscle</u>	c. <u>respiratory</u>
d. <u>excretory</u>	e. <u>nervous</u>	f. <u>reproductive</u>
g. <u>digestive</u>	h. <u>circulatory</u>	i. <u>gland</u>
3. What are the three important uses of the skeleton? (3 pts.) 1) To support the rest of the body, 2) To protect the more delicate parts of the body, 3) To provide a system of levers by which the body moves.
4. What is cartilage? Cartilage is an almost clear material that is hard enough to hold together, but soft enough to be flexible.
5. Why must you be careful about the way you hold a baby? Young bones, such as those in a baby, have less mineral material. Because they are soft they can be bent easily into the wrong shape.
6. What is marrow? Inside the bones are large hollows or cavities, which are filled with a soft tissue called marrow that helps to build blood cells.
7. What would happen if you were lacking in calcium and phosphorus? If you were lacking in calcium and phosphorus your teeth and bones would become soft and weak and you would get the disease called rickets. Your bones would not grow enough or they would grow out of shape and break easily.
8. Explain what the different kinds of fractures are. In a simple fracture or a closed fracture the bone is broken but the skin remains closed. In a compound fracture, the skin is broken and part of the bone often sticks out through the skin.

END

QUIZ #4 – pp. 70 - 92

Questions = 2 pts each except where noted

Total possible points = 25.

- (5 pts.) 1. Name the two kinds of muscles and give an example of each. The two kinds of muscles are the voluntary muscles and the involuntary muscles. An example of voluntary muscle is your arm muscle which bends and straightens your arm only when you make them do so. Involuntary muscles make you breathe and move blood and food through your body without your willing them to act. Heart muscles are involuntary in action but are formed like voluntary muscles.
2. Why must muscles work in teams? Muscles must work in teams because when one is the mover, the other relaxes to allow the movement. Muscles pull but do not push.
3. What are tendons? Tendons are white cords which attach muscles to the bone.
4. What is muscle tone? Muscles that are rested and healthy return to a length that is partly contracted. This condition is called muscle tone.
5. What is a strain? A strain is a kind of injury that happens if you stretch a muscle too much and possibly tear some of the muscle fibers.
6. How can you guard against strains? You can guard against strains by learning to use your whole body so that too much of the force of your work or play does not fall on one muscle or on too small a muscle and perhaps by wrapping it tightly with tape or a leather strap to help prevent a strain.
7. Gastric juice is a digestive juice found in the stomach; what does this juice contain that helps in the digestion of foods? Gastric juices contains 3% hydrochloric acid which aids in the digestion of foods.