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IMPORTANT NOTE: The answers for questions in the textbook are on pages 1-17. The answers for the Student Quiz Booklet can be

STUDENT TEXT ANSWER KEY SECTION

UNIT ONE: Science in today's world

Page 18: Thinking It Over

1. Answers will vary.
2. Answers will vary.
3. (This answer can be found on page 6 in the introduction.) A good scientist first comes up with a theory and then tries his theory. If he agrees with a previous theory, he still tests his theory or he tries to find a better one. He wants to know the why of things, and he wants to know this for sure. A scientist is not content until he finds certainty.

The scientists in these stories in this unit doing these experiments first came up with a theory, tried their theory, and were not content until they found the answer.

4. (Answers may vary.)
Report 5. So much was discovered during the International Geophysical Year. The sun and its effects on the ocean and air masses was studied. The Arctic waters were explored. The satellite was launched into space, and two monkeys sent into space in a rocket returned safely to earth. These are many amazing experiments that Galileo would have been in awe of.

5. through 8. Answers will vary.

Page 26: Thinking It Over

1. You should know all the existing information about a subject to make yourself familiar with the subject.

In science, you have to know all the existing information about the subject if you are to do any experiments on the subject. You really cannot get along without knowing any previous information on the subject because knowing all you can about the subject and studying all that has been discovered on the subject by other scientists helps in your further study of the subject.

2. One way we can observe things is by using the gifts which God has given us. We use our senses of sight, hearing, taste, smell, and touch to make observations. We should always look for an idea that will connect the things we learn. Another way to make observations is to observe the effect of something and to practice looking for causes to it.

3. Answers will vary.

4. Animals behave as they do because they have a knowledge to satisfy their bodily needs and those of their offspring. They are only behaving in the way their senses tell them to behave.

Man has instincts to take care of his bodily needs, but man also has a spiritual soul, a mind, and the power to think.

5. To form a theory, the scientist must state his problem and then he must gather together the information that already is known about the problem. The scientist then goes ahead in an orderly way to solve it. He then forms a theory which seems to be a reasonable explanation for the facts. To test his theory, the scientist performs experiments and makes observations. To form a conclusion, the scientist gathers all his observations made in the experiments and selects the information that can be reasoned through.

6. A theory is not always true. If the theory is proved to be untrue, it does not mean that the scientist is a poor scientist. He simply formed his theory on facts from previous experiments and made an educated guess as to what the outcome of his experiment would be. He formed his theory by looking at what would be a reasonable explanation for the facts.

7. When a scientist's theory is proven wrong, he must form a new one.

8. We use materials, tools, instruments, machines, and structures that were made possible by science.

Science And Living In God's World - Grade 8
TEXT & QUIZBOOKLET ANSWER KEYS

It took a knowledge of science to make an automobile and most everyone uses automobiles and any other kind of transportation. The scientist uses science to search for cures to fight infectious diseases, come up with medicine to relieve pain and suffering, help people communicated with one another, improve man's use of plants and animals, and so on.

Page 37: Thinking It Over

1. Man can improve plants by continuing to find different varieties and different ways to grow these plants and have them develop quicker. Man can improve animals by continuing to discover how he can get the best use from them and how to continue to make them bigger and better. Improvement just means to "better" something that is already available to us -- to make it more useful and/or more beneficial to us than it already is.
2. Nature improves a plant by supplying it with all the nutrients it needs to grow.
3. We need other ways of improving plants so that we can restore a balanced condition and keep these plants alive and also to produce new and exciting varieties of plants that maybe we could find very important uses for (i.e. a cure for some disease).
4. You can improve an orchard by thinning out weak trees, prune away unnecessary branches, spray for insect pests, and supply moisture to the trees by irrigation or drainage.
5. Man uses animals for transportation, recreation, and food.
6. Luther Burbank improved plants by making their characteristics stronger. George Carver discovered how plants could be used in new ways.
7. Robert Bakewell first selected cattle that were most like the type he wanted. He continually selected the best animals to keep and raise and got rid of the others. He would finally have an animal that was a great improvement when he finished.

Page 44

1. In the first place, man's body is more complicated than the bodies of lower creatures. In the second place, it is easier to study the bodies of lower

creatures than to study the human body. Human beings are not available for scientific study except in limited numbers and for unusual and important occasions. Also, if a mistake is made or the results are harmful in testing a theory with people, the loss far outweighs the knowledge that is gained.

2. This discovery was so important because it showed everyone that blood circulates through the whole body and the heart actually pumps the blood. This discovery was an important base for other discoveries to be made about the body.
3. Lister first used carbolic acid to keep germs out of wounds. He changed his method because the carbolic acid was too strong and apt to cause irritation in the delicate tissues of the body.
4. Skeleton system supports the body, gives it shape, protects softer parts, and helps the body move.

Muscle system moves parts of the body and they give the body shape and substance.

Digestive system changes food into materials that can be used by the body.

Blood system carries supplies to other parts of the body and carries back waste materials. It also carries its own special materials to fight germs and to form clots when a wound occurs.

(Only one function needs to be listed.)

Page 50-51

1. Energy, power, and machines have improved our lives so much. Without them we would not have cars, trains, airplanes, etc. We would have no electricity. Food from far away places would be rare. Without newspapers, radio, television, telephones, and telegraphs, we would not know what was going on in the world.
2. Some transfers of energy that might be in a chain between steam in a dry cleaning plant and the sun would be water and wind.
3. Steam and water power. **(Answer on page 219, fourth paragraph.)**
4. Fires can be caused now by faulty electric wiring. We are very dependent on machines and would be in danger if something went out. We would lose electricity, be unable to get water, be unable to get food in the stores, and transportation might get messed up. With the use of machines we now use

QUIZ BOOKLET ANSWER KEY SECTION

QUIZ #1 – pp. 7 - 25

Questions = 2 point each except where otherwise noted. Total possible points are 20.

Short answer questions.

1. What is science? Science is our knowledge about all of God's world.
2. What is the scientific method? The scientific method is an orderly system for attacking a problem.
3. How does a great discovery change man's way of living? It gives him a new way of looking at the world.
4. What is the difference between direct knowledge and reasoning? Direct knowledge is something we know already or can learn directly. Reasoning involves working out the answers for ourselves.
5. What is an acerola cherry? A fruit containing a juice that is very strong in vitamin C. It is being cultivated in order to be able to produce fruit in large quantities.
6. What is a theory? A theory is an explanation or idea based on observation or reasoning.

Name and describe 4 different fields of science.

7. biology science of plant and animal life
8. physics science of matter, motion and changes that do not change the molecule
9. chemistry science that deals with the makeup of substances and the changes that take place when they combine to form other substances.
10. geology science that deals with the earth's crust.
- botany science of plants
- zoology study of animals.
- meteorology science of the weather and atmosphere.
- anatomy study of the structure of an animal or plant.
- physiology study of how the body of a plant or animal works

END

QUIZ #2 – pp. 26 - 44

Questions = 2 point each except where otherwise noted. Total possible points are 23.

Short answer questions.

1. What is meant by the balance in nature? The condition in which the numbers of plants and animals stay about the same.
2. What is photosynthesis? The process by which green plants make food.
3. Explain why we can say that all living creatures depend on photosynthesis either directly or indirectly.
Student should demonstrate how everything traces back to the sun as our energy source.
- (3 pts.) 4. Explain how William Harvey concluded that blood circulates. Student should comment on how Harvey studied hearts, observed reactions, thought about how much new blood would have to be made if old theories were true, and that so much new blood was impossible.

Science And Living In God's World - Grade 8
TEXT & QUIZBOOKLET ANSWER KEYS

(3pts.) 5. Name three systems of the human body. (any three of the following four systems) 1. Skeleton System 2. Muscle System 3. Digestive System 4. Blood (circulatory) System

6. What is hybridization? It is the production of a new animal or plant by breeding two different species or varieties.

7. For what was George Washington Carver known? He was known for the amazing new uses he found for many plants, namely peanuts.

(3pts.) 8. Explain the functions of arteries, veins and capillaries. How are they different?

Arteries carry blood away from the heart to the body tissues. Veins carry blood from the body tissues to the heart. Capillaries are very tiny blood vessels.

9. What is the difference between voluntary muscles and involuntary muscles?

Voluntary muscles are muscles we can choose to move, such as our arms or legs. Involuntary muscles are muscles that move without our thinking of it, such as the heart muscle.

10. What was the legacy of the English farmer Robert Blakewell? Blakewell did special breeding of cattle to produce the kinds of cattle we have today that give a great deal of meat for their size.

END

QUIZ #3 – pp. 44 - 58

Questions = 2 point each except where otherwise noted. Total possible points are 22.

Define each of the following:

1. Atom -- one of the very small parts of a molecule; the smallest particle of an element.

2. Matter -- what things are made of; anything that has weight and occupies space.

3. Energy -- capacity to do work.

4. Element -- a material that can not be broken down into any simpler parts.

5. Molecule -- a very small particle; a molecule is made up of atoms.

6. Mixture -- things stirred well together; any material that is made up of molecules that are not all alike.

7. Solution -- a special kind of mixture, usually made of two liquids or a solid and a liquid.

8. Nucleus -- the center of an atom, thought to be made up of different kinds of energy particles; also the center of a cell.

9. Compound -- a material whose molecules are all alike and which is made up of two or more elements.

Short answer question:

(4pts) 10. Describe the different kinds of power man has used over time. Man originally depended on the power of muscle, wind and moving water. Since that time there has been the use of steam, coal, oil, and electricity. Now there is atomic energy.

END