

GRADING RUBRIC

You may use this grading rubric when it is called for in the Report-to-You Projects during Lesson 8.

Project Visuals (20 points)

Scientific accuracy
Complete according to directions
Neatness

Written Report (20 points)

Complete according to directions
Neatness

Project Creativity (20 points)

Oral Presentation (20 points)

Eye contact
Voice projection
Confidence in material

Worldview Accuracy (20 points)

Truth in Science - Science Criteria for Content (Breakdown by Grade Level and Unit)		
	Grades 3-4	Grades 5-6
Life	Science as a human endeavor Science as inquiry	Science as a human endeavor Nature of science Science as inquiry
Earth	The characteristics of organisms Life cycles of organisms Organisms and environments Characteristics and changes in populations Types of resources Changes in environments	Structure and function in living systems Reproduction and heredity Regulation and behavior Populations and ecosystems Diversity and adaptations of organisms Populations, resources, and environments Natural hazards
Physical	Properties of earth materials Objects in the sky Changes in earth and sky Understanding about science and technology Abilities of technological design Distinguish between natural and man-made objects Types of resources Science and technology in local challenges	Structure of the earth's system Earth in the solar system Earth's history Abilities of technological design Understanding about science and technology Populations, resources, and environments Natural hazards Science and technology in society

Grade 4 - Science Standards for Content (Breakdown by Chapter)	
Chapter 1 - Worldview	Science Criteria Content
<ul style="list-style-type: none"> • Introduce Worldview • What is Viewpoint? • What is Worldview? • What is Evolution • Contrasting Worldviews—Creation and Evolution • Non-Biblical Creation Models • What is the Scientific Method? • Dinosaur Exhibit 	<ul style="list-style-type: none"> • Science as a human endeavor • Science as inquiry

Chapter 2 - Classification	
<ul style="list-style-type: none"> • Introduce Classification • What is Classification? • Building Blocks of Life • Grouping Living Things • Plants Classified • Animals Classified • How Can I Classify Beans? • A Day in the Life of a Critter 	<ul style="list-style-type: none"> • Science as a human endeavor • Science as inquiry • The characteristics of organisms
Chapter 3 - Plants	
<ul style="list-style-type: none"> • Introduce Plants • New Life • Plant's Energy Features • Plant Parts • Plant Reproduction • Plant Life Cycle • How Does a Seed Germinate? • How Does a Tree Grow? 	<ul style="list-style-type: none"> • The characteristics of organisms • Life cycles of organisms • Organisms and environments
Chapter 4 - Animals and Humans	
<ul style="list-style-type: none"> • Introduce Animals and Humans • Silkworm Growth • Frog, Bird, Turtle: Growth and Change Over Time • Grasshopper, Butterfly: Metamorphosis • Fish, Mammal, Man: Growth and Change Over Time • Evolution or Creative Design? • How Do Animals Adapt? • Animal Life Cycle 	<ul style="list-style-type: none"> • The characteristics of organisms • Life cycles of organisms • Organisms and environments
Chapter 5 - Ecology	
<ul style="list-style-type: none"> • Introduce Ecology • What is an Ecosystem? • Parts of an Ecosystem • Energy and Matter Flow • Balance and Interaction • Changing Environments and People • How Can I Clean Polluted Water? • Save the Wetlands 	<ul style="list-style-type: none"> • Objects in the sky • Changes in earth and sky • Understanding about science and technology
Chapter 6 - Meteorology	
<ul style="list-style-type: none"> • Introduce Meteorology • Growing Balloon • Earth's Water • Water, Air and the Weather • Air Masses • Measure and Predict Weather • How Hot Are You? • Weather Around the World 	<ul style="list-style-type: none"> • Properties of earth materials • Changes in earth and sky • Science and technology in local challenges • Changes in environment
Chapter 7 - Geology	
<ul style="list-style-type: none"> • Introduce Geology • Growing Fireworks • Minerals • Rocks and Fossils • Slow Changes to the Earth's Surface • Rapid Changes to the Earth's Surface • How Hard are Minerals? • Weathering Effects 	<ul style="list-style-type: none"> • Types of resources • Properties of earth materials • Abilities of technological design • Science and technology in local challenges • Distinguish between natural and man-made objects

Chapter 8 - Earth's Resources	
<ul style="list-style-type: none"> • Introduce Earth's Resources • Collecting Sunlight • Natural Resources • Resources for Energy • Technology • Technology in Communications and Transportation • Does Mining Affect the Land? • Resources in Your House 	<ul style="list-style-type: none"> • Life cycles of organisms • Organisms and environments • Characteristics and changes in populations • Types of resources • Changes in environments • Science and technology in local challenges • Abilities of technological design
Chapter 9 - Astronomy	
<ul style="list-style-type: none"> • Introduce Astronomy • Eclipse of the Sun • The Universe • The Solar System • Patterns in the Sky • Earth's Movements • How Far Apart are Planets? • Life of an Astronaut 	<ul style="list-style-type: none"> • Objects in the sky • Changes in earth and sky • Understanding about science and technology • Distinguish between natural and man-made objects
Chapter 10 - Matter	
<ul style="list-style-type: none"> • Introduce Matter • What Powder is it? • Matter • Measuring Matter • Changes in Matter • Mixing Substances • Kool-Aid • pH and Chemical Reactions 	<ul style="list-style-type: none"> • The characteristics of organisms • Properties of earth's materials • Understanding about science and technology • Changes in earth and sky
Chapter 11 - Forces and Energy	
<ul style="list-style-type: none"> • Introduce Forces & Energy • Vibrations • Describing Motion • Force and Motion • Work and Simple Machines • Energy • Does Electricity Travel in a Circuit? • The Electromagnetic Spectrum 	<ul style="list-style-type: none"> • Characteristics of organisms • Understanding about science and technology • Abilities of technological design

STEP 4—Animals & Humans

LESSON 1

1. Why can neither way [beliefs about how life began] be proven?
Answer should be something like: no one observed the beginning of life; these are models, not pure science; historical events cannot be repeated or tested
2. On which Days of Creation Week did God make animals? Day 5 and Day 6
3. How do we know that man is not the same as an animal?
God said He created man and woman in His own image

1. What do you think natural selection really means?
A conserving process allowing some to survive and some not
2. What does the Evolution Model say about time and the origin of species?
Evolution takes millions of years
3. How does proof of rapid variation go better with the Creation Model?
How we got so many new varieties within the living Kinds so soon after the Flood

SCIENCE REVIEW

1. A life cycle is the order of the stages in an animal's growth. The stages are: birth, growth, development, reproduction, and death. All animals reproduce young of the same kind.
2. Most animals come from eggs. Some animals develop from an egg inside their mother, while others develop from an egg laid by the mother outside the body.
3. Most young animals look much like their parents. Some do not. Amphibians are animals that look drastically different from their parents when they are born, but become more like their parents in each stage of the life cycle.
4. Frogs lay their eggs in water with a covering that makes them look like a big glob of jelly. The young frogs hatch from the eggs. Called tadpoles, they look like a fish and breathe oxygen with gills like a fish. Slowly, four legs begin to grow. The tail disappears. Finally, lungs form in the young frog and its gills disappear. It can now breathe air. The frog is then an adult. The adult female lays eggs and the life cycle continues.
5. Bird eggs have a hard shell. Most birds lay from two to six eggs at one time in a nest. Both the mother and father may share the task of keeping the eggs warm. When the baby bird inside the egg is grown enough, it breaks out of the egg. This is called hatching. Its body parts are very similar to adult chickens. The chick then grows and develops into an adult. The adult female lays eggs and the life cycle continues.
6. Like most reptiles, turtles lay eggs. Turtle eggs have a softer shell that feels like leather. When the baby turtle has grown enough, it hatches. Newly hatched turtles

LESSON 3

STEP 4—Animals & Humans

L3

look very much like the adult, only smaller. The young turtle grows into an adult. The adult female lays eggs and the life cycle continues.

LESSON 4

1. Describe butterfly metamorphosis in your own words. Answers will vary
2. Why is butterfly metamorphosis not evidence for the Evolution Model? Answers will vary

SCIENCE REVIEW

1. Grasshoppers have three stages of growth in their incomplete metamorphosis. The grasshopper, like all insects, begins its life cycle in an egg. After hatching, the young insect is called a nymph. A nymph is like a tiny adult, but it does not have wings. The nymph becomes an adult insect when it has wings and can fly. The adult female grasshopper can lay eggs and the cycle begins again.
2. Butterflies have four stages of growth in their complete metamorphosis. This insect's egg is the first stage of growth. Insect eggs may be laid almost anywhere. Often they are on leaves or other food that the insect can eat after they hatch. After hatching, the young insect is called a larva (plural larvae). A larva is the second stage of growth. A larva eats constantly and, as a result, will molt or shed its skin several times as it continues to grow. After a certain time, a larva stops eating and begins to spin a covering around itself. This covering will harden after it is completed and is called a chrysalis or a cocoon. The larva is now called a pupa (plural pupae). Inside the chrysalis, the pupa changes from a caterpillar into an adult butterfly. The adult female can lay eggs and the cycle begins again.

LESSON 5

1. Was your great-granddaddy a fish? Most students will likely say 'no'
2. Do similarities between organisms point to a common ancestor or a common Designer? Common Designer
3. Is man a mammal? No

SCIENCE REVIEW

1. Most fish grow in eggs outside the mother's body. The parents usually do not protect the soft-covered eggs. Many eggs are produced so that enough young will hatch and survive to continue the fish kind. When the eggs hatch, the young (called "hatchlings" or "fry") look very much like the adults, only smaller. The adult is the final stage of growth. The adult female can lay eggs to continue the life cycle.
2. Most mammals do not hatch from eggs. The animal grows in a special way in the female's body. Then they are born alive. When the young are born, the mother

STEP 7—Geology

LESSON 5

3. How does rapid erosion occur? Large amounts of moving water

SCIENCE REVIEW

1. Landforms are natural features that cover the surface of the Earth.
2. Landforms can be formed slowly and quickly.
3. Weathering is the wearing away of earth's crust.
4. Physical weathering happens when some force breaks away or splits up solid rock.
5. Chemical weathering happens when chemicals react with the rock and change it into something that can let go and wash away.
6. Erosion is the carrying away of weathered loose rock or sediments by moving water, wind, ice, or gravity.
7. Deposition happens when eroded material is laid down in a new place.

LESSON 6

1. Do you think all the continents were once connected? Answers may vary

2. What does it sound like the Psalmist is describing? Volcano, earthquake

3. Has a volcano ever erupted in the continental United States? Do you know which one did on May 18, 1980, in the state of Washington? Yes, Mount St. Helens

SCIENCE REVIEW

1. Gravity can pull objects either straight down or down a hill.
2. A landslide is the rapid movement of lots of dirt and rock down a hill.
3. An avalanche is the rapid movement of snow and ice down a mountain.
4. There are many methods of controlling erosion and deposition. Dams control flooding. The roots of grass and trees stop the rain from washing away all of the soil. Wherever the land has been bulldozed for construction, much erosion usually occurs with every rainstorm.
5. A volcano is a landform in a cone shape with an opening at the top where hot rocks, gases, and ashes sometimes shoot out of its top.
6. Magma is hot molten rock that pushes up through vents (holes or cracks) in the earth's crust. It is called lava when it comes out onto the surface.
7. An active volcano is one that has erupted recently. A dormant volcano is one that has been quiet for many years.

STEP 7—Geology

LESSON 6

8. The earth's crust is cracked into many pieces called plates. If the earth had no oceans, it might look like a hardboiled egg with several large cracks connecting around the shell. Today, the plates move only a tiny bit each year. The Evolution Model says they have always moved that slowly. The Creation Model says they once moved fast, but only for a few months during the middle of the Genesis Flood.
9. A fault is a break or crack in the earth's crust. When an earthquake occurs, it is usually from the rock moving on either side of one of these cracks.
10. Pressure builds up at the cracks (called faults) in the plates. An earthquake happens when plates suddenly slip from the pressure.
11. The land right above where this underground movement takes place is where the earthquake will be felt the strongest. This spot is called the epicenter of the earthquake.

Quiz Answer Key

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|------|------|--|
| 1. C | 6. T | 10. Answers will vary, but should include reference to the Genesis flood |
| 2. A | 7. T | 11. Bonus: 1 Samuel 2:8b "For the pillars of the earth are the LORD's, And He has set the world upon them." |
| 3. B | 8. F | |
| 4. A | 9. T | |
| 5. C | | |

Test Answer Key

- | | | | |
|------|-------|-------|--|
| 1. C | 8. T | 13. F | 19. Earthquakes and volcanoes are alike in that they are both natural disasters, and that are initiated by underground movement. They are different in that earthquakes are the result of huge plates shifting, and volcanoes are the result of pressurized magma escaping through cracks in the earth. Sometimes both can occur; sometimes earthquakes cause volcanoes. |
| 2. A | 9. T | 14. C | |
| 3. D | 10. T | 15. D | |
| 4. A | 11. F | 16. A | |
| 5. B | 12. T | 17. E | |
| 6. C | | 18. B | |
| 7. B | | | 20. igneous - because volcanoes spew out hot magma from under the earth, and when this lava cools, it is referred to as igneous rock. |
| | | | 21. Bonus: Same as quiz. |