

Science and Social Studies in Reading Mastery Signature Edition

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Introduction

Reading instruction consumes a large part of the daily schedule, reducing the amount of time for content area studies. *Reading Mastery Signature Edition (RMSE)* in grades two through five integrates a wide range of social studies and science concepts and information, allowing teachers to maximize learning by integrating reading with science and social studies instruction. Students learn key science and social studies concepts by reading realistic fiction, applying science and social studies content in their written work and completing a variety of special projects. This process helps build foundational reading skills critically important to students' success in accessing information in content areas.

RMSE teaches comprehension differently from traditional programs. Skills are practiced repeatedly as part of many lessons. This practice ensures students use the skills in a variety of contexts, including both story and informational passages. Comprehension skills emphasized in level two include context clues, viewpoint, reality versus fantasy and supporting evidence. In level three, students learn sequencing, cause and effect and reference book skills, in addition to increasing their skills on the second grade topics. In level four of the program, more emphasis is placed on literature. However, expository information is included in informational passages. For example, students read the story of Sarah Crewe and learn about England in the 1500's. Students develop skills in interpretive and literal comprehension, reasoning and literary analysis. In level five, students read four novels, factual articles, biographies, myths folktales and poems. The background passages prepare students for reading and understanding the different types of expository prose found in social studies and science textbooks.

RMSE creates a strong base of understanding that allows students to access content areas. The prior knowledge students learn in earlier levels of the program serves to provide a schema for learning higher-level and more advanced information. *Reading Mastery* is unique in its thorough and complete content of science and social studies information in a reading textbook. The design makes it possible to teach students of all levels the valuable skills of reading, while, at the same time, teaching important science and social studies content.

Reading Mastery provides a careful sequence in which facts are introduced, reviewed and applied. The cycle ensures that students have ample background information to draw inferences and increase their knowledge base. Students are held accountable for remembering all the science and social studies information in the program. The sequence of developing mastery of content is as follows:

- Concepts and facts are introduced in an informational passage.
- Information is used in the main story.
- Items appear in independent work.
- Items are reviewed in games, independent review exercises, continuing chapter stories, and in new stories.
- Students are assessed every ten lessons to determine and track mastery.
- Learned information is integrated with information taught earlier.

Most science and social studies concepts are first presented in information passages. These passages pre-teach information contained in the main stories. A good example of the range

of information and sequencing can be illustrated in the *Reading Mastery 2* story, Herman the Fly. Herman is a fly who sets the distance record for flies. He travels around the world by boarding a jet plane. Previously in a story about a toad, students had been introduced to the scientific law – a push in one direction equals a push in the opposite direction. The law is expanded to the propulsion of jet airplanes in the Herman stories. As Herman flies around the world, students learn about maps and geography. They learn distances between major cities in the world and identify cities and countries on a map. Also covered in this series of stories is information about cold and warm-blooded animals, speed, temperature and insects, integrating a number of the topics and standards required in reading, science and social studies.

Because the information is presented in a variety of ways, students master and are able to generalize information. *Reading Mastery* provides a careful sequence in which facts are introduced, reviewed and applied. The cycle ensures students have sufficient background information to draw inferences and systematically builds their knowledge base. Frequent review and mastery helps build skills for remembering expository information, a critical set of skills required for success in middle school social studies and science classes.

The purpose of the booklet is to provide information on the science and social studies content covered in *RMSE* grades 2–5. The lists can be used to easily find information students may need to review and to further develop activities. They may also be used to reinforce and build on skills in other subject areas throughout the day or course of instruction. Teachers can use the lists as a curriculum map to prepare for instruction so they will know what to emphasize and which skills build on each other.

The lists are organized by subject area. The number following each list item refers to the lesson in which the information was presented. The lesson number may be followed by the words ‘information passage,’ ‘story,’ ‘vocab,’ ‘info,’ or ‘inference,’ etc. to indicate in which part of the lesson the information was presented. Unless otherwise noted, the information is presented in the story.

Grade 2



Grade 2

SCIENCE FACTS AND CONCEPTS

I. Measurement

A. Length (miles, feet, meters, centimeters, and inches)

1. A ruler is a foot (lesson 17, story background)
2. A centimeter tells about length and how far apart things are (lesson 17, story background)
3. An inch is longer than a centimeter (lesson 8, story background)
4. A centimeter is shorter than an inch (lesson 11, story background)
5. A meter is 100 centimeters long (lesson 14, story background)
6. We use miles to tell how far it is between places that are far apart (lesson 23, story background)
7. Every mile is more than 5000 feet long (lesson 23, story background)

B. Grams

1. Grams are used to weigh very small things (lesson 32, story background)
2. All grams are the same weight (lesson 32, story background)
3. A long pencil weighs about five grams (lesson 32, story background)
4. A short pencil weighs about two grams (lesson 32, story background)
5. A block of water that is one centimeter on all sides weighs one gram (lesson 32, story background)
6. A cherry weighs about 10 grams (lesson 33, story background)
7. An apple weighs about 200 grams (lesson 33, story background)
8. Most insects weigh less than one gram (lesson 33, story background)
9. 100 ants weigh about one gram (lesson 33, story background)

C. Temperature

1. Temperature is how hot or cold a thing is (lesson 42, story background)
2. When an object gets hotter, the temperature goes higher (lesson 42, story background)
3. When the temperature goes up, the number of degrees gets bigger (lesson 42, story background)
4. The temperature on a hot summer day may reach 100 degrees Fahrenheit (lesson 43, story background)
5. The temperature on a cold winter day may get down to zero degrees (lesson 43, story background)
6. When you go higher in the air, the temperature gets lower (lesson 51, story background)

D. Time of day

1. If you know where the sun is, you can figure out directions (lesson 61, story background)
2. The sun always comes up in the east – sunrise (lesson 61, story background)
3. The sun always goes down in the west – sunset (lesson 61, story background)
4. When the sun comes up in the east, it is morning (lesson 61, story background)
5. When the sun is right overhead, it is noon (lesson 61 story background)
6. When the sun sets in the west, it is evening (lesson 61, story background)

E. Units of time

1. Tell how long it takes something to happen (lesson 13, story background)
2. A second is a unit of time that is short (lesson 95, story background)
 - a. When you count slowly, each number takes about one second (lesson 13, story background)
 - b. A stopwatch is used to measure seconds (lesson 95, story background)
 - c. 60 seconds are in a minute (lesson 116, story background)
 - d. When the fast hand moves all the way around the clock, a minute goes by (lesson 116, story background)
 - e. You may watch two TV shows in an hour (lesson 13, story background)
 - f. A week is seven days long (lesson 13, story background)

F. Speed

1. Names that tell how fast things move have two parts. The first part tells about length. The second part tells about time (lesson 19, story background; lesson 22, story background)
 - a. Miles per hour (lesson 19, story background)
 - b. Meters per second (lesson 19, story background)
 - c. Centimeters per minute (lesson 22, story background)
2. The faster something is moving, the bigger the number of miles per hour (lesson 36, story background)
3. The speedometer is the dial that tells how fast a vehicle is going (lesson 38, story background)
4. A fast man can run 20 miles per hour (lesson 41, story background)
5. A fast dog can run 35 miles per hour (lesson 41, story background)
6. A racing car can go 200 miles per hour (lesson 41, story background)
7. A passenger jet flies 500 miles per hour (lesson 41, story background)

8. Planes go fastest when they go in the same direction the wind is blowing (lesson 45, story background)

II. Water

A. Water has skin

1. Water drops have a skin that goes around them (lesson 29, story reading)
2. The skin can bend up or down (lesson 31, story background)

B. Dew

1. The drops of water that you see on the grass and cars early in the morning are called dew (lesson 29, story background)
2. Dew forms at night when the air is cooler (lesson 29, story background)
3. Dew disappears in the morning when the air warms up (lesson 29, story background)

C. Ocean water

1. Ocean water tastes salty because it has salt in it (lesson 53, story background)
2. If you drink a lot of ocean water, you'll get thirstier (lesson 53, story background)
3. A bottle of ocean water weighs more than a bottle of fresh water because of the salt in the ocean water (lesson 53, story background)
4. It's easier to float in ocean water (lesson 53, story background)
5. Ocean water must get colder than fresh water before it will freeze (lesson 53, story background)

III. Fire

A. General

1. Fire likes to move up (lesson 84, story background)
2. Things in a fire get hot and burn (lesson 84, story reading)
 - a. A fire provides warmth (lesson 84, story reading)
 - b. If you put things on a fire, those things will get hot (lesson 84, story reading)
3. Smoke moves in the same direction the wind moves (lesson 21, story background)

B. Forest fires

1. Danger of a forest fire is greatest in the fall (lesson 5, story background)

2. Danger of a forest fire is not great in winter or spring (lesson 5, story background)
3. Danger of a forest fire is not as great in summer because the leaves on the trees are alive (lesson 5, story background)
4. Forest fires kill animals and trees (lesson 5, story background)
5. Large forest fires can burn for weeks (lesson 5, story background)
6. Large forest fires can burn millions of trees (lesson 5, story background)
7. After large forest fires, it may take 200 years for the forest to grow back (lesson 5, story background)
8. Animals try to get away from the fires (lesson 21, story background)

IV. Living things

1. All living things grow (lesson 1, story background)
2. All living things need water (lesson 1, story background)
3. All living things make babies (lesson 1, story background)

V. Plants

A. Trees

1. Trees have roots (lesson 3, story background)
2. Roots hold up the tree (lesson 3, story background)
3. Roots carry water from the ground to all parts of the tree (lesson 3, story background)
4. Trees do not grow in winter because the ground is cold (lesson 3, story background)
5. Small trees begin to grow before big trees because their roots aren't deep (lesson 3, story background)

B. Palm trees

1. Palm trees grow in places that are very warm (lesson 56, story background)
2. Palm trees cannot live in places that get cold (lesson 56, story background)
3. Palm trees have very small roots (lesson 56, story background)
4. Branches of palm trees are called fronds (lesson 56, story background)
5. Palm trees can grow either dates or coconuts (lesson 56, story background)
6. The parts of a coconut palm tree are: fronds, coconuts, trunk, roots (lesson 56, story background)
7. Coconuts
 - a. Coconuts are about as big as a football (lesson 57, story background)
 - b. Coconuts are not easy to open (lesson 57, story background)
 - c. Coconuts have two shells, one inside the other (lesson 57, story background)

- d. Each shell is so hard it wouldn't break if you hit it one time with a hammer (lesson 57, story background)
- e. Inside the second shell is sweet, white coconut meat (lesson 57, story background)
- f. Inside the meat is sweet juice, called coconut milk (lesson 57, story background)
- g. Parts of a coconut: outer shell, inner shell, coconut meat, coconut milk (lesson 57, story background)

C. Forests

- 1. A forest is a place where lots of tall trees are close together (lesson 5, story background)
- 2. Forest trees are tall and straight (lesson 4, story background)

D. Apple trees

- 1. Apples trees are short, are not straight, and have big branches (lesson 4, story background)
- 2. Apple trees do not grow in the winter (lesson 4, story background)
- 3. Apple trees start growing in the spring (lesson 4, story background)
- 4. Apple trees have white flowers in spring (lesson 4, story background)
- 5. Apples grow from each place with a flower (lesson 4, story background)

VI. Animals

A. Small and large animals

- 1. If tiny animals fall from high places, they don't get hurt (lesson 29, story reading)
- 2. The food that very small animals eat each day may weigh as much as the animal (lesson 32, story reading)
- 3. The food that bigger animals eat each day does not weigh as much as the animal (lesson 32, story reading)
 - a. An elephant may eat 200 pounds of food each day but weighs more than 1,000 pounds (lesson 32, story reading)
 - b. An adult human eats five pounds of food each day but an adult weighs more than that (lesson 32, story reading)
- 4. Humans are weak when compared to other animals (lesson 93, story background)
 - a. A leopard that weighs only 100 pounds can carry an animal that weighs 150 pounds (lesson 93, story background)
 - b. A lion is stronger than a leopard (lesson 93, story background)
 - c. A man can pull with a force of over 200 pounds (lesson 93, story background)
 - d. A chimpanzee is stronger than a man and can pull with a force of over 500 pounds (lesson 93, story background)

- e. The strongest land animal is the African elephant (lesson 93, story background)

B. Body temperature of animals

- 1. Warm-blooded animals
 - a. The temperature inside the body of warm-blooded animals stays the same (lesson 49, story background)
 - b. Birds, rabbits, dogs, cows, humans, horses, and deer are examples of warm-blooded animals (lesson 49, story background)
- 2. Cold-blooded animals
 - a. When the outside temperature changes, the inside temperature of cold-blooded animals changes (lesson 49, story background)
 - b. The body of a cold-blooded animal slows down when it gets cold (lesson 49, story background)
 - c. All insects are cold-blooded: ants, fleas, water striders, butterflies are examples of insects (lesson 49, story background)
 - d. Toads and frogs are cold-blooded (lesson 49, story background)

C. Kinds of cold-blooded animals

- 1. Insects
 - a. All insects are cold-blooded (lesson 49, story background)
 - b. An insect's body has three parts (lesson 41, story background)
 - c. All insects have six legs (lesson 41, story background)
- 2. Fleas
 - a. Fleas have six legs (lesson 12, story background)
 - b. Fleas bite and suck blood (lesson 12, story background)
 - c. A row of five big fleas is about one centimeter long (lesson 12, story background)
 - d. Different kinds of fleas live on different kinds of animals (lesson 12, story background)
 - e. About two hundred fleas weigh one gram (lesson 33, story background)
- 3. Flies
 - a. When flies are born, they are worms called maggots (lesson 37, story reading)
 - b. Flies are full grown in nine days (lesson 37, story reading)
 - c. Flies do not change size on the outside, but they change size on the inside (lesson 37, story reading)
 - d. The eye of the fly is different from a human eye (lesson 47, story background)
 - e. A fly's eye is made up of many drops. Each drop catches a picture (lesson 47, story background)
 - f. Thirty houseflies weigh one gram (lesson 33, story background)

4. Ants
 - a. Ants are insects (lesson 26, story background)
 - b. Ants have six legs (lesson 26, story background)
 - c. Ants are colored red or black (lesson 26, story background)
 - d. Ants are very strong for their size: An ant can carry an object that weighs ten times as much as the ant (lesson 26, story background)
 - e. Ants are very light: 100 ants weigh one gram (lesson 26, story background)
5. Spiders
 - a. Spiders are not insects (lesson 41, story background)
 - b. Spiders have eight legs (lesson 48, story background)
 - c. A spider's body has two parts (lesson 41, story background)
 - d. Many spiders make webs to catch insects (lesson 48, story background)
 - e. Some spiders are as big as your fist (lesson 48, story background)
 - f. Most spiders are not poisonous to people (lesson 48, story background)
 - g. Most spiders kill insects by biting them (lesson 48, story background)
 - h. Spiders wrap the dead insect in a web and eat the best part later (lesson 47, story reading)
6. Toads and frogs
 - a. Toads and frogs are members of the same family (lesson 15, story background)
 - b. Both are born in water as tadpoles (lesson 15, story background)
 - c. Both grow up in water (lesson 15, story background)
 - d. When their legs are big and strong, both live on land (lesson 15, story background)
 - e. Toads and frogs are different (lesson 16, story background)
 - i Toads have skin that is rough and covered with warts (lesson 16, story background)
 - ii Frogs have smooth skin (lesson 16, story background)
 - iii Toads have no teeth. Some frogs have teeth (lesson 16, story background)
 - iv The back legs of toads are not as big or as strong as a frog's legs (lesson 16, story background)
 - f. Toads catch flies (lesson 17, story background)
 - i A toad's tongue is almost as long as the toad (lesson 17, story background)
 - ii A toad's tongue is covered with sticky goo (lesson 17, story background)
 - iii A toad's tongue moves faster than a fly can move (lesson 17, story background)

D. Kinds of warm-blooded animals

1. Humans
 - a. Humans are warm-blooded (lesson 49, story background)
 - b. The normal body temperature of humans is 98° (lesson 49, story background)
 - c. When you have a fever, your temperature goes up (lesson 62, story background)
 - d. Most fevers don't go over 101° (lesson 62, story background)
 - e. A high fever of more than 104° may damage the person's brain (lesson 62, story background)
 - f. When people have high fevers, they may see things and hear things that are not happening (lesson 62, story background)
2. Horses
 - a. Draft horses
 - i A draft horse is a big, strong horse (lesson 86, story background)
 - ii Draft horses are good at pulling heavy things (lesson 86, story background)
 - iii One draft horse may weigh as much as 30 third-graders (lesson 86, story background)
 - b. Racehorses
 - i Racehorses run faster than any other kind of horse (lesson 86, story background)
 - ii Racehorses are smaller than draft horses (lesson 86, story background)
 - iii Racehorses may weigh as much as 15 third-graders (lesson 86, story background)
 - c. Quarter horses
 - i Quarter horses have a shorter back than racehorses (lesson 86, story background)
 - ii Quarter horses weigh as much as racehorses (lesson 86, story background)
 - iii Quarter horses stop and turn faster than racehorses (lesson 86, story background)
 - iv Quarter horses are much stronger than racehorses (lesson 86, story background)
 - d. The Mongolian horse
 - i The Mongolian horse is much smaller than the quarter horse or the racehorse (lesson 86, picture)
 - ii The Mongolian horse weighs about as much as eight third-graders (lesson 86, story background)
 - iii The Mongolian horse was a kind of horse that lived 30 thousand years ago (lesson 86, story background)
 - e. Ponies
 - i A full grown pony may get no bigger than a large dog (lesson 86, picture)
 - ii A pony is about one meter tall at the shoulders (lesson 86, story background)

- iii A pony weighs about the same as four third-graders (lesson 86, story background)
- f. Ancient horses
 - i The earliest horses were smaller than later horses (lesson 88, story background)
 - ii Ancient horses that lived 38 million years ago were the size of a small dog (lesson 87, story background)
 - iii Eohippus is a small horse that lived 38 million years ago (lesson 88, story background)
 - iv Eohippus stood on toes, not a hoof (lesson 88, story background)
 - v Changes in the legs made horses run faster (lesson 88, story background)
 - vi Horses survived by getting bigger (lesson 88, story background)
 - vii Bigger animals are safer (lesson 88, story background)
 - viii Horses survived by running in herds (lesson 88, story background)
- 3. Moles
 - a. Moles live under ground (lesson 18, story background)
 - b. Moles cannot see very well (lesson 18, story background)
 - c. Moles have legs like shovels (lesson 18, story background)
 - d. There are many different types of moles (lesson 18, story background)
- 4. Camels and pigs
 - a. Camels and pigs have hooves (lesson 6, story background)
 - b. Camels' and pigs' noses are different (lesson 6, story background)
 - c. A camel has a hump (lesson 6, story background)
 - d. Camels' and pigs' tails are different (lesson 6, story background)
 - e. Camels live in places that are very dry (lesson 7, story background)
 - f. Camels work like trucks to carry things (lesson 7, story background)
 - g. Camels can go for 10 days without water (lesson 7, story background)
 - h. Camels can drink 250 pounds of water at a time (lesson 7, story background)
 - i. Camels' hooves are wide and flat so they don't sink (lesson 7, story background)
- 5. Kangaroos
 - a. Kangaroos live in herds called mobs (lesson 113, story reading)
 - b. A mob moves in a great circle (lesson 113, story reading)
 - c. When a kangaroo is born, it is only three centimeters long (lesson 114, story background)
 - d. The baby kangaroo lives in its mother's pouch for half a year (lesson 114, story background)

- e. A baby kangaroo is called a joey (lesson 113, story reading)
 - f. Some kangaroos are as big as a man and some kangaroos are no bigger than a rabbit (lesson 114, story background)
 - g. Kangaroos have strong back legs and strong tails (lesson 114, story background)
 - h. Big kangaroos can go over 10 feet in one jump (lesson 114, story background)
6. Peacocks
- a. A peacock is a large bird (lesson 115, story background)
 - b. The feathers of the male peacock are more colorful than the feathers of any other bird (lesson 115, story background)
 - c. When the male peacock shows off, it spreads out its tail feathers (lesson 115, story background)
 - d. Peacocks have an unpleasant sounding voice, a screech (lesson 115, story background)
 - e. Peacocks are native to India (lesson 115, story background)

VII. Motion

A. When something tries to move in one direction, something else tries to move in the opposite direction

- 1. When air comes out of a balloon, the balloon moves the opposite way (lesson 22, story background; lesson 36, story background)
- 2. When air leaves the jet engine there is a push in the opposite direction (lesson 37, story background)
- 3. If you jump from the boat to the dock, there is a push in the opposite direction (lesson 36, story background)
- 4. If a paddle moves through the water in one direction, the boat moves in the opposite direction (lesson 37, story background)

SOCIAL STUDIES AND GENERAL INFORMATION

I. Geography: maps, distances, and places

A. Identifying directions

1. North is at the top of the map (lesson 14, story background)
2. South is on the bottom of the map (lesson 14, story background)
3. East is on the right side of a map: (lesson 14, story background)
4. West is on the left side of a map: (lesson 14, story background)
5. To find the direction of a wind, you face the wind so the wind blows in your face (lesson 44, story background)
6. The direction you're facing tells about the wind (facing east, an east wind, etc.) (lesson 44, story background)

B. Traveling from one place to another

1. By going west you can go around the world (lesson 52, story reading)
2. New York City to San Francisco is west (lesson 51, story reading)
3. San Francisco to Japan is west (lesson 51, story reading)
4. Japan to Italy is west (lesson 51, story reading)
5. Italy to New York is west (lesson 52, story reading)

C. Distances between places

1. West coast to east coast of the U.S. is 2,500 miles (lesson 24, introduction)
2. North to south side of U.S. is 1,300 miles (lesson 24, introduction)
3. New York City to San Francisco is 2,500 miles (lesson 46, story reading)
4. New York City to Chicago is 700 miles (lesson 43, story reading)
5. San Francisco to Japan is 4,500 miles (lesson 54, story reading)
6. Japan to Italy is 6,000 miles (lesson 51, story reading)

D. Identifying places on a map

1. Countries and continents
 - a. Canada
 - i. Canada is just north of the United States (lesson 111, story background)
 - ii. Alaska touches the west side of Canada (lesson 111, story background)
 - iii. Canada is larger than the United States (lesson 111, story background)
 - iv. Far more people live in the United States than Canada (lesson 127, story background)
 - v. Canada is colder than the United States (lesson 127, story background)

- b. North America (lesson 139, story background)
- c. Mexico (lesson 139, story background)
- d. Countries of North America (lesson 139, story background)
- e. Japan (lesson 46, story background)
- f. China (lesson 51, story reading)
- g. Turkey (lesson 51, story reading)
- h. Italy (lesson 51, story reading)
- i. Greece (lesson 64, story background)
- j. Egypt (lesson 132, story background)
 - i. Egypt is close to Greece and Turkey (lesson 132, story background)
 - ii. A great river called the Nile runs through Egypt (lesson 132, story background)
- k. Africa (lesson 132, story background)
- l. Spain (lesson 139, story background)
- 2. Cities and bodies of water
 - a. New York City (lesson 39, story reading)
 - b. San Francisco (lesson 39, story reading)
 - c. Chicago (lesson 43, story reading)
 - d. Denver (lesson 43, story reading)
 - e. Salt Lake City (lesson 43, story reading)
 - f. The Pacific Ocean is east of Australia, west of the U.S. (lesson 113, story background)
 - g. The Nile (lesson 132, story background)
 - h. Concord (lesson 144, story reading)
- 3. United States
 - a. The United States is a country made up of 50 states (lesson 48, story background)
 - b. Alaska is the biggest state (lesson 48, story background)
 - c. Texas is the second biggest state (lesson 48, story background)
 - d. California is the third biggest state (lesson 48, story background)
 - e. Ohio is a smaller state (lesson 48, story background)
 - f. The United States is much bigger than the country of Japan (lesson 48, story background)
 - g. Alaska is bigger than Japan (lesson 48, story background)

II. Historic time

A. Rules about piles

- 1. The thing closest to the bottom of the pile went into the pile earlier (lesson 83, story background)
- 2. Things closest to the top of the pile went into the pile later (lesson 83, story background)
- 3. Layers of rock tell us about things that happened millions of years ago (lesson 87, story background)

B. Time lines

1. Identify present, past, and future events on a time line (lesson 128, story background)
2. The numbers (years) get smaller as you go back in time (lesson 64, story background)
3. Things that happen now are at the top of the time line (lesson 64, story background)
4. Things that happened a long time ago are near the bottom of the time line (lesson 64, story background)
5. Important events are shown on a time line (lesson 64, story background)
 - a. Jesus Christ lived about 2,000 years ago (lesson 66, story background)
 - b. The Trojan Wars took place about 3,000 years ago (lesson 64, story background)
 - c. The United States became a country about 200 years ago (lesson 64, story background)
 - d. The first airplane was made about 100 years ago (lesson 64, story background)

C. Difference between past and present

1. In ancient Egypt people did not have refrigerators, tape-recorders, or flashlights (lesson 133, story background)
2. Most of the things used every day were invented after 1800 (lesson 134, story background)
3. Trains, trucks, cars, airplanes, computers, etc. were invented after the 1800s (lesson 134, story background)

III. Important periods and events in history

A. Prehistoric time

1. People living 80 thousand years ago left clues about how they lived (lesson 82, story background)
 - a. Bones, cave pictures, tools, and garbage piles give clues about early people (lesson 82, story background)
 - b. A garbage pile is like a time line: Things closer to the top happened later. Things closer to the bottom happened earlier (lesson 82, story background)
 - c. You can tell if food was cooked by the presence of burnt wood and ashes (lesson 82, story background)
2. Cave people (lesson 82, story background; lesson 85, story reading)
 - a. People who lived 80 thousand years ago did not live like we do (lesson 82, story background)
 - b. The people lived in caves (lesson 82, story background)
 - i. They did not have dogs for pets (lesson 82, story background)

- ii They did not have horses or bows and arrows (lesson 82, story background)
 - c. Cave people learned to use fire (lesson 84, story reading)
 - d. Cave people drew pictures on walls (lesson 85, story reading)
 - i These drawings show animals they hunted (lesson 85, story reading)
 - ii Cave people made outlines of their hands (lesson 85, story reading)
 - e. Cave people made paint by mixing earth with animal fat or blood (lesson 85, story reading)
 - f. Cavemen were smaller than men living now (lesson 85, story reading)
- 3. Animals from 40 thousand years ago
 - a. The saber-toothed tiger had a short tail and long teeth (lesson 137, story background)
 - b. The giant mammoth was an elephant with long fur and curved tusks (lesson 137, story background)

B. Egypt 5,000 years ago

- 1. Pyramids are huge stone buildings over 5,000 years old (lesson 132, story background)
- 2. Pyramids were used to bury the king and all his possessions (lesson 132, story background)
- 3. Dead kings and queens were turned into mummies (lesson 132, story background)
- 4. Rafts were used to carry very heavy things (lesson 135, story background)

C. Ancient Greece

- 1. The Trojan War (lesson 65, story; lesson 66, story; lesson 67, story reading)
 - a. Troy had a great wall around it for protection (lesson 65, story background)
 - b. Soldiers used bows, arrows, spears, and shields, not guns, jets, and tanks in war (lesson 65, story background)
 - c. The army of Greece used four plans to get inside Troy: climbing over the wall, digging under the wall, breaking down the gate, starving the people of Troy (lesson 65, information passage; lesson 66, story reading)
 - d. The war lasted 10 years (lesson 66, story reading)
 - e. The army of Greece tricked the people of Troy with a large wooden horse (lesson 67, story reading)
 - f. Greece won the war (lesson 67, story reading)
- 2. The story of Achilles (lesson 79, story reading)
- 3. Ancient vehicles

- a. Horses were used to pull carts on land (lesson 81, story background)
- b. Chariots were vehicles with two wheels and were used in battle (lesson 81, story background)
- c. Ships carried the army of Greece to Troy (lesson 66, story reading)

D. Land of the Vikings

1. Vikings were great fighters (lesson 142, story background)
2. Vikings went to America before Columbus, perhaps around the year 1,000 (lesson 142, story background)
3. Vikings lived far north of Italy and Spain (lesson 142, picture)
4. Vikings lived where winters are very long and cold (lesson 142, story background)

E. Spain in 1491 and 1492

1. People believed the world was flat (lesson 139, story reading)
2. Columbus believed the world was round (lesson 139, story reading)
3. Columbus sailed to America in 1492 (lesson 139, story reading)

F. The beginning of the United States – War with England

1. The United States was once a part of England (lesson 144, story background)
2. The United States went to war with England to become independent (lesson 144, story background)
3. George Washington was the leader of the U.S. Army (lesson 144, story background)
4. The United States won the war with England (lesson 144, story background)
5. Washington became the first president of the United States (lesson 144, story background)

G. The San Francisco Earthquake of 1906

1. Streets were made of dirt and had gas street lights (lesson 131, story reading)
2. People used horses and wagons to get around (lesson 131, story reading)
3. People dressed differently (lesson 131, story reading)
4. The earthquake caused the ground to shake and crack (lesson 131, story reading)
5. Fires broke out (lesson 131, story reading)

IV. General Information

A. Ships

1. Parts of ships
 - a. The bow is the front of the ship (lesson 53, story background)
 - b. The stern is the back of the ship (lesson 53, story background)
 - c. The decks are the floors of the ship (lesson 53, story background)
 - d. The bulkheads are the walls of the ship (lesson 53, story background)
 - e. The hold is at the bottom of the ship where the cargo is held (lesson 116, story background)
 - f. Cargo is the name for things that ships carry like grains, cars, and machines (lesson 116, story background)
2. Types of ships
 - a. An ocean liner is a very large ship (lesson 53, story background)
 - b. An ocean liner is made to carry passengers (lesson 53, story background)
3. Landing a ship
 - a. Ships land in a harbor (lesson 63, story background)
 - b. Ships load and unload at docks (lesson 63, story background)
 - c. Sometimes ships are pulled by tug boats to the dock (lesson 63, story background)
4. Sailing ships 200 years ago
 - a. 200 years ago ships had large sails that caught the wind (lesson 107, story background)
 - b. The faster sailing ships went six miles per hour (lesson 107, story background)
 - c. Sailing ships took 30 days to go from San Francisco to Japan. Today an ocean liner takes five days (lesson 107, story background)
 - d. Sailing ships took 40 days to go from New York to Italy. Today a jet takes seven hours (lesson 107, story background)
 - e. Sailing ships did not have refrigerators or electric lights (lesson 107, story background)
 - f. Many sailing ships carried spices, cloth, and things made of gold and silver (lesson 107, story background)

B. Airplanes

1. Facts about airplanes
 - a. A jet flies five hundred miles per hour (lesson 41, story background)
 - b. Rule about jet engines: The air blows toward the back and the plane moves the opposite way, forward (lesson 37, story background; lesson 42, story reading)

- c. The kitchen on an airplane is called a galley (lesson 43, story reading)
 - d. Planes go the fastest when they go in the same direction the wind is blowing (lesson 44, story reading)
 - e. The gas tanks of an airplane are found in the airplane's wings (lesson 52, story reading)
 - f. A plane flies about six miles above the ground (lesson 42, story reading)
2. Airplane crew members
- a. Pilot and other crew members fly the plane (lesson 39, story background)
 - b. Flight attendants work in the back of the plane (lesson 39, story background)
 - c. Flight attendants take care of the passengers (lesson 39, story background)

C. Wells

1. Kinds of wells
- a. Wells are deep holes in the ground (lesson 71, story background)
 - b. Most wells are kept open by a pipe (lesson 71, story background)
 - c. Fresh water wells pump fresh water from under the ground (lesson 71, story background)
 - d. Oil wells pump crude oil from under the ground (lesson 71, story background)
2. Crude oil
- a. Crude oil is a dark liquid used to make gasoline, motor oil, and plastic (lesson 71, story background)
 - b. Crude oil is pumped from the ground and then into a pipeline (lesson 71, story background)
 - c. The pipeline carries the crude oil to a refinery (lesson 71, story background)
 - d. The refinery changes crude oil into gasoline and other things (lesson 71, story background)

D. Forms

1. Completing forms
- a. First name (lesson 89, story background)
 - b. Last name (lesson 89, story background)
 - c. Street address (lesson 89, story background)
 - d. City (lesson 89, story background)
 - e. State (lesson 89, story background)
 - f. Phone number (lesson 89, story background)
2. Bank forms
- a. Deposit slips are used to put money into banks (lesson 91, story background)

- b. Checks tell the bank how much money to pay somebody (lesson 91, picture)
 - i The date on the check tells when the check was written (lesson 91, picture)
 - ii The signature tells whose money the bank will use (lesson 91, picture)

E. Circuses

- 1. The circus is sometimes held in a large tent (lesson 119, story background)
- 2. Two or three acts go on at the same time (lesson 119, story background)
- 3. Some acts go on in rings (lesson 119, story background)
- 4. Other acts go on in the air (lesson 119, story background)

F. Boxing

- 1. Two people box (lesson 121, story background)
- 2. Boxers wear large mittens called boxing gloves (lesson 121, story background)
- 3. Boxers fight in a roped off area called a ring (lesson 121, story background)
- 4. Sometimes the fight ends when one boxer knocks out the other (lesson 121, story background)
- 5. Sometimes the fight goes on for a certain amount of time (lesson 121, story background)

G. Islands

- 1. Islands are small (lesson 55, story background)
- 2. There is water on all sides of an island (lesson 55, story background)

H. Sound

- 1. If you get smaller, your voice gets higher (lesson 35, story background)
- 2. Vibrating rulers: the shorter the ruler, the higher the sound (lesson 35, picture)

I. Machines and tools

- 1. Machines
 - a. All machines make it easier for you to do work (lesson 58, story background)
 - b. A lever is an example of a machine (lesson 58, story background)
- 2. Magnets
 - a. Magnets pick up things like paper clips and nails (lesson 92, story reading)

- b. You can use electricity to turn a steel bar into a magnet called an electromagnet (lesson 92, story reading)
 - c. When electricity stops running through the electromagnet, the electromagnet loses its power (lesson 92, story reading)
- 3. Binoculars make things appear bigger (lesson 19, lesson 27, lesson 110)
- 4. Scales measure how much things weigh (lesson 33, picture, in story background)

Grade 3



Grade 3

SCIENCE FACTS AND CONCEPTS

I. Light

A. Magnifying glasses bend light

1. A magnifying glass is curved (lesson 125, story background)
2. Light bends when it goes through a magnifying glass (lesson 125, story background)
3. Light from the top bends and ends up on the bottom (lesson 125, story background)
4. Light from the bottom bends and ends up on the top (lesson 125, story background)
5. Light in the middle goes straight through (lesson 125, story background)
6. The image is upside down (lesson 125, story background)
7. The human eye works like a magnifying glass (lesson 125, story background)

B. The speed of light

1. Light is the fastest thing there is (lesson 102, story background)
2. Light travels about 186 thousand miles in one second (lesson 102, story background)
3. It takes light about eight minutes to travel from the sun to the earth (lesson 102, story background)
4. Traveling at the speed of light, you could circle the earth eight times in one second (lesson 102, story background)

II. Pressure

A. Water pressure

1. When you are at the surface of the water, there is pressure on your body (lesson 86, story background)
2. When you go 33 feet underwater, the pressure is two times as great as it is at the surface (lesson 86, story background)
3. When you go down another 33 feet, the pressure is three times as great as it is at the surface (lesson 86, story background)
4. When you're 100 feet down, four times the normal pressure pushes against your body (lesson 87, story reading)
5. Divers get the bends if they surface too fast (lesson 87, story reading)
 - a. The pressure on your body goes down very fast (lesson 87, story reading)
 - b. Bubbles form in your blood (lesson 87, story reading)

- c. Bubbles don't form if the pressure changes slowly (lesson 87, story reading)
- d. Divers take at least two minutes to go to the surface (lesson 87, story reading)

B. Rules about pressure

- 1. The deeper something is, the more pressure there is on that thing (lesson 114, story reading)
- 2. The pressure is greater when you're deeper because the water around you weighs more (lesson 114, story reading)

III. Human body

A. Brain

- 1. The brain is a soft mass inside the skull (lesson 121, story reading)
- 2. The lower part of the brain controls the parts of the body you don't have to think about (lesson 125, story reading)
 - a. It controls sweating (lesson 125, story reading)
 - b. It controls the heartbeat (lesson 125, story reading)
 - c. It controls breathing (lesson 125, story reading)
 - d. All animals have this part of the brain (lesson 126, story reading)
- 3. The cerebrum is the part of the brain that does the thinking (lesson 125, story reading)
 - a. It tells your hand to make a fist (lesson 125, story reading)
 - b. When you think about what you see, it does the thinking (lesson 125, story reading)
 - c. It has more nerves than the lower part of the brain (lesson 125, story reading)
- 4. The back part of the brain controls seeing (lesson 126, story reading)

B. The circulatory system

- 1. Facts about the heart
 - a. The heart is like a great pump (lesson 122, story reading)
 - b. The heart is the size of your fist (lesson 121, story reading)
 - c. The heart pumps all the time (lesson 121, story reading)
 - d. The heart pumps blood through the blood vessels to the different parts of the body (lesson 122, story reading)
 - e. Black blood comes to the heart and the heart pumps it to the lungs (lesson 123, story reading)
 - f. After the blood gets oxygen, it is bright red and returns to the heart (lesson 123, story reading)
 - g. The heart pumps the blood with fresh oxygen to different parts of the body (lesson 123, story reading)
 - h. The heart has four chambers (lesson 123, story reading)

2. Facts about the lungs
 - a. The body must have oxygen to work (lesson 122, story reading)
 - b. Lungs take in oxygen when you breathe air (lesson 121, story reading)
 - c. Blood gets oxygen from the lungs (lesson 122, story reading)
 - d. When oxygen enters the blood it turns from black to bright red (lesson 122, story reading)
3. Facts about blood vessels
 - a. Blood vessels that pound go away from the heart (lesson 123, story reading)
 - b. Blood vessels that do not pound go back to the heart (lesson 123, story reading)
 - c. Blood vessels carry oxygen to the muscles so the muscles can work (lesson 123, story reading)
 - d. Blood vessels that go back to the heart are blue because they are filled with black blood (lesson 123, story reading)

C. Ears

1. The outer ear collects the sound and directs it to the inner ear (lesson 127, story reading)
2. The inner ear joins the outside to the brain (lesson 127, story reading)
 - a. Rows of hairs line the inside of the inner ear (lesson 127, story reading)
 - b. There is a nerve that goes to the brain from every hair (lesson 127, story reading)
 - c. When the hair vibrates, the nerve pulses (lesson 127, story)
 - d. High sounds are picked up near the outside of the ear (lesson 127, story reading)
 - e. Lower sounds are picked up way inside the ear (lesson 127, story reading)

D. Eyes

1. Facts about the eye
 - a. The eye is actually a big ball (lesson 126, story reading)
 - b. When you look at somebody's eye, you see only a small part of the eye (lesson 126, story background, story reading)
 - c. The pupil is black because the inside of the eyeball is dark (lesson 102, story background)
2. Parts of the eye
 - a. The pupil is the black opening in the front of the eye that lets light into the eyeball (lesson 126, story background)
 - b. The lens is the curved, transparent part of the eye that is just behind the pupil (lesson 126, story background)
 - c. The lens bends the light (lesson 126, story background)
 - d. The retina is the back of the eyeball where the picture is formed (lesson 126, story background)

3. The process of seeing
 - a. Light must pass through the pupil to get inside the eye (lesson 127, story reading)
 - b. When light goes through the lens, the lens bends the light (lesson 127, story reading)
 - c. The paths of light cross and form an upside-down image on the back of the eyeball (retina) (lesson 126, story reading, picture)
 - d. The picture is sent to the brain through the cerebrum (lesson 126, story reading)
 - e. The retina has thousands of nerves, which feel the light (lesson 126, story reading)
 - f. The nerves that feel the light send messages that go through the nerves to the brain (lesson 126, story reading)
4. The eye operates like a camera
 - a. A camera has a lens, a curved piece of glass that bends the light (lesson 133, story background, picture)
 - b. A camera has an iris just behind the lens, which controls how much light hits the film (lesson 133, story background and picture)
 - c. The picture is formed on film in a camera (lesson 133, story background)
 - d. The camera shutter works like an eyelid (lesson 133, story background, picture)

E. Nervous system

1. There are nerves in every part of the body (lesson 124, story reading)
2. Nerves look like white, branching ropes (lesson 124, story reading)
3. A nerve is like an electric wire – it carries messages (lesson 124, story reading)
4. There are two kinds of nerves (lesson 124, story reading)
 - a. One kind sends messages to the brain from the body parts (lesson 124, story reading)
 - b. The other kind sends messages from the brain to the body parts (lesson 124, story reading)
 - c. The nerve that goes to the brain tells what that nerve is feeling (lesson 124, story reading)
 - d. The nerve that goes from the brain tells the body what to do (lesson 124, story reading)
5. All nerves in the body form a great rope called the spinal cord (lesson 125, story reading)
6. The spinal cord goes through your back bone to the brain (lesson 125, story reading)

F. Muscles

1. Muscles and bones work together because muscles are attached to bones (lesson 121, story reading)

2. When a muscle works, it pulls and gets shorter (lesson 119, story reading)
 - a. Muscles on the right of two bones pull the bottom bone to the right (lesson 119, story reading)
 - b. Muscles on the left of two bones pull the bottom bone to the left (lesson 119, story reading)
 - c. The bottom bone will move toward the muscle when the muscle pulls and gets shorter (lesson 119, story reading)
3. Each muscle can do only one job (lesson 119, story reading)
4. Kinds of muscles
 - a. The biceps are muscles on the front of the upper arms (lesson 119, story reading)
 - b. The triceps are muscles on the back of the upper arms (lesson 119, story reading)
 - c. Biceps bend the arm (lesson 119, story reading)
 - d. Triceps straighten the arm (lesson 119, story reading)

G. The human skeleton

1. The skeleton is made up of 206 bones (lesson 121, story reading)
2. Some bones make the body strong (lesson 121, story reading)
3. Some bones protect parts of the body (lesson 121, story reading)
 - a. The skull protects the brain (lesson 121, story reading)
 - b. The ribs protect the lungs and heart (lesson 121, story reading)

IV. The Solar System

A. Facts about the Solar System

1. The Solar System is made up of the sun and nine planets (lesson 53, story background)
2. Most of those planets have moons (lesson 53, story background)
3. Earth is one of the nine planets (lesson 53, story background)
4. The sun is in the middle of the Solar System (lesson 53, story background)
5. The universe is everything (lesson 136, story reading)

B. Space

1. Space is the part of the solar system between the planets (lesson 58, story reading)
2. There is no oxygen in space (lesson 58, story reading)
3. There is no gravity in space (lesson 58, story reading)
4. Space looks black because there is no air (lesson 58, story reading)

C. The Sun

1. The sun is a star (lesson 117, story reading)
2. The sun is the center of the solar system (lesson 53, story reading)

- a. The Earth moves around the sun all the time (lesson 9, story background)
- b. The Earth makes a complete circle around the sun one time every year (lesson 9, story background)
 - i. It takes the Earth 365 days to make a complete circle around the sun (lesson 9, story background)
- c. The earth is in different places in different seasons (lesson 9, story background)
- d. Planets move around the sun (lesson 53, story background)
- 3. The sun is the only part of our solar system that is burning (lesson 53, story background)
 - a. The sun is matter in the gas form (lesson 105, story reading)
 - b. The surface of the sun is made up of flaming gases that shoot up 12 times bigger than Earth (lesson 117, story reading)
 - c. The sun gives off light (lesson 6, story background)
 - d. The sun always shines (lesson 6, story background)
 - e. The sun gives off heat (lesson 8, story background)
 - f. The sun gives heat and light to all planets (lesson 53, story background)
- 4. The sun is much larger than any planet (lesson 53, story background)
 - a. It is 100 times larger than Earth (lesson 53, story background)
- 5. The sun is 93 million miles from Earth (lesson 102, story background)
- 6. It takes light eight minutes to travel from the sun to the Earth (lesson 102, story background)
- 7. Places on the Earth that have more lines of heat are hotter than places with fewer lines of heat (lesson 9, story background)

D. Planets

- 1. There are nine planets in the solar system (lesson 53, story background)
- 2. The names of the planets are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto (dwarf planet) (lesson 53, story background)
- 3. Mercury is closest to the sun (lesson 53, story background)
- 4. We live on the planet Earth (lesson 53, story background)
 - a. Earth is shaped like a ball (lesson 4, story background)
 - b. Earth is eight thousand miles through the middle (lesson 117, story reading)
 - c. From space, Earth looks green and blue with white streaks that are clouds (lesson 57, story reading)
 - d. The sky looks blue because there is a layer of air around earth (lesson 58, story reading)
 - e. Half of Earth is always in a shadow (lesson 6, story background)
 - f. Earth is tilted (lesson 11, story background)
 - g. Earth rotates once every 24 hours (lesson 6, story background)
 - h. Earth moves around (orbits) the sun, which is why the seasons change (lesson 11, story background)

- i. The Equator is a pretend line that goes around the fattest part of Earth (lesson 4, story background)
 - j. The Equator is the hottest part of the earth (lesson 4, story background)
 - k. The top of Earth and the bottom of Earth are called poles (lesson 4, story background)
 - i. The poles are the coldest parts of Earth (lesson 4, story background)
 - ii The North Pole is on the top; the South Pole is on the bottom (lesson 4, story background)
 - iii The North Pole is north of the United States (lesson 12, story background)
 - iv The North Pole is tilted away from the sun in winter (lesson 11, story background)
 - v There is constant darkness during winter at the North Pole (lesson 11, story background)
 - vi The North Pole tilts toward the sun during summer (lesson 11, story background)
 - vii There is constant light in the summer at the North Pole (lesson 11, story background)
 - viii The South Pole is south of the United States (lesson 12, story reading)
5. Facts about Mars
- a. Mars looks red (lesson 59, story reading)
 - b. Mars doesn't have many clouds (lesson 59, story reading)
 - c. Mars is smaller than Earth (lesson 59, story reading)
 - d. Mars is colder than Earth because it's farther from the sun (lesson 59, story reading)
6. Jupiter is the largest planet (lesson 53, story background)
- a. It is 400 million miles from Earth to Jupiter (lesson 54, story reading)
 - b. Jupiter has 63 moons (lesson 54, story reading)
 - i One of Jupiter's moons is named Io (lesson 61, story reading)
 - ii Io is as big as our moon (lesson 61, story reading)
 - iii Io moves around Jupiter in less than 2 days (lesson 61, story reading)
 - c. The gravity on Jupiter is much stronger than the gravity on Earth (lesson 61, story reading)
 - i A man who weighs 200 pounds on Earth would weigh 500 pounds on Jupiter (lesson 61, story reading)
 - d. Jupiter is surrounded by a thick layer of gases (lesson 61, story reading)
 - e. The surface of Jupiter is always dark (lesson 61, story reading)
7. Saturn is the next largest planet (lesson 53, story background)
- a. Saturn has large rings around it (lesson 105, story reading)
 - b. It is almost 200° below zero on the dark side of Saturn (lesson 106, story reading)
 - c. Saturn has 60 moons (lesson 54, story reading)

8. Pluto is a dwarf planet because it is so small (lesson 53, story background)
 - a. Pluto is the planet farthest from the sun (lesson 53, story background)
 - b. All gases on Pluto are frozen (lesson 106, story reading)

E. Galaxies

1. There are millions of galaxies (lesson 118, story reading)
2. Our galaxy is the Milky Way (lesson 118, story reading)
 - a. It is the biggest galaxy (lesson 118, story reading)
 - b. It has 100 billion stars (lesson 118, story reading)
 - c. It is shaped like a giant pinwheel (lesson 118, story reading)

F. Gravity

1. Gravity is the force that pulls things back to a planet (lesson 58, story background)
2. Not all planets have the same amount of gravity (lesson 58, story background)
 - a. Bigger planets have stronger gravity (lesson 62, story background)
 - b. Smaller planets have weaker gravity (lesson 62, story background)
 - c. The stronger the gravity on a planet, the more somebody would weigh (lesson 58, story background)
 - d. A person who weighs 100 pounds on Earth weighs over twice as much on Jupiter (lesson 58, story background)
 - e. A person who weighs 100 pounds on Earth weighs 17 pounds on our moon (lesson 58, story background)
3. If you are weightless, you have no weight, so you can float around (lesson 58, vocabulary)

V. Measurement

A. Time lines

1. Things that have already happened are in the past (lesson 54, story background)
2. Things that are happening now are in the present (lesson 54, story background)
3. Things that will happen are in the future (lesson 54, story background)
4. Dates near the bottom of the time line happened earlier (lesson 54, story background)
5. Dates near the top of the time line happened later (lesson 4, story background)
6. The numbers for years get smaller as you go back in the past (lesson 128, story reading)

B. Speed

1. Light travels about 186 thousand miles every second (lesson 102, story background)
2. If you could travel at the speed of light, you would go around the Earth almost eight times in one second (lesson 102, story background)
3. Sound travels one mile in five seconds (lesson 103, story reading)
 - a. If you fly faster than the speed of sound, you can't hear the jet engines because the sound can't catch up to you (lesson 57, story reading)
4. It doesn't feel like you're moving in space because there is no air rushing by you (lesson 103, story reading)

VI. Matter

A. Facts about matter

1. Everything is matter (lesson 105, story reading)
2. There are three forms of matter (lesson 105, story reading)
 - a. Solid matter is hard like rocks or dishes (lesson 105, story reading)
 - b. Liquid matter pours like water (lesson 105, story reading)
 - c. Gas matter floats in the air (lesson 105, story reading)
3. You can change matter from one form to another by making the matter hotter or colder (lesson 106, story reading)
 - a. All matter can change from solid to liquid to gas (lesson 105, story reading)
 - b. If you make a solid object hot enough, it can change to liquid form (lesson 105, story reading)
 - c. If it gets still hotter, it can change to the gas form (lesson 105, story reading)
 - d. If you make air cold enough, it can change into a liquid (lesson 105, story reading)
 - e. If you make air still colder, it can change into a solid (lesson 106, story reading)
 - f. Not all things change forms at the same temperature (lesson 108, story reading)
4. The gas form of matter is the hottest form (lesson 105, story reading)
5. The solid form of matter is the coldest form (lesson 109, story reading)

B. Molecules

1. All matter is made up of tiny parts called molecules (lesson 108, story)
2. The molecules of different kinds of matter do not look alike (lesson 108, story reading)
3. When molecules are in the solid form they are lined up and they stay in place (lesson 109, story reading)
 - a. Molecules are close together in the solid form (lesson 109, story)

4. As molecules get hotter, they move farther apart and move faster (lesson 111, story reading)
 - a. Molecules in the liquid form are not in rows and they move very fast (lesson 114, story reading)
 - b. Molecules are farthest apart in the gas form and fly incredibly fast in all directions (lesson 111, story reading)

VII. The world around us

A. Clouds

1. Clouds are made up of tiny drops of water (lesson 21, story background)
2. The water drops are frozen in very high clouds (lesson 21, story background)
3. Low flat clouds may bring bad weather (lesson 21, story background)
4. Storm clouds are flat on the bottom but go up very high (lesson 21, story background)
5. Hailstones are drops of water that freeze within a cloud (lesson 21, story background)
 - a. Winds inside storm clouds move hailstones from the bottom of the cloud to the top (lesson 21, story background)
 - b. Hailstones get bigger each time they move up and down in a cloud (lesson 21, story background)
 - c. You can count rings in a hailstone and tell how many times the hailstone went through a cloud (lesson 21, story background)

B. Volcanoes and earthquakes

1. A volcano is a mountain that is made of hot melted rock (lava) that comes from inside the earth (lesson 33, story background)
 - a. The melted rock moves up from inside the earth to the surface of the earth (lesson 33, story background)
 - b. The rock cools and becomes hard, forming a cone (lesson 33, story background)
 - c. There may be clouds of smoke, an explosion, and an earthquake when a volcano erupts (lesson 33, story background)
2. In an earthquake, the earth shakes and moves (lesson 33, story background)
3. In an earthquake, sometimes the earth cracks (lesson 33, story background)

C. Whirlpools

1. Whirlpools are made up of moving water (lesson 27, story background)
 - a. Whirlpools are shaped like a funnel — they are wide at the top and narrow at the bottom (lesson 27, story background)

- b. The water spins around and around in whirlpools (lesson 27, story background)
 - c. Something caught in a whirlpool goes around and around as it moves down (lesson 27, story background)
- 2. There are many whirlpools in the Bermuda Triangle (lesson 24, story reading)

D. The ocean world

- 1. Ocean depths
 - a. The farther down you go, the darker the water becomes (lesson 87, story reading)
 - b. The farther down you go, the cooler the water becomes (lesson 88, story reading)
 - c. The ocean is over six miles deep in the deepest place (lesson 116, story reading)
 - d. Plants don't grow on the bottom of the ocean because there is no sunlight (lesson 116, story reading)
- 2. A reef is an underwater hill (lesson 84, story background)
- 3. Coral
 - a. Coral covers some rocks underwater (lesson 114, story reading)
 - b. Coral is made of skeletons of tiny animals (lesson 84, story background)
 - c. Coral lives and dies in one place (lesson 84, story background)
 - d. Coral is easy to destroy and takes a long time to grow back (lesson 84, story background)
 - e. Coral reefs look like an underwater hill covered with coral (lesson 84, story background)
 - f. Some coral is rare and valuable (lesson 84, story background)
 - g. Types of coral
 - i Staghorn Coral (lesson 84, story background)
 - ii Brain Coral (lesson 84, story background)
 - iii Red Coral (lesson 84, story background)
- 4. Ice floes
 - a. Ice floes are parts of the ocean that freeze in the winter and break apart in the spring (lessons 17, story reading)
 - b. Ice floes can be found in Alaska (lesson 17, story reading)
 - c. Ice floes make creaking noises as they move in the water (lesson 17, story reading)
 - d. Ocean currents and wind make ice floes drift (lesson 17, story reading)
 - e. Ice floes can be three meters thick (lesson 17, story reading)
- 5. Ocean currents
 - a. Ocean currents make things drift (lesson 18, story background)
 - b. Wind makes things drift in the ocean (lesson 18, story background)
 - c. Ocean currents are like great rivers of water within the ocean (lesson 18, story background)

- d. If you are in an ocean current, you will move in the same direction the current moves (lesson 18, story background)

E. Snowflakes

- 1. No snowflake looks exactly like any other snowflake (lesson 132, story reading)
- 2. All snowflakes have six spokes (lesson 132, story reading)

SOCIAL STUDIES AND GENERAL INFORMATION

I. Animals

A. Geese

1. Geese and ducks are water birds (lesson 1, story background)
2. Geese are bigger than ducks (lesson 1, story background)
 - a. Male and female geese have the same markings (lesson 1, story background)
 - b. Male geese are bigger than females (lesson 1, story background)
3. Most geese are born in Canada (lesson 1, story background)
 - a. Geese hatch from eggs (lesson 1, story background)
 - b. Geese eggs are bigger than chicken eggs (lesson 1, story background)
4. Geese migrate from the north to the south in the fall (lesson 2, story background)
 - a. Geese migrate in the fall because northern lakes and rivers freeze (lesson 2, story background)
 - b. Some geese migrate over 3000 miles (lesson 2, story background)
 - c. Geese usually fly two to three miles high (lesson 3, story reading)
 - d. Geese can go as high as five miles (lesson 3, story reading)
 - e. Geese can fly 60 mph all day long (lesson 3, story reading)
 - f. Geese land about every 300 miles and stay for one or two nights (lesson 5, story reading)
 - g. Geese always go to the same landing place (lesson 8, story reading)
 - h. Geese fly in flocks of more than 50 (lesson 1, story background)
 - i. Geese fly in a "v" formation (lesson 9, story reading)
 - j. Geese who fly at the front of the v work harder (lesson 9, story reading)
5. Geese migrate from south to north in the spring (lesson 2, story background)

B. Animals that live in Alaska

1. Mammals that live in Alaska
 - a. Polar bears (lesson 13, story background)
 - b. Elephant seal (lesson 13, story background)
 - c. Killer whale (lesson 13, story background)
 - d. Walrus (lesson 13, picture)
 - e. Wolves (lesson 13, story background)
 - f. Sled dogs (lesson 12, story background)

2. Insects found in Alaska
 - a. Mosquitoes come out in clouds when the snow melts (lesson 16, story reading)
 - b. Biting flies look like ordinary flies (lesson 16, story reading)
 - i They bite like mosquitoes (lesson 16, story reading)
 - ii They leave red lumps that itch (lesson 16, story reading)
 - c. No-see-ums are small (lesson 16, story reading)
 - i They are hard to see (lesson 16, story reading)
 - ii They come out when the sun goes down (lesson 16, story reading)
3. Animals in Alaska are most dangerous in the spring (lesson 14, story background)
 - a. Females fight to protect their babies (lesson 14, story background)
 - b. Seal males fight anytime during the spring to keep their place on the beach (lesson 14, story background)

C. Animals that live in Africa

1. Baboons
 - a. Baboons are very smart animals (lesson 135, story background)
 - b. Baboons live in large groups called troops (lesson 135, story background)
2. Gorillas
 - a. Gorillas look something like baboons (lesson 135, story background)
 - b. Gorillas are much bigger and stronger than baboons (lesson 135, story background)
3. Leopards
 - a. Leopards belong to the same family as lions and tigers (lesson 135, story background)
 - b. Leopards have spots (lesson 135, story background)
 - c. Leopards are no bigger than a large dog (lesson 135, story background)
 - d. Leopards are very strong and quick (lesson 135, story background)

D. Mammals that live in the ocean

1. All whales are warm-blooded (lesson 115, story reading)
2. Killer whales
 - a. Killer whales are about 12 meters long (lesson 16, story background)
 - b. Most other whales are longer than killer whales (lesson 16, story background)
 - c. Killer whales are not fish (lesson 16, story background)
 - d. Killer whales are very smart (lesson 16, story background)
 - e. Killer whales hunt in packs (lesson 16, story background)

- f. Killer whales kill larger whales, polar bears, seals, or other animals that are in the water (lesson 16, story background)
- 3. Blue whales
 - a. Blue whales are the largest animals in the world (lesson 115, story reading)
 - b. A blue whale is longer than a killer whale (lesson 115, story reading)
 - c. A blue whale weighs more than ten elephants (lesson 115, story reading)
- 4. Porpoises
 - a. A porpoise is in the same family as whales (lesson 115, story reading)
 - b. Some people think that the porpoise is the smartest animal in that family (lesson 115, story reading)

E. Squid

- 1. A giant squid looks like a giant carrot with huge arms (lesson 115, story reading)
- 2. A giant squid may grow to the size of a large tree (lesson 115, story reading)
- 3. A squid moves by taking in water and squirting it out very fast like a jet takes in air and pushes it out (lesson 115, story reading)
- 4. The arms of a squid are called tentacles (lesson 115, story reading)
- 5. The tentacles have little cups that stick to things (lesson 115, story reading)

F. Animals can learn

- 1. Humans
 - a. Humans are smarter than other animals (lesson 137, story reading)
 - b. Humans can learn more than any other animal (lesson 137, story reading)
- 2. Baboons
 - a. Baboons are perhaps the next smartest animal to humans (lesson 137, story reading)
 - b. Baboons can learn to use tools (lesson 137, story reading)
 - c. Baboons are very strong (lesson 137, story reading)
 - d. Baboons can work together as a team (lesson 137, story reading)
- 3. Steps in training animals
 - a. Tell the animal what to do (lesson 69, story background)
 - b. Reward the animal (give it something it likes) if it does what you tell it to do (lesson 69, story background)
 - c. Do not reward the animal if it doesn't do what you tell it to do (lesson 69, story background)
 - d. If it is a hard trick, reward the animal for trying (lesson 71, story background)

- e. Keep rewarding the animal for coming closer to performing the trick (lesson 71, story background)
- f. Slowly change the rewards (lesson 77, story reading)

II. Earth strata: piles, layers, and eras

A. Rules about piles and layers

- 1. The thing closer to the bottom of the pile went into the pile earlier (lesson 22, story background)
- 2. Things closer to the top of the pile went into the pile later (lesson 22, story background)
- 3. Layers of rock tell us about things that happened millions of years ago (lesson 23, story background)
- 4. When we dig a hole in any part of the world, we find the same layers (lesson 23, story reading)

B. Eras

- 1. The first layer above rocks has skeletons of shells and sea animals (lesson 23, story reading)
- 2. The Mesozoic era is the layer above the layer with skeletons of shell and sea animals (lesson 138, story background)
 - a. The Mesozoic era started about 235 million years ago (lesson 138, story reading)
 - b. There were no horses, bears, elephants, rabbits in the Mesozoic era (lesson 23, story reading)
 - c. The Mesozoic is the layer in which we find dinosaurs (lesson 23, story reading)
- 3. The layer above the Mesozoic layers has skeletons of horses no bigger than dogs (lesson 23, story reading)

III. Ancient animals

A. Dinosaurs

- 1. When dinosaurs walked on earth, there were no horses, no bears, no elephants, no rabbits, no mice, no cats, and no humans (lesson 23, story background)
- 2. Dinosaurs lived during the Mesozoic era (lesson 23, story background)
- 3. Some dinosaurs ate plants. Some ate other animals (lesson 138, story reading)
- 4. Some dinosaurs were no bigger than a rabbit (lesson 138, story reading)
- 5. Some dinosaurs stood 20 feet tall (lesson 24, story background)
- 6. Dinosaurs were on earth for a long time (lesson 24, story background)
- 7. Facts about Tyrannosaurus
 - a. Tyrannosaurus lived late in the Mesozoic era (lesson 24, story background)

- b. Tyrannosaurus was large in size—about 20 feet high (lesson 24, story background)
 - c. Tyrannosaurus was a meat-eater (lesson 24, story background)
- 8. Facts about Triceratops
 - a. Triceratops had three horns and armor (lesson 24, story background)
 - b. Triceratops was large in size (lesson 24, story background)

B. Saber-toothed tiger

- 1. It no longer lives on earth (lesson 135, story background)
- 2. It had teeth that stuck out like sabers or swords (lesson 135, story background)
- 3. It lived on the African veld (lesson 137, story reading)

IV. Geography: maps, climates, and information about places and people

A. Identifying directions

- 1. North is (usually) on the top of the map (lesson 3, story background)
- 2. South is (usually) on the bottom of the map (lesson 3, story background)
- 3. East is (usually) on the right side of the map (lesson 3, story background)
- 4. West is (usually) on the left side of the map (lesson 3, story background)

B. Identifying places on a map

- 1. Countries
 - a. United States (lesson 3, story background)
 - b. Canada (lesson 3, story background)
 - c. Japan (lesson 52, story reading)
 - d. Andros Island (Bahamas) (lesson 24, story reading)
- 2. Bodies of water
 - a. The Atlantic Ocean is east of the U.S. (lesson 24, story background)
 - b. The Bermuda Triangle is a place where thousands of ships have sunk (lesson 24, story background)
- 3. Cities and states
 - a. Michigan (lesson 7, story background)
 - b. Kentucky (lesson 7, story background)
 - c. Alaska (lesson 12, story background)
 - d. Florida (lesson 23, story background)
 - e. Colorado (lesson 79, story background)
 - f. Utah (lesson 79, story background)
 - g. Denver, Colorado (lesson 79, map)
 - h. Greeley, Colorado (lesson 79, story background)

- i. Salt Lake City, Utah (lesson 79, story background)
- j. Tokyo, Japan (lesson 55, story background)

C. Facts about Japan

- 1. Japan is a country west of the U.S. (lesson 52, story background)
- 2. Japan is smaller than Alaska (lesson 52, story background)
- 3. 127 million people live in Japan (lesson 52, story background)
- 4. Japan manufactures products such as cars and TVs (lesson 52, story background)

D. Facts about Africa

- 1. Africa has a wet season and a dry season (lesson 137, story reading)
- 2. Velds are large fields of grass that have water holes (lesson 52, story reading)
- 3. Africa has mountains and trees with flat tops (lesson 137, story reading)
- 4. Lions, leopards, giraffes, elephants, monkeys, and baboons are some animals that live in Africa (lesson 137, story reading)

E. Facts about the North Pole

- 1. In our summer, the North Pole is leaning toward the sun (lesson 11, story background)
- 2. In our winter, the North Pole is leaning away from the sun (lesson 11, story reading)
- 3. There is no land under the North Pole – (lesson 132, story)
 - a. The North Pole is only ice and snow floating in the ocean (lesson 132, story reading)
 - b. The snow at the North Pole is 70 feet deep (lesson 132, story reading)
- 4. The North Pole is bigger than any state in the United States (lesson 132, story reading)

F. Facts about the South Pole

- 1. In our summer, the South Pole is leaning away from the sun (lesson 133, story reading)
- 2. In our winter, the South Pole is leaning toward the sun (lesson 133, story reading)
- 3. There are five million square miles of land under the South Pole (lesson 133, story reading)
- 4. The snow at the South Pole is over a mile deep (lesson 133, story reading)

G. Facts about Alaska

1. Alaska is a state of the U.S., but it is far north of the main part of the U.S. (lesson 12, story background)
2. Alaska is located near the North Pole (lesson 12, story background)
 - a. In spring, you can notice the days getting longer (lesson 13, story reading)
 - b. In the summer, the days are very long, and the sun shines all the time (lesson 13, story reading)
 - c. On the first day of summer it doesn't get dark (lesson 13, story reading)
 - d. In the fall, the sun starts disappearing for long times each day (lesson 13, story reading)
 - e. In Alaska, winter days get no sunshine for weeks and weeks (lesson 13, story reading)
 - f. The winters are very cold in Alaska (lesson 12, story background)

H. Eskimos

1. Eskimos live near the North Pole in Alaska and Canada (lesson 12, story background)
2. In the summer, Eskimos live in tents made up of animal skins (lesson 16, story background)
3. Eskimos use rifles and spears as weapons (lesson 12, story background)
4. Eskimos wear warm clothing made from animal skins (lesson 12, story background)
5. Eskimos use kayaks in the summer (lesson 12, story background)
6. Eskimos use sleds pulled by dogs to carry things in the winter (lesson 12, story background)

I. Facts about the Iditarod

1. The Iditarod is a 1,100 mile sled dog race across Alaska (lesson 89, story background)
2. The people in the race are called mushers. Mushers are drivers of the sled (lesson 89, story background)
 - a. There are 12 to 16 dogs per sled (lesson 89, story background)
 - b. The sled travels 100 miles per day for 10 days (lesson 89, story background)
3. The Iditarod goes from Anchorage to Nome (lesson 89, story background)
4. Dogs pull the sled in the race (lesson 89, story background)
 - a. Lead dogs are the first pair of dogs (lesson 91, story background)
 - b. Lead dogs are smart and lead (lesson 91, story background)
 - c. Dogs behind lead dogs are swing dogs. They are fast and good followers (lesson 91, story background)

- d. Dogs closest to the sled are wheel dogs. They are strong (lesson 91, story background)
- e. Dogs wear a harness that is attached to a tug line (lesson 91, story background)
- f. The tug line is connected to the gang line, which runs down through the middle of the team and attaches to the sled (lesson 91, story background)
- g. Dogs wear booties to protect their foot pads (lesson 92, story background)
- h. Booties can not be too loose or too tight (lesson 92, story background)

J. Rules of the Iditarod

- 1. Mushers must have an ax, sleeping bag, snowshoes, and one day's worth of food for the dogs and mushers (lesson 95, story background)
- 2. Mushers must have room for an injured dog (lesson 95, story background)
- 3. Checkpoints are places where race officials check to see that all sleds come in (lesson 96, story background)
- 4. Checkpoints are about 50 miles apart (lesson 96, story background)
- 5. Mushers must take one 24-hour rest and two eight-hour rests at checkpoints (lesson 96, story reading)
- 6. Volunteers help make the race successful (lesson 96, story reading)
- 7. At checkpoints mushers feed and rest their dogs (lesson 96, story background)

V. General information

A. Process of inventing things

- 1. When someone makes an object for the first time, the person invents that object (lesson 36, story background)
- 2. The object that is made for the first time is called an invention (lesson 36, story background)
- 3. An inventor starts with an idea (lesson 40, story reading)
 - a. An inventor always starts with a need (lesson 37, story reading)
 - b. Then you get an idea for an invention that meets that need (lesson 37, story reading)
 - c. The best ideas come from paying attention to problems (lesson 39, story reading)
- 4. An inventor makes a model (lesson 46, story reading)
 - a. A model is a small copy (lesson 46, story reading)
 - b. The model shows how the invention will work (lesson 46, story reading)
- 5. The inventor gets a patent (lesson 46, story reading)
 - a. A patent is a piece of paper that tells people who owns an invention (lesson 46, story reading)

- b. If people want to copy the invention, they must get permission from the inventor (lesson 46, story reading)
- c. Patent attorneys get patents for inventors (lesson 46, story reading)
- d. Inventors usually sell permission to make copies (lesson 46, story reading)
- 6. The inventor tries to sell the invention (lesson 47, story reading)
 - a. Manufacturers are businesses that make things (lesson 46, story reading)
 - b. Manufacturers and inventors get together at invention fairs (lesson 47, story reading)
 - c. Manufacturers want good inventions, but they don't want to pay any more than they have to (lesson 48, story reading)

B. Electric eye invention

- 1. A beam of light moves from the electric eye to a target (lesson 42, story reading)
- 2. As long as the beam of light reaches the target, nothing happens (lesson 42, story reading)
- 3. If the beam doesn't reach the target, a buzzer sounds (lesson 42, story reading)

C. Places on a ship

- 1. Main decks (lesson 24, story reading)
- 2. Map room (lesson 24, story reading)
- 3. Life boats (lesson 25, story reading)
- 4. Engine room is the place where the engine is (lesson 25, story reading)
- 5. Mast (lesson 25, story reading)
- 6. Galley is the kitchen (lesson 25, story reading)
- 7. Stern is the back of the ship (lesson 25, story reading)
- 8. Bow is the front of the ship (lesson 25, story reading)

D. Scuba diving

- 1. When you go diving, you need to wear scuba equipment (lesson 86, story reading)
 - a. A mask covers the face and permits the diver to see clearly (lesson 86, story background)
 - b. The air hose is the hose between the mouthpiece and the air tanks (lesson 86, story background)
 - c. The mouthpiece is the part of the air hose that goes in the diver's mouth (lesson 86, story background)
 - d. The dial hangs near the waist and shows how much air is left in the tank (lesson 86, story background)
 - e. The wet suit is made of rubber to protect the diver (lesson 86, story background)

- f. Fins are worn on feet to help the diver kick hard when underwater (lesson 86, story background)
- 2. The buoyancy device is a little air bag above the tanks (lesson 88, story reading)
 - a. When the air bag is filled with air, the diver floats up to the surface (lesson 88, story reading)
 - b. When it is empty, the diver sinks to the bottom (lesson 88, story reading)
 - c. The diver can let air in or out of the buoyancy device (lesson 88, story reading)

Grade 4



Grade 4

SCIENCE FACTS AND CONCEPTS

I. Domestic animals

A. Definition

1. Domestic animals live with people in people's houses or farms (lesson 41, factual article)
2. Dogs, horses, cows, chickens, and goats are domestic animals (lesson 41, factual article)

B. Domesticating animals

1. Dogs were probably the first animal to be domesticated (lesson 41, factual article)
 - a. Dogs were domesticated by cave people (lesson 41, factual article)
 - b. Dogs helped cave people hunt (lesson 41, factual article)
 - c. Dogs can track other animals (lesson 41, factual article)
 - d. Dogs warned cave people of danger by growling (lesson 41, factual article)
2. Domesticating goats and sheep made it possible to farm (lesson 41, factual article)
3. Animals were domesticated to hunt (lesson 42, factual article)
 - a. Cats were domesticated over 3,000 years ago in Egypt to kill mice and rats (lesson 42, factual article)
 - b. Mongoose were domesticated to kill cobras (lesson 42, factual article)
 - c. Ferrets were domesticated to catch mice and rats (lesson 42, factual article)
4. Animals were domesticated to give milk, eggs, meat, wool, and leather (lesson 42, factual article)
5. Animals were domesticated to carry things (lesson 42, factual article)
 - a. Camels can carry large loads for long distances (lesson 42, factual article)
 - b. Llamas can climb high mountains without roads (lesson 42, factual article)
 - c. Elephants carry tremendous loads and lift trees (lesson 42, factual article)
 - d. Donkeys and horses carry large loads (lesson 42, factual article)
6. Tame animals, like dogs, live with people (lesson 42, factual article)
7. Animal breeding made animals more useful (lesson 42, factual article)

C. Dogs

1. A litter is a group of puppies born at the same time (lesson 54, story reading)
2. A runt is the smallest puppy in the litter (lesson 54, story reading)
3. Hound dogs have a powerful sense of smell (lesson 54, story reading)
4. Hound dogs are used to track other animals (lesson 54, story reading)
5. A kennel is a place where dogs are kept (lesson 54, story reading)

D. Facts about horses

1. A thoroughbred is a breed of horse used for racing (lesson 34, vocabulary)
2. A nag is an old broken-down horse (lesson 34, vocabulary)
3. A swaybacked horse has a back with a big dip in it (lesson 34, vocabulary)
4. A gallop is the way a horse runs (lesson 36, vocabulary)

E. Horse racing

1. A steeplechase is a type of horse race (lesson 35, story reading)
 - a. The horse jumps barriers and obstacles (lesson 35, story reading)
 - b. The jumps include fences, hedges, shelf, and water barriers (lesson 35, story reading)
2. When the horse jumps up, the rider leans forward (lesson 36, story reading)
3. When the horse lands, the rider leans back (lesson 36, story reading)
4. The Grand National Steeplechase Championship in England is a famous steeplechase (lesson 39, story reading)
 - a. Horses come from all over the world to race (lesson 39, story)
 - b. The course is four and a half miles long with 30 jumps (lesson 39, story reading)
 - c. The course is triangular (lesson 39, story reading)

II. Wild Animals

A. Definition

1. Wild animals do not live with people (lesson 41, factual article)
2. All animals were wild more than 20,000 years ago (lesson 41, factual article)
3. Wild animals live in forests, jungles, rivers, and oceans (lesson 41, factual article)
4. Bears, tigers, snakes, eagles, alligators, and sharks are wild animals (lesson 41, factual article)

B. Scarlet Tanagers

1. Scarlet Tanagers migrate from North America to South America and back every year (lesson 52, factual article)
 - a. They fly over 8,000 miles a year (lesson 52, factual article)
 - b. They fly at night (lesson 52, factual article)
 - c. They eat and rest in the day (lesson 52, factual article)
2. Scarlet Tanagers molt in summer and in winter (lesson 52, factual article)
 - a. Molting is when birds shed old feathers and grow new ones (lesson 52, factual article)
 - b. Tanagers are green when they leave North America in the fall (lesson 52, factual article)
 - c. Tanagers are scarlet when they leave South America in the spring (lesson 52, factual article)

C. Salmon

1. Salmon are born in fresh water rivers and streams (lesson 52, factual article)
2. Salmon migrate down rivers and streams to the ocean (lesson 52, factual article)
3. Some salmon travel thousands of miles in their lifetime (lesson 52, factual article)
4. Salmon live in the ocean for two to five years (lesson 52, factual article)
5. Salmon return to the place they were born to spawn (lesson 52, factual article)
 - a. They “run” up to 50 miles a day to return to their birth place (lesson 52, factual article)
 - b. They do not eat on the return journey (lesson 52, factual article)
 - c. Thousands swim up the river together (lesson 52, factual article)
6. At the spawning grounds, salmon rest, mate, lay eggs, and die (lesson 52, factual article)
7. Scientists clip and tag salmon to record their journey (lesson 52, factual article)

D. Woodchucks (Groundhog, Marmot)

1. Woodchucks build and live in underground dens (lesson 53, factual article)
 - a. Dens are about three feet underground (lesson 53, factual article)
 - b. Dens have a front entrance, a back entrance, and an emergency escape hole (lesson 53, factual article)
 - c. Dens have separate rooms (lesson 53, factual article)

- d. Woodchucks continually enlarge and build more rooms (lesson 53, factual article)
- 2. Woodchucks eat plants like grass and vegetables (lesson 53, factual article)
 - a. They store food for the winter in the den (lesson 53, factual article)
 - b. The plants get moldy in the winter (lesson 53, factual article)
- 3. Woodchucks hibernate and sleep through the winter (lesson 53, factual article)
 - a. Woodchucks plug up the holes to their dens (lesson 53, factual article)
 - b. Their body temperature drops to a few degrees above freezing (lesson 53, factual article)
 - c. Their heart slows to four beats a second (lesson 53, factual article)
 - d. When warm weather comes, woodchucks wake up (lesson 53, factual article)

E. Monarch butterflies

- 1. Monarchs have four different stages in their life (lesson 53, factual article)
 - a. Monarchs start as eggs on milkweed (lesson 53, factual article)
 - b. Caterpillars hatch from Monarch eggs (lesson 53, factual article)
 - c. Caterpillars grow and then cover themselves with a case called a cocoon (lesson 53, factual article)
 - d. Caterpillars change into butterflies and come out of the cocoon (lesson 53, factual article)
- 2. Monarchs migrate (lesson 53, factual article)
 - a. Monarchs east of the Rocky Mountains fly to Mexico for the winter (lesson 53, factual article)
 - b. Monarchs west of the Rocky Mountains fly to Pacific Grove, California for the winter (lesson 53, factual article)
 - c. Monarchs fly in the day and rest at night (lesson 53, factual article)
- 3. Scientists tagged Monarchs on their wings to record their journey (lesson 53, factual article)

III. Endangered animals

A. Definition and reasons

- 1. When an animal becomes extinct every animal of that type dies out (lesson 59, factual article)
- 2. Endangered animals are in danger of becoming extinct (lesson 59, factual article)
- 3. African elephants, chimpanzee, rhinoceros, blue whales, grizzly bears, and bald eagles are endangered animals (lesson 59, factual article)

4. Overhunting is one cause of endangering (lesson 59, factual article)
 - a. People kill animals they think are pests (lesson 59, factual article)
 - b. People kill animals for their fur and body parts (lesson 59, factual article)
 - c. People capture wild animals to sell (lesson 59, factual article)
5. Pollution caused by people kills animals (lesson 59, factual article)
6. Habitat destruction is the most serious threat to wild life (lesson 59, factual article)
7. Destroying plants endangers animals who depend on them for food and shelter (lesson 59, factual article)
8. Native animals can be put at risk by introducing a new species to an area (lesson 59, factual article)

B. Tigers

1. Tigers live in India and other Asian countries (lesson 59, factual article)
2. Tigers eat deer and wild hogs (lesson 59, factual article)
3. Tigers became endangered in the 1970's (lesson 59, factual article)
4. Tigers were killed for their skin and to protect livestock (lesson 59, factual article)
5. India banned tiger hunting and set up reserves to protect tigers (lesson 59, factual article)

C. The Galapagos Tortoise

1. Facts about the Galapagos Tortoise (lesson 60, factual article)
 - a. They eat grass and other plants (lesson 60, factual article)
 - b. They can weigh 500 pounds (lesson 60, factual article)
 - c. They live for 100 years or more (lesson 60, factual article)
 - d. They are born from eggs (lesson 60, factual article)
2. Galapagos Islands were isolated (lesson 60, factual article)
 - a. No people lived there (lesson 60, factual article)
 - b. The wild animals were not afraid of people (lesson 60, factual article)
 - c. European sailors discovered the islands in the 16th century (lesson 60, factual article)
3. The tortoises became endangered (lesson 60, factual article)
 - a. European sailors killed thousands for food (lesson 60, factual article)
 - b. Goats, dogs and cats ate their food and their eggs (lesson 60, factual article)
4. The Charles Darwin Foundation was created to help save the tortoise (lesson 60, factual article)
 - a. The foundation set up a breeding station (lesson 60, factual article)
 - b. Goats were removed from the islands (lesson 60, factual article)

D. The Orangutan

1. Orangutans are primates like gorillas and chimpanzees (lesson 60, factual article)
 - a. Orangutans live alone unlike most primates (lesson 60, factual article)
 - b. Orangutans eat only fruit (lesson 60, factual article)
2. Orangutans have become endangered (lesson 60, factual article)
 - a. Orangutans are killed for meat (lesson 60, factual article)
 - b. Orangutans are sold for pets (lesson 60, factual article)
 - c. Their greatest survival threat is loss of their rain forest homes to farms and logging (lesson 60, factual article)
3. Attempts are being made to preserve their rain forest habitat (lesson 60, factual article)

E. Peregrine Falcons

1. Peregrine Falcons are birds of prey (lesson 60, factual article)
 - a. Peregrine Falcons catch their prey “on the wing” (lesson 60, factual article)
 - b. Peregrine Falcons can dive at speeds up to 200 miles per hour (lesson 60, factual article)
 - c. Peregrine Falcons were found all over the world (lesson 60, factual article)
2. Peregrine Falcons’ population began to crash (lesson 60, factual article)
 - a. DDT, a poison to kill insects, was the problem (lesson 60, factual article)
 - b. DDT does not break down in the environment (lesson 60, factual article)
 - c. DDT made the egg shells of Peregrine Falcons too thin to hatch (lesson 60, factual article)
3. Efforts were made to save the Peregrine Falcons (lesson 60, factual article)
 - a. DDT was banned from use (lesson 60, factual article)
 - b. In the East, baby falcons were raised in zoos to survive in the wild (lesson 60, factual article)
 - c. In the West, baby falcons were placed in nests after being born (lesson 60, factual article)

IV. Physical Geography

A. Landforms

1. A prairie is a flat grassland with almost no trees (lesson 6, story background)
2. A ridge is the top part of a long hill (lesson 55, vocabulary)
3. A ledge is a flat shelf on a hill or cliff (lesson 55, vocabulary)

4. A cliff face is the part of a cliff that goes up and down (lesson 48, story reading)
5. A meadow is a field (lesson 16, vocabulary)
6. The horizon is the line where the sky meets the land (lesson 5, vocabulary)
7. A field of grain is a field filled with plants like wheat (lesson 10, vocabulary)

B. Glaciers

1. Glaciers are great ice floes (lesson 45, factual article)
 - a. Glaciers move very slowly (lesson 45, factual article)
 - b. Millions of tons of ice and snow in mountains push down on them (lesson 45, factual article)
2. The ends of glaciers fall off (lesson 45, factual article)
3. The inside of a glacier is blue (lesson 45, factual article)

C. The Tide

1. Each day the sea rises a little and falls a little (lesson 45, factual article)
2. The daily change in sea level is called the tide (lesson 45, factual article)
3. When the tide is high, the beaches are smaller (lesson 45, factual article)
4. When the tide is low, the beaches are larger (lesson 45, factual article)
5. The tides near Juneau are powerful and dangerous (lesson 45, factual article)
 - a. High tide can be more than 20 feet higher than low tide (lesson 45, factual article)
 - b. Boats have trouble landing in Juneau because of the tides (lesson 45, factual article)

D. Cyclones

1. Cyclones are also called tornadoes or twisters (lesson 7, story background)
2. A cyclone looks like a giant funnel (lesson 7, story background)
 - a. A cyclone is a strong wind that spins around (lesson 7, story background)
 - b. The winds in a cyclone can spin at 300 miles per hour (lesson 7, story background)
3. A cyclone can destroy everything in its path (lesson 7, story background)
4. The middle of a cyclone is called the eye of the cyclone (lesson 7, story background)
5. The air in the eye of a cyclone is very still (lesson 7, story background)
6. People use a cyclone cellar to hide from cyclones (lesson 7, story background)

SOCIAL STUDIES AND GENERAL INFORMATION

I. Political geography — countries, states, cities

A. Countries

1. The United Kingdom is made of three countries — Scotland, England, and Wales (lesson 34, pictures; lesson 91, maps)
 - a. Scotland, England and Wales are on the same island (lesson 34, pictures; lesson 91, maps)
 - b. Ireland is an island west of England (lesson 34, pictures; lesson 91, maps)
2. Canada is a country east of Alaska (lesson 45, map; lesson 46, story reading)
3. Greece is a country in Europe (lesson 71, map)
4. Italy is a country in Europe (lesson 75, map)
5. Turkey is a country on the Mediterranean Sea (lesson 71, map)

B. States in the United States

1. There are 50 states in the United States (lesson 6, map)
 - a. Alaska, Florida, Kentucky, Colorado, Maine, and Indiana are some of the states (lesson 6, story reading)
2. Kansas is a great prairie (lesson 6, story background)
 - a. Many people moved to Kansas to become farmers (lesson 6, story background)
 - b. The winters are cold (lesson 6, story background)
 - c. The summers are hot and dry (lesson 6, story background)
 - i The land dries up and cracks (lesson 6, story background)
 - ii The streams and ponds dry up (lesson 6, story background)

C. Cities

1. London is the biggest city in England (lesson 91, story reading)
 - a. London is on the Thames River (lesson 91, story reading)
 - b. London had a busy harbor in the 1500's (lesson 91, story reading)
2. Liverpool is in England. It is 200 miles north of London (lesson 91, story reading)
3. Chicago is one of the largest cities in the United states (lesson 83, story background)
 - a. Chicago is located on Lake Michigan (lesson 83, story background)
 - b. The downtown has towering buildings, filled with offices, hotels and apartments (lesson 83, story background)
4. Montreal is a city in Canada (lesson 65, story reading)

II. History

A. Cave people

1. People lived in caves thousands of years ago (lesson 43, factual article)
2. Cave people hunted animals for food (lesson 43, factual article)
3. Cave people moved following the animals that they hunted (lesson 43, factual article)
4. Cave people stayed in one place (lesson 43, factual article)
 - a. They domesticated animals like sheep and goats (lesson 43, factual article)
 - b. They learned how to farm (lesson 43, factual article)

B. Ancient Greece and Rome

1. Ancient Greeks believed the world was ruled by gods and goddesses (deities) (lesson 71, factual article)
2. Each god or goddess had special powers (lesson 71, factual article)
 - a. Zeus was the chief god (lesson 71, factual article)
 - b. Apollo was the god of light and music (lesson 71, factual article)
 - c. Poseidon was the god of the sea (lesson 71, factual article)
 - d. Hades was the god of the dead (lesson 71, factual article)
 - e. Hermes was the god of travelers and the messenger of Zeus (lesson 71, factual article)
 - f. Aphrodite was the goddess of love and beauty (lesson 71, factual article)
 - g. Ares was the god of war (lesson 71, factual article)
3. Ancient Greeks believed the most important gods lived on Mount Olympus (lesson 71, factual article)
4. The Greeks believed the gods could walk the earth and interact with people (lesson 71, factual article; lesson 72-75, story reading)
5. Rome had many gods similar to the Greek gods (lesson 75, story background)
6. All planets except Earth are named after Roman gods (lesson 75, story background)
 - a. Mercury is the god of travelers (lesson 75, story background)
 - b. Venus is the goddess of love (lesson 75, story background)
 - c. Mars is the god of war (lesson 75, story background)
 - d. Jupiter is the god of the sky (lesson 75, story background)
 - e. Neptune is the god of the ocean (lesson 75, story background)
 - f. Pluto is the god of the underworld (lesson 75, story background)

C. England in the 1500's

1. Life was very different from the way it is today (lesson 91, factual article)

- a. Houses had no water, gas, or electricity (lesson 91, factual article)
 - b. People used fireplaces to stay warm and to cook food (lesson 91, factual article)
 - c. There was a high demand for wood to burn in fireplaces (lesson 91, factual article)
 - i. Forests were destroyed to supply firewood (lesson 91, factual article)
 - ii. People started to burn coal instead of wood (lesson 91, factual article)
 - d. There were very few stores (lesson 91, factual article)
 - i. People bought goods from peddlers (lesson 91, factual article)
 - ii. Many products like clothes and soap were made in the home (lesson 91, factual article)
2. Most streets and roads were made of dirt (lesson 91, factual article)
- a. Roads were muddy with deep ruts (lesson 91, factual article)
 - b. Travelers walked or rode horses (lesson 91, factual article)
 - i. Travelers had to worry about robbers (lesson 91, factual article)
 - ii. Travelers carried swords and knives to protect themselves (lesson 91, factual article)
 - c. Stage wagons pulled by six to ten horses carried goods from one town to another (lesson 91, factual article)
3. London was already a large city in England (lesson 91, factual article)
- a. London was a busy harbor (lesson 91, factual article)
 - b. London was crowded with people (lesson 91, factual article)
 - c. London Bridge was the only bridge that crossed the Thames River (lesson 91, factual article)
 - i. People built houses, shops, and inns on the bridge (lesson 91, factual article; lesson 104, picture)
 - ii. Some people lived on the bridge their entire lives (lesson 104, story reading)
4. Most of the people in England were poor (lesson 94, factual article)
- a. Families had no beds, no tables, and no chairs (lesson 94, factual article)
 - b. Some families slept on piles of straw (lesson 96, story reading)
 - c. Poor people had only one set of clothes (lesson 94, factual article)
 - i. Their clothes were made of wool or coarse cotton (lesson 94, factual article)
 - ii. They were forbidden to wear jewels, fancy shoes, or socks (lesson 94, factual article)
 - d. Poor farmers lived in houses with one room (lesson 94, factual article)
 - i. The floor was dirt (lesson 94, factual article)
 - ii. The roof was made of sticks and straw (lesson 94, factual article)
 - e. Many poor farmers lost their land because rich farmers wanted

- more land for their sheep (lesson 91, factual article)
5. Rich people lived different lives than poor people (lesson 93, factual article)
- a. The rich were lords, ladies, and some merchants (lesson 93, factual article)
 - b. Many lived in large country houses (lesson 93, factual article)
 - i Up to 50 people could live in a house (lesson 93, factual article)
 - ii Every room had a fireplace (lesson 93, factual article)
 - iii Beds had mattresses made of feathers (lesson 93, factual article)
 - iv Blankets were made of wool (lesson 93, factual article)
 - c. Some people lived in the king's palace (lesson 92, factual article)
 - d. Rich people had many servants (lesson 93, factual article)
 - e. Their clothes were made of silk, fur, and velvet (lesson 93, factual article)
 - i Lords wore gold belts (lesson 93, factual article)
 - ii Ladies' dresses had silver thread woven into them (lesson 93, factual article)
 - f. Rich people entertained themselves with hobbies and games (lesson 93, factual article)
 - i They played dice, chess, cards, and went hunting (lesson 93, factual article)
 - ii They played musical instruments (lesson 93, factual article)
 - iii They read books (lesson 93, factual article)
 - iv They built fancy gardens with fountains and mazes (lesson 93, factual article)
 - g. Rich people mostly ate meat (lesson 93, factual article)
 - i Vegetables were only for poor people (lesson 93, factual article)
 - ii Rich people did eat a new vegetable called the potato (lesson 93, factual article)
6. Lords and ladies were next in power after the king (lesson 92, factual article)
- a. Lords and ladies had different titles – duke, duchess, earl, count, countess, barons, baronesses, and knights (lesson 92, factual article)
 - b. Each one had certain powers, but they all obeyed the king (lesson 92, factual article)
7. Rich and poor people attended plays (lesson 93, factual article)
- a. One of the greatest playwrights of all time, William Shakespeare, wrote plays in the 1500's (lesson 93, factual article)
 - b. Poor people watched plays from the ground (lesson 93, factual article)

- c. Rich people watched plays from balconies overlooking the stage (lesson 93, factual article)
- 8. England was ruled by a king (lesson 92, factual article)
 - a. He was the most powerful person in England (lesson 92, factual article)
 - i The king's family was called the Royal Family (lesson 92, factual article)
 - ii The first-born son was called the Prince of Wales (lesson 92, factual article)
 - iii When the king died, the first-born son became king (lesson 92, factual article)
 - iv The king wore a crown that showed he was the ruler of England (lesson 92, factual article)
 - v The coronation is the ceremony where the new king is crowned (lesson 118, story reading)
 - vi The king acted as judge sometimes (lesson 106, story reading)
 - vii The king made decisions in the throne room (lesson 106, story reading)
 - viii The king was dressed by servants (lesson 106, story reading)
 - b. The Tudor family ruled England from 1485 to 1603 (lesson 92, factual article, timeline)
 - i Henry the Eighth was a cruel king (lesson 92, factual article)
 - ii Henry the Eighth killed people who criticized him (lesson 92, factual article)
 - (a) He was married six times (lesson 92, factual article)
 - (b) He had one son and two daughters (lesson 92, factual article)
 - iii His son Edward succeeded him (lesson 92, factual article)
 - iv Edward was kinder and changed some harsh laws (lesson 92, factual article)
 - v Elizabeth was the last Tudor to rule England (lesson 92, factual article)
 - vi Elizabeth improved life in England (lesson 92, factual article)
 - vii Elizabeth wrote laws to protect poor people (lesson 92, factual article)
- 9. English law was cruel to poor people (lesson 94, factual article)
 - a. A judge decided if someone had broken the law (lesson 94, factual article)
 - b. Some robbers had ears or hands cut off (lesson 94, factual article)
 - i A robber who killed a rich person could be boiled alive or burned to death (lesson 94, factual article)

- ii A robber could be hanged if they stole something worth 13 pennies or more (lesson 114, story reading)
- c. People without homes could be placed in stocks or branded (lesson 94, factual article)
- d. It was against the law to beg (lesson 94, factual article)
- e. Women who were not humble could be put on a ducking stool (lesson 94, factual article)
- f. Prisoners were whipped in public sometimes (lesson 114, factual article)

D. The Yukon Gold Rush

- 1. Gold was discovered near Dawson, Alaska in 1896 (lesson 45, story background)
- 2. People went to Dawson to find gold (lesson 45, story background)
- 3. The journey to Dawson was difficult (lesson 45, story background)
 - a. The first stop was Juneau, Alaska (lesson 45, story background)
 - b. The next stop was in Skagway, Alaska (lesson 45, story background)
 - c. The last part of the trip was on the Yukon River (lesson 46, story background)
 - d. In winter, miners took dog sleds down the Yukon River (lesson 47, story background)
- 4. Prices in Skagway were high because it was difficult to get goods into the town (lesson 45, story background)
- 5. Dog sleds are used in the winter to carry heavy loads (lesson 47, story background)
 - a. Dog sleds slide over ice and snow (lesson 47, story background)
 - b. Dog sleds are pulled by teams of five to 13 dogs (lesson 47, story background)
- 6. Sled dogs are big and strong (lesson 47, story background)
- 7. Dog sled drivers use different commands for the dogs to turn right, turn left, and start running (lesson 47, story background)

III. Biographies

A. Jackie Robinson

- 1. Facts about how the game of baseball is played (lesson 61, 62, story background)
- 2. The major leagues are the professional baseball leagues with the best players (lesson 61, story reading)
- 3. The Dodgers are a major league team (lesson 61, story reading)
 - a. In 1947, the Dodgers played in Brooklyn (lesson 61, story reading)
 - b. Their stadium was called Ebbets Field (lesson 61, story reading)

- c. Branch Rickey was their general manager (lesson 61, story reading)
 - d. People used to call the Dodgers “the bums” (lesson 61, story reading)
 - e. The Dodgers now play in Los Angeles (lesson 61, story reading)
4. Jackie Robinson was a star athlete in high school and college (lesson 63, story reading)
 - a. He played football, basketball, baseball, and track at UCLA (lesson 63, story reading)
 - b. He was the first player to play all four sports at UCLA (lesson 63, story reading)
5. Jackie Robinson was an Army officer during World War II (lesson 64, story reading)
6. After the war, he played in the Negro baseball leagues (lesson 64, story reading)
7. Jackie Robinson was the first black man to play major league baseball (lesson 61, story reading)
 - a. Jackie played for the Brooklyn Dodgers (lesson 61, story reading)
 - b. People did not want the major leagues to have black players (lesson 64, story reading)
 - c. He listened to many insults from other players and fans without fighting back (lesson 62, story reading)
 - d. He won many baseball awards (lesson 66, story reading)
 - i He was named Rookie of the Year in 1947 (lesson 62, story reading)
 - ii He was named the League’s Most Valuable Player in 1949 (lesson 66, story reading)
 - iii He won the batting championship in 1949 (lesson 66, story reading)
 - iv He was elected to the Baseball Hall of Fame (lesson 66, story reading)
8. Jackie Robinson helped the Dodgers win the World Series in 1955 (lesson 66, story reading)
9. Jackie Robinson died in 1972 (lesson 66, story reading)

B. Jane Adams

1. Chicago had many slums in 1889 (lesson 83, story background, story reading)
 - a. Houses did not have indoor toilets (lesson 83, story reading)
 - b. Garbage was piled in the streets (lesson 83, story reading)
 - c. There were rats in many houses (lesson 83, story reading)
2. Many people in poor neighborhoods did not speak English (lesson 83, story reading)
 - a. They came from Italy, Greece, Russia, and other countries (lesson 83, story reading)
3. There were many factories in Chicago (lesson 83, story reading)

- a. Children worked in the factories (lesson 83, story reading)
- b. Working conditions were hard (lesson 84, story reading)
- c. The children got yelled at if they did not work fast (lesson 85, story reading)
- 4. Jane Adams founded Hull House to help people who lived in a poor neighborhood (lesson 85, story reading)
- 5. Hull House had activities to help people (lesson 85, story reading)
 - a. It had sewing and cooking classes (lesson 85, story reading)
 - b. There were classes to teach people to speak English (lesson 85, story reading)
 - c. There was a free kindergarten (lesson 85, story reading)
 - d. Hull House provided hot meals (lesson 87, story reading)
- 6. Jane Adams helped pass a law that made it illegal for any child under 14 to work in a factory (lesson 86, story reading)
- 7. Wealthy people gave money to help run Hull House (lesson 88, story reading)
- 8. Jane received the Nobel Peace Prize (lesson 89, story reading)
 - a. Jane tried to stop World War I (lesson 89, story reading)
 - b. After the war, Jane helped people in all the countries who had been hurt by the war (lesson 89, story reading)
- 9. Jane died in 1935 (lesson 90, story reading)

Grade 5



Grade 5

SCIENCE FACTS AND CONCEPTS

I. Animals and plants

A. Extinct and endangered animals

1. A type of animal becomes extinct when there are no more animals of that type (lesson 57, inference passage)
2. 200 years ago many people believed there was no end to different types of wildlife (lesson 57, inference passage)
 - a. People killed wild animals by the hundreds of thousands and some animals became extinct (lesson 57, inference passage)
 - b. More than 100 types of animals have become extinct since 1800 (lesson 57, inference passage)
 - c. The passenger pigeon is one type of animal that became extinct (lesson 57, inference passage)
3. An endangered species is one that is nearly extinct (lesson 58, inference passage)
 - a. About several hundred species of animals are endangered (lesson 58, inference passage)
 - b. The Alaskan brown bear, the bald eagle, Sumatran tiger, and the sea turtle are endangered species (lesson 58, inference passage)

B. Animal types based on diets

1. Carnivores eat other animals (lesson 60, inference passage)
 - a. A carnivore's eyes point straight ahead (lesson 63, inference passage)
 - b. Carnivores feed indirectly on green plants, because they eat animals that eat plants (lesson 60, inference passage)
 - c. Carnivores eyes point straight ahead
 - i Both eyes see straight ahead (lesson 63, inference passage)
 - ii Both eyes see almost the same thing (lesson 63, inference passage)
 - iii When it hunts, a carnivore uses its eyes to look for animals far in the distance (lesson 66, inference passage)
 - iv A carnivore uses its eyes to see what it is biting into when it eats (lesson 66, inference passage)
 - d. Carnivores have sharp, pointed teeth to tear flesh into small bits (lesson 68, inference passage)
2. Herbivores eat plants (lesson 60, inference passage)
 - a. Herbivores have eyes that look sideways (lesson 63, inference passage)

- i Left eye sees what is on the left (lesson 63, inference passage)
 - ii Right eye sees what is on the right (lesson 63, inference passage)
 - iii Herbivores do not see straight ahead well (lesson 63, inference passage)
 - iv Eyes on both sides allow herbivores to watch for predators as it eats (lesson 63, inference passage)
- b. Herbivores have flat teeth to grind plants (lesson 68, inference passage)
- c. Herbivores include cows, goats, sheep, and horses (lesson 66, inference passage)
- 3. Omnivores eat both plants and animals (lesson 76, inference passage)
 - a. Omnivores have both flat and pointed teeth (lesson 76, inference passage)
 - b. Omnivores include people, bears, and pigs (lesson 76, inference passage)

C. Plants

- 1. Green plants manufacture their own food (lesson 59, inference passage)
 - a. Leaves of green plants use sunlight, water, and carbon dioxide to manufacture food (lesson 59, inference passage)
 - b. The process of manufacturing food is called photosynthesis (lesson 59, inference passage)
- 2. Yucca, juniper, sage brush and cactus are plants that grow in the desert. (lessons 15, 16 and 18, vocabulary, story)
- 3. Trees are tolerant and intolerant
 - a. Tolerant trees can survive in the shade (lesson 113, inference passage)
 - b. Tolerant trees grow slower because they can survive in the shade (lesson 113, inference passage)
 - c. Intolerant trees can't survive in the shade (lesson 113, inference passage)
 - d. Intolerant trees usually grow fast (lesson 113, inference passage)

D. Ecology

- 1. Ecology is the study of how the life of one living thing affects the lives of other living things (lesson 56, inference passage)
- 2. The change in any living thing affects many other living things (lesson 56, inference passage)
 - a. The lives of birds may affect the lives of trees (lesson 56, inference passage)

E. Organisms

1. Each living thing is called an organism (lesson 86, inference passage)
 - a. Some organisms like giraffes are large and complicated (lesson 86, inference passage)
 - b. Some organisms like a blade of grass are small and simple (lesson 86, inference passage)
 - c. Some organisms are too small to see without a microscope (lesson 86, inference passage)
2. Many small organisms live in our body (lesson 86, inference passage)
 - a. Some organisms help us digest our food (lesson 86, inference passage)
 - b. Some organisms can cause serious diseases (lesson 86, Inference passage)
3. Decomposers are tiny organisms that eat dead plants and animals (lesson 102, inference passage)
 - a. Objects decompose when left in the air (lesson 102, inference passage)
 - b. Objects that decompose start out as one material and change into another (lesson 102, inference passage)
 - c. Decomposers get their food by eating flesh or waste material from other organisms (lesson 102, inference passage)

F. Birds

1. A hawk, jay, mockingbird and bluebirds are types of birds (lesson 17, picture)
2. A heron is a large white bird (lesson 57, vocabulary)
 - a. Herons have tall thin legs and a long S shaped neck. (lesson 57, vocabulary)
 - b. Herons eat frogs and fish (lesson 57, vocabulary)
 - c. Herons build stick nests at the top of tall trees (lesson 58, story)
3. A curlew is a brown sea bird with long legs and a curving bill (lesson 51, vocabulary, poem)

G. Mammals

1. A boar is a wild pig (lesson 10, vocabulary)
2. A fawn is a young deer (lesson 12, vocabulary)
3. A burro is a small donkey (lesson 14, vocabulary)
4. The fur of a sheep is called fleece (lesson 4, vocabulary)

H. Insects

1. Lice are insects that live in the hair of people and other animals (lesson 10, vocabulary)
2. A tick is an eight-legged bug that digs into your skin and sucks blood (lesson 96, vocabulary)

II. Physical Geography

A. Landforms

1. A mesa is a large landform with steep sides and a flat top (lesson 14, vocabulary, story)
 - a. A mesa has valleys called washes (lesson 18, story)
 - b. Some washes are wide and have good soil for planting corn (lesson 18, story)
 - c. In thunderstorms water washes down them in a flood (lesson 18, story)
2. A large cave is a cavern (lesson 31, vocabulary)
 - a. A stalactite is a rock that hangs down from the ceiling of a cave (lesson 115, vocabulary, story)
 - b. A stalagmite is a rock that forms on the floor of a cave (lesson 115, vocabulary, story)
3. The summit of a mountain is the peak of the mountain (lesson 71, vocabulary)
4. A bluff is a high, steep riverbank or cliff (lesson 117, vocabulary)
5. The Mississippi River flows from northern Minnesota to New Orleans (lesson 88, story background)
 - a. The Mississippi River flows south (lesson 88, story background)
 - b. New Orleans is a busy port city (lesson 88, story background)
6. A wilderness is a wild place with no signs of people (lesson 58, vocabulary)

B. Climate

1. A fine rain is called a mist (lesson 6, vocabulary)
2. Tropical areas are very warm parts of the world where plants grow year round (lesson 45, vocabulary)
3. A gale is a strong wind (lesson 70, vocabulary)

SOCIAL STUDIES AND GENERAL INFORMATION

I. Political geography

A. Identifying places on a map

1. Countries
 - a. Greece is a country (lesson 4, map)
 - b. Ireland is a country (lesson 26, map)
 - c. England is a country (lesson 37, story)
 - d. India is a country (lesson 37, map)
 - e. Canada is a country north of the United States (lesson 78, map)
2. Cities of the world
 - a. Dublin is a city in Ireland (lesson 26, map)
 - b. London (lesson 37, map)
 - c. Hamilton is a city in Canada (lesson 78, map)
3. United State Cities
 - a. Philadelphia a large city in Pennsylvania (lesson 78, story)
 - b. New York City is a large city north of Philadelphia (lesson 78, map)
 - c. Buffalo is in New York state across the river from Canada (lesson 78, map)
 - d. Hannibal is a town on the Mississippi River (lesson 87, story background)
 - e. St. Louis is located on the Mississippi (lesson 88, story background, map)
 - f. Memphis is a city on the Mississippi (lesson 88, story background)
 - g. Minneapolis is a northern city on the Mississippi (lesson 88, story background)
 - i. New Orleans is the most southern city on the Mississippi (lesson 88, map)
 - ii New Orleans is a busy port city (lesson 88, story background)
 - iii Ships from all over the world pick up goods and leave goods (lesson 88, story background)
 - h. Wilmington is the largest city in Delaware (lesson 78, story)
4. San Francisco Bay Area (lesson 61, map)
 - a. A narrow water channel called the Golden Gate connects the bay to the Pacific Ocean (lesson 61, story background)
 - b. San Francisco, Oakland and San Jose are large cities on the San Francisco Bay (lesson 61, story background)
 - c. Farallon Islands is west of the Golden Gate (lesson 61, story background)
 - i Farallon Islands have a lighthouse to guide ships (lesson 61, story background)
 - d. Angel Island is in the middle of the bay (lesson 61, story background)

- e. Santa Cruz is a city on the Pacific Ocean south of San Francisco (lesson 61, map)
- 5. States in the United States
 - a. Maryland (lesson 76, map)
 - b. Delaware (lesson 76, map)
 - c. Pennsylvania (lesson 76, map)
 - d. New York (lesson 76, map)

II. History

A. Ancient Greece

- 1. *The Iliad and the Odyssey* are two stories that tell about Greeks who lived 3,000 years ago (lesson 4, story background)
 - a. *The Iliad and the Odyssey* were probably first told by a blind poet name Homer (lesson 4, story background)
 - i Homer lived about 500 years after the Trojan War (lesson 4, story background)
 - ii Homer told his stories out loud to large groups of people (lesson 4, story background)
- 2. *The Iliad* is about the Greeks defeating Troy in the Trojan War (lesson 4, story background)
- 3. *The Odyssey* is about the journey home of Odysseus (lesson 4, story background)
 - a. Greece was divided into many parts (lesson 4, story background)
 - b. Each part of Greece had its own king. (lesson 4, story background.)
 - c. Odysseus was the king of Ithaca, one of the Greek countries (lesson 4, story background)
- 4. Greeks believe many gods ruled the world (lesson 4, story background)
 - a. Zeus was the chief god (lesson 4, story background)
 - i Zeus lived on Mt. Olympus, the highest mountain in Greece (lesson 4, story background)
 - ii He gave orders to the other gods (lesson 4, story background)
 - b. Poseidon was the god of the sea (lesson 4, story background)
 - i Poseidon was Zeus's brother (lesson 4, story background)
 - ii Poseidon could make storms and earthquakes (lesson 4, story background)
 - iii Poseidon did not get along with Zeus (lesson 4, information article)
 - c. Hermes was the messenger god (lesson 4, story background)
 - i Hermes ran as fast as the wind (lesson 4, story background)
 - ii He carried orders from Zeus to the other gods (lesson 4, story background)

- d. Athena was the daughter of Zeus (lesson 4, story background)
 - i Athena was the goddess of wisdom and work (lesson 4, story background)
 - ii Athena protected people and gave them courage (lesson 4, story background)
 - iii The city of Athens is named after Athena (lesson 4, information article)
- e. Hades was the god of the underworld (lesson 31, story background)
 - i Hades lived in a magic cave underground (lesson 31, information passage)
 - ii People went to the cave when they died (lesson 31, information passage)
 - iii Cerberus, a three headed dog with a dragon's tail, guarded the entrance to Hades palace (lesson 32, story)
- f. Demeter was the goddess of the earth (lesson 31, story background)
 - i Demeter helped plants grow (lesson 31, story background)
 - ii Demeter kept the fields green (lesson 31, story background)
- g. Ino was the sea goddess (lesson 8, story)
- 5. Greek gods interacted with people but could not control people's minds (lesson 4, story background)
- 6. Ancient Greeks had large wooden ships (lesson 5, picture)
 - a. Greek ships had a small sail (lesson 5, story)
 - b. Most of the ship's power came from oars (lesson 5, story)

B. Apprentice System 700 years ago

- 1. Children worked instead of going to school. (lesson 21, story background)
 - a. A 12-year old worked 10 or more hours per day, 6 days per week with no pay (lesson 21, story background)
 - b. If they lived on farms, they worked in the fields helping their parents. (lesson 21, story background)
 - c. If they lived in towns, they worked in small shops. (lesson 21, story background)
- 2. Apprentices (lesson 21, story background)
 - a. Apprentices were mostly boys who started at age 10 to learn a craft (lesson 21, story background)
 - b. Apprentices were not paid (lesson 21, story background)
 - c. Apprentices worked for a craft master who owned a shop (lesson 21, story background)
 - d. Apprentices were taught a craft by the master (lesson 21, story background)
- 3. Journeyman (lesson 21, story background)
 - a. After years as an apprentice, the apprentice became a

- journeyman (lesson 21, story background)
 - b. Journeymen were paid (lesson 21, story background)
 - c. Journeymen were hired by masters (lesson 21, story background)
- 4. Masters
 - a. Masters usually owned a shop (lesson 21, story background)
 - b. Masters belong to an organization called a guild (lesson 21, story background)
 - c. The guild controlled who became a master (lesson 21, information article)
 - i Guild Masters judged a journeyman's "masterpiece", to see if they could become a master (lesson 21, story background)
 - ii Towns had many kinds of guilds (lesson 21, information article)
- 5. Types of crafts
 - a. A joiner joins pieces of wood together to make furniture (lesson 21, story background)
 - b. A turner carves table legs and other round pieces of furniture (lesson 21, story background)
 - c. A miller is a person who grinds flour (lesson 21, information article)
- 6. The apprenticeship system lasted until machines were invented in the 1500's (lesson 21, story background)

C. Ireland in the 1850's

- 1. Potatoes were the main food for most people in Ireland (lesson 26, story background)
- 2. Around 1845 a disease called the "potato blight" began destroying Irish potatoes (lesson 26, story background)
 - a. Over 1 million people starved to death (lesson 26, story background)
 - b. Millions of people left the Ireland (lesson 26, story background)
- 3. The "potato blight" ended in 1849 (lesson 26, story background)

D. The United States in the 1840's

- 1. Schools
 - a. Many schools were one classroom with students of all ages in the class (lesson 88, story background)
 - b. Schools were very strict (lesson 88, story background)
 - i Teachers could "whack" students with a rod (lesson 88, story background)
 - ii Boys and girls sat on different sides of the classroom (lesson 88, story background)
 - iii Students sat on long benches (lesson 88, story background)

- c. Most schools used the McGuffey's Reader (lesson 88, story background)
 - i The McGuffey Reader had no pictures (lesson 88, story background)
 - ii The McGuffey Reader contained legends, poems, articles, speeches and stories (lesson 88, story background)
 - d. Students used chalk to write on a slate (lesson 97, information passage)
 - e. Most students attended school from the age 6 to 14. (lesson 88, story background)
2. Life Style
- a. Houses didn't have electricity or running water (lesson 87, story background)
 - i Houses had fireplaces for heating and wood stoves for cooking (lesson 87, story background)
 - ii There was no garbage collection, so the streets were filled with garbage (lesson 88, story background)
 - iii Oil lamps provided light (lesson 90, story background)
 - b. People loved to listen to poetry (lesson 88, story background)
 - c. People read magazines, newspapers, and books in their spare time (lesson 90, story background)
 - i Radios, television and telephones had not been invented yet (lesson 90, story background)
3. Medical Care
- a. Doctors could not cure many diseases (lesson 90, information article)
 - i Doctors visited homes when someone was sick (lesson 90, story background)
 - b. Mothers provided a lot of medical care (lesson 90, information article)
 - c. Some people believed magic spells could prevent or cure diseases (lesson 90, story background)
 - d. Many medical schools were being started (lesson 90, information article)
 - i Anatomy is the study of a body and its parts (lesson 104, vocabulary)
 - ii Laws prevented medical students from cutting up dead bodies to study anatomy (lesson 90, story background)
 - e. Yellow fever, cholera and malaria were common diseases (lesson 90, story background)
4. Steamboats were used on the Mississippi River (lesson 89, story background)
- a. The Mississippi was very important in the 1840's (lesson 88, story)
 - b. The steamboat was the most important kind of boat along the Mississippi (lesson 89, story)
 - i The steamboat had a steam engine that drives power wheels on both sides (lesson 88, story)

- ii Paddlewheels moved the steamboat forward (lesson 89, story)
 - iii Paddlewheels were strong enough to move upstream against the current (lesson 89, story)
 - c. The steamboats had shallow hulls, which didn't scrape the bottom of the river (lesson 89, story)
 - d. All the goods that people needed were carried on the river by steamboats (lesson 89, story)
 - i Steamboats carried many kinds of goods, including lumber, corn, tools, nails, pigs, hides, tobacco, and cotton (lesson 88, story)
 - ii Steamboats carried many kinds of passengers, including settlers, gamblers, con men, peddlers, lawyers, and business people (lesson 89, story)
- 5. Trains were being used in the eastern part of the U.S. in the 1840's (lesson 88, story)
 - a. Trains were faster than steamboats (lesson 88, story)

E. The Civil War

- 1. The Civil War was a war between two parts of the United States (lesson 76, story background)
 - a. Several Southern states broke away from the U.S. and formed the Confederacy (lesson 81, story)
 - b. Confederate states were in the south (lesson 76, story background)
 - c. The states that remained were called the Union (lesson 81, story)
 - d. The Union states were in the north (lesson 76, story background)
- 2. The Civil War began in 1861 and ended in 1865 (lesson 76, story background)
 - a. Abraham Lincoln was President when the Civil War began (lesson 81, story)
 - b. The North won the Civil War (lesson 76, story background)
- 3. Slavery was one of the causes of the Civil War (lesson 76 story background)
 - a. Most Union states banned slavery before the Civil War (lesson 76, story background)
 - b. Free states were in the North (lesson 76, story background)
 - c. Slave states were in the South (lesson 76, story background)
 - d. Some slave states such as Maryland and Kentucky banned slavery during the Civil War. (lesson 76, story background)
 - e. Slave states had many large farms called plantations (lesson 76, story)
- 4. Before the Civil War, the government passed a law about runaway slaves (lesson 78, story)
 - a. Slave catchers hunted runaway slaves (lesson 76, story)
 - b. Slave catchers could arrest slaves in the free states (lesson 78, story)

- c. Slave catchers were not well liked in the north (lesson 78, story)
 - d. Because of the law, many escaped slaves went to Canada (lesson 78, story)
- 5. Slaves escaped by using the Underground Railroad (lesson 77, story)
 - a. The Underground Railroad was a not a real railroad (lesson 78, story)
 - b. The Underground Railroad was a trail with a system of hiding places (lesson 77, story)
 - c. Escaping slaves would travel along the Underground Railroad at night (lesson 77, story)
 - d. Escaping slaves would sleep during the day in the hiding places (lesson 77, story)
 - e. Escaping slaves were lead on the Underground Railroad by a conductor (lesson 77, story)
- 6. After the Civil War was over, the slaves were freed (lesson 76, story background)

F. England in the 1880's

- 1. India was a colony of England (lesson 37, story background)
- 2. India was ruled by British kings and queens (lesson 37, story background)
- 3. The British Army stayed in India to keep control of the colony (lesson 37, story background)
- 4. A boarding school is a type of school where students live (lesson 37, story background)
 - a. Students stayed at boarding schools all the time (lesson 37, story background)
 - b. Students usually went home on holidays (lesson 37, story background)

G. The United States in the 1930's

- 1. There were not enough jobs (lesson 1, story background)
- 2. Many unemployed people wandered from town to town (lesson 1, story background)
- 3. Some people thought machines, "laborsaving devices," would help solve the country's problems (lesson 1, story background)

III. Biographies

A. Harriet Tubman

1. Harriet Tubman was born around 1820 (lesson 76, story background)
 - a. She was a slave in Maryland (lesson 76, story background)
 - b. When she was young, Harriet received a head injury that sometimes made her fall asleep (lesson 77, story)
2. Harriet Tubman escaped from Maryland to Pennsylvania (lesson 77, story)
3. After she escaped, Harriet Tubman came back to the South to help other slaves escape (lesson 77, story)
 - a. Harriet Tubman freed more than 300 slaves (lesson 76, story background)
 - b. Harriet Tubman was sometimes called Moses for leading so many slaves to freedom (lesson 76, story)
 - c. There was a reward for the capture of Harriet Tubman (lesson 79, story)
 - d. Harriet Tubman was a guide on the Underground Railroad (lesson 77, story)
4. Harriet Tubman helped the people of Troy to free a captured slave named Joe Nalle (lesson 80, story)
5. Harriet Tubman helped the North in the Civil War (lesson 81, story)
 - a. She made raids inside enemy lines (lesson 82, story)
 - b. She worked as a nurse (lesson 82, story)
 - c. She served as a spy (lesson 82, story)
6. After the war, Harriet Tubman continued to help people (lesson 82, story)
 - a. She raised money for a hospital (lesson 82, story)
 - b. She made speeches about giving women the vote (lesson 82, story)
7. Harriet Tubman died in 1913 (lesson 82, story)

B. Jack London

1. Jack London is one of America's most famous and popular writers (lesson 61, story background)
2. He lived from 1876 to 1916. (lesson 61, story background)
3. He did many things in his life before he started writing (lesson 61, story background)
 - a. He became an oyster pirate in San Francisco Bay after quitting high school (lesson 61, story background)
 - b. He worked for California Fish and Game patrol catching pirates (lesson 61, story background)
 - c. Inspired by a book, he finished high school and went to college to learn to be a writer. (lesson 61, story background)
 - d. He went to the Yukon to look for gold (lesson 61, information article)

4. He wrote a book, *The Cruise of the Dazzler*, for young readers based on his experience as a pirate (lesson 61, story background)
5. Other well known books are *The Call of the Wild*, *The Sea Wolf*, *White Fang* and *The Iron Heel* (lesson 61, story background)

IV. Social Studies

A. Anthropology: The Mesa Indians

1. Some Indians live in villages on mesas (lesson 14, story)
 - a. Some of the villages are hundreds of years old (lesson 14, story)
 - b. It is hard to live on a mesa because there is no water (lesson 14, story)
2. The Indians grow crops like corn and squash below the mesa (lesson 14, story)
 - a. The Indians use a stone called a metate to grind corn (lesson 15, story)
 - b. Corn, squash and peaches are dried for the winter (lesson 14, story)
3. Kachinas are spirits that take care of people (lesson 16, story)
 - a. Kachinas bring rain for the cornfields and toys to good children (lesson 16, story)
4. Some mesa Indians make pottery from clay (lesson 14, story)
 - a. The Indians make money by selling pottery to tourists (lesson 14, story)
 - b. Making the pottery from clay is a slow process that involves grinding, wetting, shaping, cooling, polishing, drawing a design and baking (lesson 20, story)

B. Economics: Products

1. The demand for a product tells how many people want to buy that product (lesson 3, vocabulary)
2. When you create a demand for a product, you create a market for that product (lesson 3, vocabulary)
3. When you merchandise a product, you carry out a plan for selling that product (lesson 3, vocabulary)

C Law: How trials work

1. The government lawyer presents evidence against the accused person (lesson 106, story background)
2. One lawyer presents evidence in favor of the accused person (lesson 106, story background)
3. The judge makes sure that the lawyers follow the rules (lesson 106, story background)

4. The jury decides if the accused person is innocent or guilty (lesson 106, story background)
 - a. The jury is made up of twelve people (lesson 106, story background)
 - b. The jury's decision is called the verdict (lesson 106, story background)

V. Common Objects

A. Sailboats

1. A skiff is a small rowboat (lesson 62, vocabulary)
2. A sloop is a fast sailboat that sometimes carried pirates (lesson 61, story background)
3. Parts of a sailboat
 - a. The mast is the large pole that holds up the sails on a sailing ship (lesson 65, vocabulary)
 - b. Canvas is a strong cloth that is used for sails (lesson 8, vocabulary)
 - c. The forecastle is the part of a ship in which sailors sleep (lesson 62, vocabulary)
 - d. A tiller is a handle at the back of the boat (lesson 64, information passage)
 - i The tiller is connected to a paddle that goes in the water (lesson 64, story background)
 - ii The tiller is used to turn and keep the boat straight (lesson 64, story background)

B. Food

1. A squash is a vegetable that is like a pumpkin (lesson 14, vocabulary)
2. A gourd is a fruit with a hard shell, which can be used as tools or containers (lesson 14, vocabulary)
3. A pomegranate is a fruit with a hard red skin (lesson 35, story background)
 - a. Pomegranates contain many seeds (lesson 35, story background)
 - b. Pomegranates grow on trees (lesson 35, story background)
4. A huckleberry is a small purple berry (lesson 57, vocabulary)
5. An orchard is a farm that grows fruit trees or nut trees (lesson 14, vocabulary)
 - a. Peaches are grown in an orchard (lesson 14, story)

C. Materials

1. Canvas is the cloth that artists paint on (lesson 30, vocabulary)
2. Satin is a fine fabric that is very shiny and smooth (lesson 52, vocabulary)

3. Whitewash is a substance that people use to paint wood (lesson 92, story background)

D. Tools

1. A flask is a kind of a bottle (lesson 9, vocabulary)
2. A quiver is a container that holds arrows (lesson 13, vocabulary)
3. A lasso is a rope that is used to catch horses and cattle (lesson 13, vocabulary)
4. A hoe is a tool that is used to break up dirt (lesson 17, vocabulary)
5. A palette is used for mixing paint (lesson 30, vocabulary)
6. An easel is a large frame that holds an artist's picture (lesson 30, vocabulary)
7. A pick is a large digging tool with a wooden handle and a large pointed metal head (lesson 107, vocabulary)

E. Places

1. A corral is a fenced area for horses or burros (lesson 14, vocabulary)
2. A plaza is an open area surrounded by walls or buildings (lesson 15, vocabulary)
3. Ruins are the remains of things made by people (lesson 16, vocabulary)
4. A quarantine station is a place where sick people are isolated (lesson 65, vocabulary)
5. A tannery is a place where people take hides of animals and make them into leather (lesson 99, vocabulary)
6. A slaughterhouse is a place where people kill animals and prepare them for market (lesson 110, vocabulary)
7. A hamlet is a small town (lesson 117, vocabulary)
8. A foundry is a factory that melts down metal (lesson 118, vocabulary)

About the Author

Nancy Woolfson began using Direct Instruction in 1973 and used it throughout her 33-year career as a teacher. She has been a special education assistant and teacher, a classroom teacher and a Title I teacher at the elementary and middle school levels. She has taught courses in reading and mathematics using Direct Instruction methods and has supervised and trained teachers through the Special Education Program at the University of Oregon. Dr. Woolfson is currently a DI trainer and consultant with the National Institute for Direct Instruction (NIFDI). She received a Ph.D. in Special Education in 1997 from the University of Oregon.

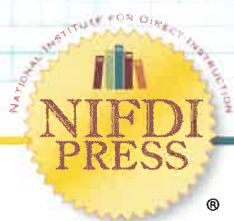
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