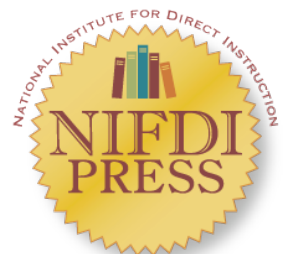


Science and Social Studies in Reading Mastery Signature Edition

Nancy Woolfson, Ph.D.



Design and Marketing Editor: Christina Cox

Science and Social Studies in Reading Mastery Signature Edition

Nancy Woolfson

Copyright © 2014 by NIFDI Press

A division of the National Institute for Direct Instruction
805 Lincoln Street
Eugene, Oregon 97401-2810
USA

All rights reserved. No part of the work covered by this copyright hereon may be reproduced or used in any form or by any means □graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems □without the written permission of the publisher.

Printed in the United States of America

1 2 3 4 5 6

ISBN-10: 1939851041, ISBN-13: 978-1-939851-04-8

Contents

Introduction.....	ix
-------------------	----

Reading Mastery Signature Edition 2

Science Facts and Concepts

I. Measurement	
Length (miles, feet, meters, centimeters, and inches)	1
Grams	1
Temperature.....	1
Time of day	2
Units of time.....	2
Speed	2
II. Water	
Water has skin	3
Dew.....	3
Ocean water	3
III. Fire	
General	3
Forest fires.....	3
IV. Living things	
All living things grow	4
All living things need water	4
All living things make babies.....	4
V. Plants	
Trees.....	4
Palm trees.....	4
Forests.....	5
Apple trees.....	5
VI. Animals	
Small and large animals	5
Body temperature of animals.....	6
Kinds of cold-blooded animals.....	6
Kinds of warm-blooded animals.....	8
VII. Motion	
When something tries to move	10

Social Studies and General Information

I. Geography: maps, distances, and places	
Identifying directions	11

Traveling from one place to another	11
Distances between places	11
Identifying places on a map	11
II. Historic time	
Rules about piles	12
Time lines	13
Difference between past and present	13
III. Important periods and events in history	
Prehistoric time	13
Egypt 5,000 years ago	14
Ancient Greece	14
Land of the Vikings	15
Spain in 1491 and 1492	15
The Beginning of the United States	15
The San Francisco Earthquake of 1906	15
IV. General information	
Ships	16
Airplanes	16
Wells	17
Forms	17
Circuses	18
Boxing	18
Islands	18
Sound	18
Machines and tools	18

Reading Mastery Signature Edition 3

Science Facts and Concepts

I. Light	
Magnifying glasses bend light	23
The speed of light	23
II. Pressure	
Water pressure	23
Rules about pressure	24
III. Human body	
Brain	24
The circulatory system	24
Ears	25
Eyes	25
Nervous system	26
Muscles	26

The human skeleton.....	27
IV. The Solar System	
Facts about the solar system	27
Space	27
The Sun.....	27
Planets	28
Galaxies	30
Gravity.....	30
V. Measurement	
Time lines	30
Speed.....	31
VI. Matter	
Facts about matter	31
Molecules	31
VII. The world around us	
Clouds	32
Volcanoes and earthquakes.....	32
Whirlpools	32
The ocean world.....	33
Snowflakes.....	34
<u>Social Studies and General Information</u>	
I. Animals	
Geese.....	35
Animals that live in Alaska.....	35
Animals that live in Africa	36
Mammals that live in the ocean.....	36
Squid	37
Animals can learn.....	37
II. Earth strata: Piles, layers and eras	
Rules about piles and layers	38
Eras.....	38
III. Ancient animals	
Dinosaurs	38
Saber-tooth tiger	39
IV. Geography: maps, climates, and information about places and people	
Identifying directions	39
Identifying places on a map	39
Facts about Japan.....	40
Facts about Africa	40
Facts about the North Pole	40

Facts about the South Pole	40
Facts about Alaska	41
Eskimos	41
Facts about the Iditarod	41
Rules of the Iditarod	42

V. General information

Process of inventing things	42
Electric eye invention	43
Places on a ship	43
Scuba diving	43

Reading Mastery Signature Edition 4

Science Facts and Concepts

I. Domestic animals

Definition	47
Domesticating animals	47
Dogs	48
Facts about horses	48
Horse racing	48

II. Wild animals

Definition	48
Scarlet tanagers	49
Salmon	49
Woodchucks (groundhogs, marmots)	49
Monarch butterflies	50

III. Endangered animals

Definition and reasons	50
Tigers	51
The Galapagos Tortoise	51
The Orangutan	52
Peregrine Falcons	52

IV. Physical geography

Landforms	52
Glaciers	53
The tide	53
Cyclones	53

Social Studies and General Information

I. Political geography: countries, states, cities

Countries	54
States in the United States	54
Cities	54

II. History	
Cave people	55
Ancient Greece and Rome	55
England in the 1500's.....	55
The Yukon Gold Rush	59
III. Biographies	
Jackie Robinson.....	59
Jane Adams	60

Reading Mastery Signature Edition 5

Science Facts and Concepts

I. Animals and plants	
Extinct and endangered animals.....	65
Animal types based on diets	65
Plants	66
Ecology	66
Organisms.....	67
Birds.....	67
Mammals.....	67
Insects.....	67
II. Physical Geography	
Landforms	68
Climate	68

Social Studies and General Information

I. Political geography	
Identifying places on a map	69
II. History	
Ancient Greece	70
Apprentice System 700 years ago	71
Ireland in the 1850's.....	72
The United States in the 1840's	72
The Civil War.....	74
England in the 1880's.....	75
The United States in the 1930's	75
III. Biographies	
Harriet Tubman	76
Jack London.....	76

IV. Social Studies

Anthropology: The Mesa Indians 77

Economics: Products 77

Law: How trials work 77

V. Common Objects

Sailboats 78

Food 78

Materials..... 78

Tools..... 79

Places 79

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)