

# CONTENTS

Welcome to <i>SCIENCE 5!</i>	vii
Using Your Book	viii

## UNIT 1 PHYSICAL SCIENCE: Matter

2

### CHAPTER 1: About Matter

4

<b>Try It Yourself:</b> Make a Graduated Container	9
<b>EXPLORATION:</b> Measuring Matter Matters!	15
<b>Try It Yourself:</b> Magnetic Attraction	19
<b>STEM CAREER:</b> Materials Engineer	23
<b>EXPLORATION:</b> “Ph”antastic Physical Properties	24
<b>STEM:</b> Float a Boat	25

### CHAPTER 2: Changes in Matter

26

<b>INVESTIGATION:</b> Matter and Mass	32
<b>INVESTIGATION:</b> Separating Mixtures	38
<b>INQUIRY:</b> Separating More Mixtures	38
<b>EXPLORATION:</b> Where’s the Fizz?	44
<b>INVESTIGATION:</b> A Disappearing Act	45
<b>STEM CAREER:</b> Pastry Chef	50
<b>INVESTIGATION:</b> A + B = WHAT?	51

## UNIT 2 LIFE SCIENCE: Ecosystems

52

### CHAPTER 3: Interactions in Ecosystems

54

<b>Meet the Scientist:</b> Arthur Tansley	58
<b>STEM:</b> Model an Ecosystem	64
<b>EXPLORATION:</b> Competitions and Connections	71
<b>EXPLORATION:</b> Owl Pellet Dissection	72
<b>STEM CAREER:</b> Ecologist	73
<b>EXPLORATION:</b> Ecosystem Scavenger Hunt WebQuest	83



# CONTENTS

## CHAPTER 4: Changes in Ecosystems 84

Try It Yourself: Water Vapor	89
INVESTIGATION: Decomposers at Work	97
INQUIRY: Different Soils	97
STEM CAREER: Aquatic Ecologist	103
EXPLORATION: Stress Alert!	111

## UNIT 3 EARTH AND SPACE SCIENCE: The Earth 112

## CHAPTER 5: Biomes 114

STEM CAREER: Game Warden	120
INVESTIGATION: Help Prevent Water Loss!	137
EXPLORATION: Build a Biome	151

## CHAPTER 6: Weather 152

Try It Yourself: Rain	166
EXPLORATION: Eye on the Sky! Part 1	169
EXPLORATION: Dangerous Extremes	179
STEM CAREER: Atmospheric Scientist	184
EXPLORATION: Eye on the Sky! Part 2	185

## CHAPTER 7: Minerals and Rocks 186

Meet the Scientist: Beno Gutenberg	191
EXPLORATION: Interacting Systems	195
INVESTIGATION: Salty Crystals, Part 1	204
STEM CAREER: Lapidary	211
EXPLORATION: Munching Minerals	212
EXPLORATION: Rock Hounding	218
INVESTIGATION: Salty Crystals, Part 2	219

# CONTENTS

## **CHAPTER 8: Fossils and Dinosaurs** 220

<b>EXPLORATION:</b> Molds and Casts	232
<b>STEM CAREER:</b> Petroleum Geologist	237
<b>EXPLORATION:</b> Fossil Dig	238
<b>Meet the Scientist:</b> Mary Anning	240
<b>EXPLORATION:</b> Which Viewpoint?	249

## **UNIT 4 EARTH AND SPACE SCIENCE:** **Space** 250

### **CHAPTER 9: The Solar System** 252

<b>STEM:</b> Heat It Up!	259
<b>Try It Yourself:</b> Make a Sundial	263
<b>EXPLORATION:</b> WebQuest to Space	277
<b>STEM CAREER:</b> Robotics Engineer	281

### **CHAPTER 10: The Moon** 286

<b>STEM CAREER:</b> Aerospace Engineer	297
<b>EXPLORATION:</b> Moonwatchers	298
<b>STEM:</b> Moon Landing	299
<b>Try It Yourself:</b> Moon Math	302
<b>EXPLORATION:</b> Moon Model	308

### **CHAPTER 11: The Stars** 318

<b>Try It Yourself:</b> Star Colors	322
<b>INQUIRY:</b> Brightness of Stars	324
<b>EXPLORATION:</b> Pinhole Constellations	333
<b>STEM CAREER:</b> Astronautical Engineer	338
<b>EXPLORATION:</b> Stargazing	343
<b>STEM:</b> Asteroid Mining	347



# CONTENTS

## UNIT 5

### LIFE SCIENCE:

#### The Human Body

348

#### CHAPTER 12: The Immune System

350

Meet the Scientist: John Snow

363

**STEM CAREER:** Epidemiologist

366

**EXPLORATION:** Of Epidemic Proportions

367

**EXPLORATION:** Breaking News! WebQuest

381

#### CHAPTER 13: The Respiratory System

382

**EXPLORATION:** Breathe In, Breathe Out

389

**Try It Yourself:** Vocal Cords

395

**INVESTIGATION:** How Much Air Is in Your Lungs?

400

**STEM CAREER:** Pulmonologist

405

#### CHAPTER 14: The Circulatory System

410

**INVESTIGATION:** How Fast Is the Beat?

417

**EXPLORATION:** The Heart of the Matter

423

**INVESTIGATION:** Exploring Blood Types

430

**Try It Yourself:** Filtering Waste

433

**STEM CAREER:** Cardiologist

438

**INVESTIGATION:** Pump and Pour

439

#### CHAPTER 15: The Nervous System

440

**INVESTIGATION:** Reaction Time

452

**INVESTIGATION:** Touch Points

459

**INQUIRY:** More Touch Points

459

**STEM CAREER:** Pharmacist

471

#### GLOSSARY

472

#### INDEX

492