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**2nd grade** | Teacher's Guide



# SCIENCE

# SCIENCE 200

## Teacher's Guide

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# SCIENCE SCOPE & SEQUENCE

## Grade 2

UNIT 1	<p>THE LIVING AND NONLIVING</p> <ul style="list-style-type: none"> <li>• Living and nonliving objects</li> <li>• Rock and seed experiment</li> <li>• Natural objects</li> <li>• Man-made objects</li> </ul>
UNIT 2	<p>PLANTS</p> <ul style="list-style-type: none"> <li>• How plants are like people</li> <li>• How plants are the same</li> <li>• How plants are different</li> <li>• What plants need to live</li> </ul>
UNIT 3	<p>ANIMALS</p> <ul style="list-style-type: none"> <li>• How animals are alike</li> <li>• How animals are different</li> <li>• What animals need to live</li> <li>• Animals have instincts</li> </ul>
UNIT 4	<p>YOU</p> <ul style="list-style-type: none"> <li>• You are like other people</li> <li>• You are different from other people</li> <li>• You are part of a family</li> <li>• You need good health habits</li> </ul>
UNIT 5	<p>PET AND PLANT CARE</p> <ul style="list-style-type: none"> <li>• All about pets</li> <li>• Caring for a pet</li> <li>• All about plants</li> <li>• Caring for plants</li> </ul>
UNIT 6	<p>YOUR FIVE SENSES</p> <ul style="list-style-type: none"> <li>• You can see</li> <li>• You can smell</li> <li>• You can hear</li> <li>• You can taste</li> <li>• You can feel</li> </ul>
UNIT 7	<p>PHYSICAL PROPERTIES</p> <ul style="list-style-type: none"> <li>• All about colors</li> <li>• Shapes</li> <li>• Sizes</li> <li>• How things feel</li> </ul>
UNIT 8	<p>OUR NEIGHBORHOOD</p> <ul style="list-style-type: none"> <li>• What is environment?</li> <li>• What is pollution?</li> <li>• What is ecology?</li> <li>• Wind power</li> </ul>
UNIT 9	<p>CHANGES IN OUR WORLD</p> <ul style="list-style-type: none"> <li>• People and animals change</li> <li>• Weather and plants change</li> <li>• Land changes</li> <li>• Maps</li> </ul>
UNIT 10	<p>LOOKING AT OUR WORLD</p> <ul style="list-style-type: none"> <li>• Living things</li> <li>• Nonliving things</li> <li>• Caring for our environment</li> <li>• Caring for ourselves</li> </ul>

# STRUCTURE OF THE CURRICULUM

The curriculum is conveniently structured to provide one Teacher's Guide containing teacher support material with answer keys and ten student workbooks for each subject. The workbook format of the curriculum allows the student to read the textual information and complete workbook activities all in the same booklet. The easy-to-follow numbering system lists the grade as the first number(s) and the last two digits as the number of the series. For example, the Language Arts workbook at the 2nd grade level, 5th book in the series is Language Arts 0205.

Each workbook is divided into three to five sections and begins with an introduction or overview of the booklet as well as a series of specific learning objectives to give purpose to the study of the curriculum. The introduction and objectives are followed by vocabulary found at the beginning of each section at the lower levels. Vocabulary words are used to develop word recognition and should not be confused with the spelling words introduced in Language Arts. Before beginning each section, children should learn the vocabulary words in order to improve comprehension, retention, and reading skills.

Each activity or written assignment in grade 2 has a number for easy identification, such as 1.1. The first number corresponds to the section, and the second number (right of the decimal) refers to the activity.

Teacher checkpoints, essential for maintaining quality learning, are found at various locations throughout the curriculum. The teacher should check 1) neatness of work and penmanship, 2) quality of understanding (tested with a short oral quiz), 3) thoroughness of answers (complete sentences and paragraphs, correct spelling, etc.), 4) completion of activities (no blank spaces), and 5) accuracy of answers as compared to the answer key (all answers correct).

The self test questions in grade 2 are also number coded for easy reference. For example, 2.015 refers to the 15th question in the self test of Section 2. The first number corresponds to the section, the zero indicates that it is a self test question, and the number to the right of the zero is the question number.

Tests are found at the back of each workbook. They should be removed and set aside before giving the workbooks to the children.

Answer and test keys in grade 2 have the same numbering system as the workbooks. Children may have access to the answer keys (not the test keys) under teacher supervision, so they can score their own work.

A thorough study of the Scope & Sequence by the teacher before instruction begins is essential to the success of the child. In addition, the teacher should become familiar with skill mastery expectations. The teacher should also preview the objectives at the beginning of each workbook for additional preparation and planning.

## GOAL SETTING AND SCHEDULES

Although no one schedule or set of procedures will fit every situation, the following is an example of a daily schedule that includes the four subjects as well as time slotted for special activities.

### Possible Daily Schedule

8:15	-	8:25	Pledges, songs, etc.
8:25	-	9:10	Review of previous day's learning
9:10	-	9:55	Language Arts
9:55	-	10:15	Recess (juice break)
10:15	-	11:00	Math
11:00	-	11:45	History & Geography
11:45	-	12:30	Lunch, recess, quiet time
12:30	-	1:15	Science
1:15	-		Drill, remedial work, enrichment*

**\*Enrichment:** *Computer time, physical education, field trips, fun reading, games and puzzles, family business, hobbies, resource persons, guests, crafts, creative work, electives, music appreciation, and projects.*

When assigning curriculum work to students, two factors need to be considered.

The first factor is time. An average of 45 minutes should be devoted to each subject, every day. Remember, this is only an average. Because of extenuating circumstances, students may spend only 15 minutes on a subject one day and 90 minutes the next day on the same subject.

The second factor is the number of pages to be completed in each subject. A single workbook is designed to take three to four weeks to complete. Allowing three to four days for introduction, review, and tests, the students have approximately 15 days to complete the workbook pages. Dividing the number of pages in the workbook by 15 will give the number of pages that must be completed on a daily basis to keep students on schedule. For example, a workbook containing 45 pages will require three completed pages per day on average. That being said, there will be times while working in the workbook when students complete only one page the first day, if the text has a lot of activities or reports, but go on to complete five pages the next day.

Long-range planning requires some organization. Because the traditional school year originates in the early fall of one year and continues until the late spring of the following year, a calendar should be devised that covers this period of time. Approximate beginning and completion dates can be noted on the calendar as well as special occasions, such as holidays, vacations, and birthdays. Since each workbook takes three to four weeks (or 18 days) to complete, it should take about 180 school days to finish a set of 10 workbooks. Starting at the beginning school date, mark off 18 school days on the calendar. That last marked day will become the targeted completion date for the first workbook. Continue marking the calendar until you have established dates for the remaining nine workbooks, making adjustments for previously noted holidays and vacations. If all four subjects are being taught, the ten established target dates should be the same for the workbooks in each subject.

# TEACHING SUPPLEMENTS

The sample weekly lesson plan and student-grading sheets are included in this section as teacher-support materials and may be duplicated at the convenience of the teacher.

The student-grading sheet is provided for those who desire to follow the suggested guidelines for the assignment of letter grades as previously discussed. A student's self-test scores should be posted as percentages. When the workbook is completed, the teacher should average the self-test grades, multiply the average by .25, and post the points in the box marked "Self Test Points." The workbook percentage grade should be multiplied by .60 and posted. Next, the teacher should award and post points for written reports and oral work. A report may be any type of written work assigned to the student, whether it is a workbook or additional learning activity. Oral work includes a student's ability to respond orally to questions, which may or may not be related to workbook activities, or any type of oral report assigned by the teacher. The points may then be totaled and a final grade entered along with the date that the workbook was completed.



## INSTRUCTIONS FOR SCIENCE

The curriculum is structured so that the daily instructional material is written directly into the workbooks. The student is encouraged to read and follow this instructional material in order to develop independent study habits. The teacher should introduce the workbook to the student, set a required completion schedule, complete teacher checks, be available for questions regarding both content and procedures, administer and grade tests, and develop additional learning activities as desired. Teachers working with several students may schedule their time so that students are assigned to a quiet work activity when it is necessary to spend instructional time with one particular student.

The Teacher Notes section of the Teacher's Guide lists the required or suggested materials for the workbooks and provides additional learning activities for the student. The materials section refers only to workbook materials and does not include materials that may be needed for the additional activities. Additional learning activities provide a change from the daily school routine, encourage the student's interest in learning, and may be used as a reward for good study habits.

# SCIENCE 201

## Unit 1: The Living and Nonliving

# TEACHER NOTES

## MATERIALS NEEDED FOR WORKBOOK

### Required

- |              |                     |
|--------------|---------------------|
| • bean seeds | • 1 rock, 2 cups    |
| • paper cups | • 2 labels, 3 seeds |
| • soil       |                     |

## ADDITIONAL LEARNING ACTIVITIES

### Section 1: Living and Nonliving Objects

1. Have the children draw a picture of what Earth may have looked like when it was forming.
2. How did the ocean form?
3. Can you tell the differences between living and nonliving things?
4. How does the sun help you to know what season it is?
5. Show the students animals living in different environments. Ask students why all animals cannot live in all environments.
6. What is a *theory*?
7. List the differences between what the earth looked like when it formed to what the earth looks like now.
8. Have the children draw a mural on a large sheet of banner paper depicting Earth's formation.
9. Have students make a collection of living and nonliving objects.
10. Make up games using the names of living and nonliving objects on cards. Each player can say if the object is living or nonliving. If the player is correct, they move forward one space. If no special board is available, use any game board with a path on it. The cards can be made by these children with everyone involved in playing the game.

### Section 2: Rock and Seed Experiment

This section is a special study and does not require further activities.

### Section 3: Natural Objects and Man-Made Objects

1. What is the difference between a natural and man-made object?
2. Go on a scavenger hunt around the room to identify man-made objects. Students can write clues for someone else to find objects.
3. Why would people make objects not found in nature?
4. What do people use to make objects?

5. To help students to become aware of different materials, students can describe objects stressing the qualities of softness, hardness, shininess, dullness, pliability, and so forth.
6. Make a list of all objects the students see. List the materials used in each object. Teach categories as you progress with this discussion.
7. Students may construct objects from different materials.

**Administer the Test.**

The test is to be administered in one session. Give no help except with directions.

Evaluate the tests and review areas where the students have done poorly.

Review the pages and activities that stress the concepts tested.

If necessary, administer the Alternate Test.

# ANSWER KEYS

## SECTION 1

- 1.1** Any order:  
a. dust                      b. gas
- 1.2** an explanation with facts
- 1.3** hot
- 1.4** gases were released
- 1.5** gases
- 1.6** water, air, light, and food
- 1.7** in the water
- 1.8** Answers will vary.
- 1.9** Teacher check
- 1.10** Any order:  
a. water                      b. air  
c. light                      d. food
- 1.11** They are not living.
- 1.12** Answers will vary.
- 1.13** Teacher check
- 1.14** Any order:  
a. sun                      b. moon
- 1.15** light from the sun
- 1.16** the days
- 1.17** Any order:  
a. summer                      b. fall  
c. winter                      d. spring
- 1.18** Any order:  
a. heat                      b. light
- 1.19** Any order:  
a. fish                      b. birds
- 1.20** Any order:  
a. air                      b. light  
c. water                      d. food
- 1.21** more birds filled the Earth
- 1.22** to survive and grow
- 1.23** Makes light. Does not need air, water, or food.
- 1.24** Made of rock. Does not need air, water, or food.
- 1.25** Does not need air, water, or food.
- 1.26** Teacher check
- 1.27** e
- 1.28** d
- 1.29** c
- 1.30** a
- 1.31** b

## SELF TEST 1

- 1.01** sun
- 1.02** reptiles
- 1.03** moon                      night
- 1.04** sea
- 1.05** Earth
- 1.06** animals
- 1.07** repeating path an object takes around another in space
- 1.08** the world (planet) we live on
- 1.09** places to protect living things
- 1.010** star
- 1.011** Any order:  
a. air                      b. water  
c. food                      d. light
- 1.012** not alive
- 1.013** Any order:  
a. sun                      b. moon
- 1.014** Any order:  
a. light                      b. food  
c. water                      d. air
- 1.015** sun (answers may vary)

## SECTION 2

**2.1–2.20** Answers will vary.

Examples:

- 2.1** I planted my rock.
- 2.2** My rock is in the ground.
- 2.3** I watered my rock.
- 2.4** My rock is in the ground.
- 2.5** I watered my rock.  
I put my rock in the sun.
- 2.6** My rock is in the ground.
- 2.7** I watered my rock.  
I put plant food on my rock.
- 2.8** My rock is in the ground.
- 2.9** I watered my rock.
- 2.10** My rock is in the ground.
- 2.11** I planted my seeds.
- 2.12** My seeds are in the ground.
- 2.13** I watered my seeds.
- 2.14** My seeds are in the ground.
- 2.15** I watered my seeds.  
I put my seeds in the sun.
- 2.16** My seeds are in the ground.
- 2.17** I watered my seeds.  
I put plant food on my seeds.
- 2.18** My seeds are in the ground.
- 2.19** I watered my seeds.
- 2.20** A plant is growing.
- 2.21** sun
- 2.22** run or hunt (answers may vary)
- 2.23** such
- 2.24** dust
- 2.25** bug
- 2.26** Teacher check

## SELF TEST 2

- 2.01** plant (seed)
- 2.02** rock
- 2.03** Any order:
  - a. light
  - b. water
  - c. air
  - d. food
- 2.04** They need air, water, light, and food.
- 2.05** They do not need air, water, light, and food.
- 2.06** Yes
- 2.07** No
- 2.08** Yes
- 2.09** Yes
- 2.010** No

## SECTION 3

**3.1–3.8** Answers will vary.

Examples:

**3.1** grass, sand, ocean, trees

- 3.2**
1. apples
  2. bananas
  3. clay
  4. diamonds
  5. gold

- 3.3**
1. scissors
  2. eraser
  3. table
  4. gloves
  5. boots

- 3.4**
- |               |         |
|---------------|---------|
| a. lawn mower | b. pan  |
| c. spoon      | d. fork |

**3.5** wood, plastic

**3.6** plastic, wood, metal

**3.7** metal, glass

**3.8** wood, metal, plastic

**3.9** desk, tent, chest, shelf

## SELF TEST 3

**3.01** Answers will vary.

**3.02** natural resources

**3.03** Answers will vary.

**3.04** wood, plastic

**3.05** glass

**3.06** metal, glass, plastic, wood

**3.07** paper, plastic

**3.08** plastic, metal, wood

**3.09–3.016** Answers will vary.

**3.017–3.020** Any order:

**3.017** light

**3.018** food

**3.019** air

**3.020** water

**3.021** c

**3.022** d

**3.023** a

**3.024** e

**3.025** b

## TEST 201

1. nonliving
2. nonliving
3. nonliving
4. living
5. nonliving
6. living
7. living
8. nonliving
9. nonliving
10. nonliving
- 11–14. Any order:
11. air
12. light
13. water
14. food
15. It does not grow.
- 16–20. Any order:
16. man
17. moon
18. sea
19. star
20. sun
- 21–25. Any order:
21. pen
22. car
23. desk
24. book
25. toy
26. metal
27. glass
28. wood, metal, plastic
29. wood
30. plastic, metal, wood

## ALTERNATE TEST 201

- 1–5. Examples; any order:
  1. desk
  2. pencil
  3. crayon
  4. paper
  5. book
- 6–10. Examples; any order:
  6. dog
  7. cat
  8. tomato plant
  9. tree
  10. boy
  11. circle day
  12. X on desk
  13. circle sky
  14. circle flower
  15. X on paper
  16. circle tree
  17. X on book
  18. circle star
  19. X on pen
  20. X on chair
  21. X on rug
  22. circle night
  23. circle sea
  24. circle water
- 25–28. Any order:
  25. light
  26. water
  27. food
  28. air



# SCIENCE 201

## ALTERNATE TEST

Name \_\_\_\_\_

Date \_\_\_\_\_



My Score



22

28

Each answer = 1 point

Write the names of five things that are nonliving.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Write the names of five things that are living.

6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

**Circle the things that are found in nature. Put an X on things humans have made.**

**11.** day

**12.** desk

**13.** sky

**14.** flower

**15.** paper

**16.** tree

**17.** book

**18.** star

**19.** pen

**20.** chair

**21.** rug

**22.** night

**23.** sea

**24.** water

**Write the four things that living objects need to live.**

**25.** \_\_\_\_\_

**26.** \_\_\_\_\_

**27.** \_\_\_\_\_

**28.** \_\_\_\_\_



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