
Elementary Science/Health Curriculum: PASS THE SALT!

You can lead a horse to water but you can't make him drink."

"True, but you *can* salt the oats."

An old adage with a new, provocative response! "Salting the oats" is another way to describe the prime objectives in the development of the SDA science/health curriculum for grades 1-4. Salting the oats means making pupils "thirsty" for learning and includes

- Developing a positive attitude toward learning.

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- Creating a desire to know more about science and health.

- Helping students recognize the divine hand in the creation and sustenance of this planet.

- Building appreciation and enjoyment for God's handiwork.

- Capitalizing on pupils' natural curiosity.

How the Work Began . . . and Grew

Originally, the science/health curriculum revision for grades 3 and 4 was fairly simple. Under the direction of the S/H steering committee, new manuscripts were prepared by authorities in various areas. The material, though technically correct, was not written in the vocabulary or at the interest level of

primary grade children. Additionally, there was much more material than any third or fourth grader could assimilate.

At this point, an editor was selected. The assignment was straightforward: reduce the textbook copy by two-thirds; rewrite the manuscripts at the readability and interest level of third and fourth graders; and prepare teacher's guide material.

Major principles quickly surfaced. Science/health classes should be more than simply another reading exercise. True scientific work goes beyond simply learning about great scientists. It includes observation, record keeping, measuring and counting, describing, drawing, classifying and sorting, predicting, preparing demonstrations and

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experiments, collecting data, taking surveys. An activity-based elementary science program would give students the opportunity to participate in a broad range of scientific experiences.

Additionally, in order to increase learning, pupils should have access to materials for review, clarification, reinforcement, drill, and mastery. For most pupils, learning requires more than a one-time exposure to concepts.

True scientific work goes beyond reading.

These points raised an important concern: the amount of teacher time required to prepare activity-oriented science/health materials.

Teachers' Response

Using Lake Union primary-grade teachers, a survey was taken at conference conventions. The results confirmed two major obstacles to activity-oriented teaching, using the then-current SDA science/health textbooks:

1. *Lack of time for preparation* of hands-on teaching materials. Priority was given to preparing for the four R's: reading, writing, arithmetic, and religion.

2. *Lack of teacher confidence* in their ability to prepare appropriate materials. This was particularly true in the area of physical science.

The survey results compelled the steering committee to broaden the editor's assignment to include the preparation of ready-to-use teaching materials to accompany the textbooks and teacher's guides for grades 3 and 4. Priority would now be given to materials that lead pupils into a variety of scientific experiences.

Division-wide field testing of the new materials produced highly enthusiastic responses. A significant number of participants taught multigrade classrooms with grades 1-4. As might have been expected, when they saw the planned activities for grades 3 and 4, they recommended something similar for use with the picture poster curriculum for grades 1 and 2.

Thus a simple, straightforward editing assignment suddenly blossomed

into a full-scale project of developing a wide variety of teaching materials including worksheets, experiments, folder activities, games, task cards, and other manipulatives for grades 1-4.

Finally, multigrade unit plans were developed, synthesizing the materials for grades 1 and 2 with those for grades 3 and 4 for each series. By using the resulting lesson plans, a teacher can instruct four grades simultaneously in a single-theme unit.

Visiting Hands-on Classrooms

"Salting" the science/health curriculum produced hands-on materials for grades 1-4. The materials were designed to clarify and reinforce con-

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Importance of Science Courses

We live in an age dominated by science and its discoveries. Adventist education must recognize the implications of this fact and adjust its emphases accordingly.

In the past Adventist education has had a fairly strong science component. This is no doubt due to the emphasis Ellen White placed on both nature education and the healing professions. This emphasis seems to be waning. As a result our graduates are unprepared to meet the challenges that science has brought to society.

Almost a hundred years ago Ellen White wrote:

I have been warned that henceforth we shall have a constant contest. Science, so-called, and religion will be placed in opposition to each other, because finite men do not comprehend the power and greatness of God.⁷

Are we preparing our graduates for this "constant contest"? One of the greatest contributions our schools can make is to astutely meet this challenge.

Evolutionary concepts, which originated in science, have permeated most major academic disciplines. The challenge of secular scientific interpretation concerns not only the science major but also students in almost every area of specialization.

In Conclusion

Any good college or university can produce technically well-trained graduates. However, the Adventist college must achieve a more lofty challenge: producing technically proficient graduates who are also capable of evaluating the basis of their religious beliefs. Adventist faculties need to reassess their core curriculum in order to address this problem. A stronger scholastic emphasis on the relationship between science and religion is essential if Adventism is to successfully fulfill its mission to society. □

FOOTNOTES

¹ Alfred North Whitehead, *Science and the Modern World* (London: Macmillan and Company, 1956), pp. 18, 19.

² 2 Peter 3:3-6.

³ R. E. Gibson, "Our Heritage From Galileo Galilei," *Science*, vol. 145 (1964), pp. 1271-1276.

⁴ Francis Darwin, ed., *The Life and Letters of Charles Darwin* (London: John Murray, 1887-1888), vol. II, p. 296.

⁵ Eric Kauffman, in Roger Lewin, "Extinctions and the History of Life," *Science*, vol. 221 (1983), pp. 935-937.

⁶ Dag Nummedal, "Clastics," *Geotimes*, 27:2 (1982), p. 23.

⁷ Manuscript 16, 1890.

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cepts, build enthusiasm, and make science come alive, in contrast to simply reading about science in a book.

Of course the proof of any curriculum is found in classrooms. Beginning with the 1985-1986 school year, "salting the oats" was put to the test in schools across North America. Let's visit some classrooms to see the curriculum in action.

Entering the first classroom, you might find third and fourth graders working at an experiment station. Experiment cards hang on a clothesline over the table. Jugs of different types of soil, packets of seeds, an array of milk cartons, and sprouting plants at various stages of development absorb the students' interest. As you open a closet to hang up your coat you discover a tray of seeds being kept in the dark for comparison with another tray on a sunny shelf, demonstrating the effect of light upon germination and growth.

Step into another room and you see a "Kitchen Corner" where young nutritionists test various food items for starch or sugar. The aroma of baking bread or oatmeal crackers might tempt you to stay for lunch and experience a "walking salad" activity (similar to a salad bar).

First and second grade pupils might be working in pairs at a tabletop game-board. Pushing toy cars and paper figures along streets and sidewalks helps to clarify their concepts about traffic safety.

In another unit, children work outdoors measuring shadows or recording sunlight and shadow temperature differences. Some children help the teacher demonstrate the reflection of light while another group performs experiments with liquids and solids, evaporation and condensation.

For these pupils, hands-on activity equals scientific learning.

The Teacher's Guide— A Broader View

The teacher's guides for the third and fourth grades include one model

unit for each series. Getting down to the basics of teaching, the model provides:

- strategies for class structure
- ideas for bulletin boards and room arrangement
- illustrations of learning stations
- ideas for displaying teaching materials
- samples of record keeping for pupils and teacher.

Teacher commentary parallels the pupil text and includes:

- teacher-led activities for each unit
- worship ideas
- background information
- experiment supply lists
- strategies for conducting experiments
- supplemental material titles and addresses
- plan-ahead lists.

Emphasis on pupils' taking responsibility for their own learning is developed in teacher's-guide suggestions for problem solving, making choices, self-management, using time wisely, and handling materials.

Christian educators are concerned with more than teaching science and health concepts. Through activities in this curriculum, students learn to master themselves. Self-control, self-direction, self-understanding, problem-solving—these are objectives not only for the classroom or for everyday living. These are a preparation for the life to come and an integral aspect of Christian education.

The Life Series Science/Health curriculum is unmistakably Adventist. SDA beliefs, mission, life-style, and culture are clearly stated—without apology. And why not? One can find excellent science and health textbooks used in public education, but not one of them reflects the concept of God as the Creator of the universe and the human body. Not one of them directs a pupil's thoughts to the care he or she should give to the environment because it is God's creation or to the care one should give his or her body because it is God's temple. Surely textbooks intended for our young people should educate them in the beliefs that our church cherishes.

The ultimate goal of the science/health curriculum is to lead children and youth to the Water of Life. But how can they be motivated to drink? Try salting their oats! □