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A New Junior High Science Program

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The laboratory approach has been extensively utilized in the contemporary high school science courses, but



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has not been utilized in the junior high sequence to the same extent. Realizing the need for a coordinated science program for grades seven through nine which would incorporate the contemporary objectives and procedures, the Florida State Department of Science Education applied for and received a grant from the U.S. Office of Education to develop such a program. The course materials which have thus far been developed for seventh grade are being taught and tested in selected schools. The science education department of the University of Iowa is functioning as one of the five test centers which are coordinating the experimental phases of the program. There are seven schools in Iowa which are teaching the course to one thousand pupils.

Regarding the course itself, the

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following are the main objectives and considerations responsible for its development:

(1) No laboratory oriented science sequence has been developed utilizing the objectives listed below and designed by a large committee of experts (36) representing all areas of science teaching (similar to the procedures used in the development of the new high school science course).

(2) Junior High materials should not be limited to the study of selected branches of science (physics, astronomy, biology, ect.), but the students should develop understandings and acquire tools which will be useful in their future science courses or



In this close up picture, 3 Jr. High students of Maquoketa are setting and adjusting the force arm to trip off in two seconds.

Left to right: Lynn Tonderum, David Miller, Richard Hayward.

whatever they do beyond that point.

(3) There is an attempt to convey the idea that the means by which science operates is at least equal in importance to the scientific concepts included in the materials. Inexpensive equipment is being developed and most of the concepts are developed or concluded by the student through the extensive amount of experimentation which he carries out. Traditional Junior High courses have generally been reading courses.

4) The teaching-learning situation is one in which the students work independently while the teacher continually moves from individual to individual giving clues, answering questions, correcting misconceptions, and extending concepts to new situations.

5) The book contains a central core of work which every student is expected to experience at his own rate and record his data and derive con-

clusions. In addition, supplemental materials called "excursions" are available for the especially interested or talented students and also, to provide a way for the teacher to keep the members of the class reasonably close together.

Content of Volumes I and II

Various pieces of simple equipment have been developed exclusively for the program and since most of instruction revolves about their use, it would seem appropriate to describe these materials. Just as the ripple tank, black box and blinky have become symbols of the PSSC, CBA, and the Harvard courses, so the balloon elevator may become a symbol for the Florida State Project.

The balloon elevator is shown in Figure 1 and is introduced immediately to help answer the question "Who did the most". In the process of lifting various masses to different levels



New Jr. High Science Program

(and with a little competition involved) the students soon discover that the seemingly simple question is quite complex because of all the variables involved in the activity.

Figure 2 shows the simple force measurer which the students calibrate themselves. The students all use washers of the same size for calibration, but upon comparing their measurer with another student's, they realize the need for standard weights (although all the color coded washers are the same size, they vary in weight from 6,000 to 16,000 dynes).

An extensive investigation of motion is carried out with the water-drop car (Figure 3). One might expect that a large error would be introduced by using the time and distance between drops for the measurements, but the error amounts to about 0.04 of a second for approximately 0.5 second intervals. This is much better than can be done while trying to mark positions when starting and stopping a stopwatch.

Dr. William A. Deskin of Cornell College was one of the participants at the 1966 Writing Conference and was primarily responsible for the development of the sections which utilize a simple chemical cell and other related electrical equipment, such as a soda straw voltmeter. Again the

economical aspects must be stressed as well as the fact that all the students build their motors and other apparatus. Any teacher who has tried to organize and assemble materials such as thin sheets of lead, ten cent knife switches, and pulleys will appreciate having this equipment readily available.

Iowa Test Center

Dr. Robert Yager is the director of the Iowa Test Center which distributes test and instructional materials to the schools of this state. Each teacher supplies the center with feedback for each chapter which the writers will analyze and incorporate in a revised edition for next year.

The Iowa teachers involved in the project are: Randall Zirkelbach from Maquoketa, James Underfer, Clarence Plager and Clare Barrett from West Des Moines, Carroll Scott and Arthur Hutton from Williamsburg, Beverly Phillips from Mt. Vernon, James DeReus from Tipton, Charles Kline from Marengo and Robert Hannes from Bennett. West Des Moines has the unique distinction of being one of the largest school systems in the state which offers three complete years of Junior High Science and is teaching the course to over 400 7th graders at Stilwell Junior High.

More Regional Meetings of ISTS Announced

Several of our regional directors have been active in completing arrangements for their 1967 Regional Meetings. The dates all members should reserve as follows:

Region	Director	Dates	Location of Meeting
North Central	Vern Gunderson	Jan. 21, 1967	Mason City, Iowa
Central	Elwin Emory	Feb. 11, 1967	Newton, Iowa
West Central	Cameron Christensen	April 17, 1967	Fort Dodge, Iowa
Southeast	Donald Worster	Feb. 21, 1967	Keokuk, Iowa