

SCIENCE FOR PERSONS WITH DISABILITIES

GOOD NEWSLETTER

NUMBER 46 FALL 1991

PRESIDENT'S MESSAGE

The NSTA Conference in Houston was a productive forum for identifying needs and future directions for our association. The Science Association for Persons with Disabilities has had a loose affiliation with NSTA and AETS for the past several years, with the primary vehicle of communication being pre-conference meetings at the NSTA Annual Convention. I am hopeful that this year will bring forth a wellspring of involvement and participation from our membership. The minutes from the AETS Task Force and the Science for Persons with Disabilities Meeting are included with this newsletter.

The minutes note an effort to provide a pre-conference Symposium on Science for Persons with Disabilities in conjunction with the NSTA Conference in Boston. Unfortunately, things have not progressed quickly enough through the NSF to slate the symposium. We are in the process of working with another proposal through NSF to hold the symposium in conjunction with the 1993 NSTA Conference in Kansas City. The AETS Board of Directors extended an endorsement of the proposal at their 1991 Board Meeting. I will try to keep you posted through the GOOD Newsletter of any future developments.

A task force has been formed to study and prepare a resolution statement for consideration at our meetings in Boston. I have included a very preliminary draft in the newsletter and would welcome input from you. Feel free to offer suggestions, editorial changes or substantive changes for our committee to consider.

If you wish to become active on the committee of the Science Association for Persons with Disabilities, please drop a note to George Davis at Moorhead State University or contact me at the University of Northern Iowa.

Best Wishes for a pleasant Fall.

Sincerely,

Greg Stefanich, President

CALL IT SCIENCE

Jill Uhlenberg

How responsive are teachers of young children to the unique needs of students with disabilities? An icicle drips slowly as the sun warms the roof of the elementary school. A ladybug crawls across a leaf as children sit on the preschool playground during outdoor play. Day care children discuss the difference in the snack muffins before and after baking. Kindergarten children ask their teacher why they feel hot when they wear their winter coats inside the classroom. All of these scenes, and many more throughout the day offer the opportunity for all children to expand their awareness of science. The early experiences often instill in the disabled child that his/her role is one of a "passive observer" in a active learning setting.

For young children, all learning about themselves and the world around them is science. Classrooms often house plants and cages or aquariums containing small animals; but, nature study is just the beginning. The few elementary teachers who spend time on science often rely on discrepant events to keep children's interest. However, young children must build a framework of related schema and basic concepts before they can recognize an event as discrepant. We must begin to label all learning about the self and the environment as "science" so that children (and teachers!) feel comfortable with the term. Children need repeated opportunities to experience these basic concepts, especially using a variety of materials, so that the idea of transfer begins to develop. Only then can they begin to recognize discrepancies and examine their origins.

Children already act like scientists in their normal development, according the Susan Isaacs (1966), as they exhibit what she refers to as *proto scientific behavior*. That is, using all their senses, they observe and manipulate their environment in ways that help them to classify, compare, and develop relationships between objects and people. Spontaneous exploration is natural to all children, as can be attested by anyone who has observed a young child. Copple, Sigel, and

Saunders (1984) state that science in young children's classrooms nourishes this intrinsic search for the reduction of mystery and uncertainty in their daily lives. Bringing that organization to everyday life is vital to all the learning that follows formal education.

Expanding science to include everything around us also means that we can use science across the curriculum as a totally sensory experience. For the disabled child this is especially important so that he/she can become involved in activities along with the other children. Science needs to be not only "hands-on", but also "ears-on", "eyes-on", "noses-on", and "bodies-on". For example, using creative dramatics allows the visually impaired or hearing impaired child to participate, as children dramatize the growth of plants or the icicle melting as it hangs from the roof. A therapy pool becomes a natural "sink or float" experiment. Cooking also allows children to use more than one sense; all children, disabled or not should become a part of active investigations and experiments. It is critical that effective teachers of children with disabilities accommodate instruction for all students which includes active involvement of all students. Too often, students with disabilities become passive observers in activity centered settings, simply because their unique needs are not considered with sufficient positive regard.

These multi-sensory activities then can also serve as a means of assessment. Observations of children's experiences recorded in anecdotal records show growth of the whole child, regardless of impairment.

Children enjoy making things happen, and total sensory involvement allows this to occur to the greatest degree. But finding problems, and then discovering ways to solve them is a learned skill. Productive questioning by a sensitive teacher is needed. We need to be willing to allow and encourage exploration so that we will produce a generation of adults who feel comfortable talking about, and maybe even teaching science with enthusiasm to the next generation.

Developing self-confidence, feeling included and establishing social relationships are essential in developing a sense of inner strength, and enabling us to seek supportive relationships with others. The development of these attitudes in very young learners with disabilities is central. The transition from childhood, through adolescence and into adulthood is difficult, often it is especially difficult for those with disabilities. Teachers of young children often provide the foundations of character and inner strength that

enable individuals to cope with the harsh realities which everyone must face on occasion. Science experiences that develop good understandings in the enjoyable domains of play and exploration will do much to promote scientific literacy for all children. Each of us need to develop confidence in our ability to reason and discover. Science for young children is a wonderful tool for human growth and development.

REFERENCES

- Copple, C., Sigel, I.E., & Saunders, R. (1984). Educating the young thinker: Classroom strategies for cognitive growth. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Isaacs, S. (1974). Children's way of knowing. New York: Teacher's College Press.

SUMMER CAMPS FOR SPECIAL CHILDREN NEW YORK CITY

Parents or educators who wish to obtain a free list of summer sleep-away and day camps for children with disabilities may send a self-addressed stamped envelop to:

Joseph M. Varon - Special Education Department
Leonardo Da Vinci Intermediate School #61
98 -50 50 Avenue
Corona, New York 11368

MINUTES

AETS Task Force on Science for Persons with Disabilities

1. The committee passed a resolution requesting the renaming of the task force to Task Force on Science for Persons with Disabilities.
2. The need for a resolutions statement which more specifically notes the mission of the task force and the position of AETS concerning persons with disabilities was identified as a 1991-1992 goal.
3. A proposal submitted to NSF concerning a pre-conference symposium on Science for Persons with Disabilities was discussed by the task force. Appreciation to the AETS Board for endorsement of the proposal was expressed.
4. Rae Ann Wuestman will help with the Science for Persons with Disabilities luncheon in Boston.

SCIENCE EDUCATION FOR PERSONS WITH DISABILITIES (AETS) TASK FORCE

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RESOLUTION STATEMENT

(Initial Draft)

WHEREAS students with handicapping conditions benefit from "education in the least restrictive school environment" and WHEREAS as much as possible, these students need inclusion and involvement in all facets of school life, and WHEREAS there is a growing push to segregate special needs students in ways that do not uphold the intent of Public Law 94-142,

THEREFORE, BE IN RESOLVED THAT THE ASSOCIATION OF SCIENCE FOR PERSONS WITH DISABILITIES URGE ALL EDUCATORS TO HIGHLIGHT INTEGRATION AND INCLUSION WITH REGARDS TO SPECIAL NEEDS STUDENTS

RATIONALE

The present state of practice of "least restrictive environment," especially for the mildly disabled, has become synonymous with partially segregated instruction through the use of resource room programs. This is often compounded when non-disabled teachers, administrators, and counselors make general assumptions about what disabled students can and cannot do. Immediate attention must be channeled towards the integration and inclusion of disabled children within the school setting, particularly within the regular classroom. Noteworthy goals for science educators are:

1. to insure that instructional adaptations are made to allow for students with physical disabilities to participate fully in laboratory and outdoor learning opportunities.

2. to insure that new technology is utilized to aid students with physical disabilities to participate in all facets of the instructional program by serving as resource personnel and advocates for these students.

3. to serve as advocates for students with special needs to insure they are not advised to take classes which minimize the need for adaptation or special modification of the instructional setting.

4. to provide opportunities for all students to socialize informally in and out of the classroom.

5. to create a caring, supporting atmosphere that tolerates and welcomes a wide range of student diversity.

6. to foster cooperative learning activities rather than competitive or individual tasks.

7. to provide opportunities for peer interaction, multiage grouping, and group cohesiveness.

RESOURCES...RESOURCES

The National Science Foundation has produced (October, 1990) a report: National Science Foundation Task Force on Persons with Disabilities. To get a copy of the report contact Jeff Fenstermacher, 1800 G Street, Room 525, NSF, Washington, DC 20550, 202-357-9482.

Booklet: Reaching out to all people with Disabilities: A Guide for Consumer and Provider Organizations, (41 pages) by Edwards and Livingston of the Knowledge Utilization Program, Institute for the Visually Impaired, Pennsylvania College of Optometry, 1200 West Godfry Avenue, Philadelphia, PA 19141.

Dr. Harry Lang has recently had published Technical Signs Manual for science terminology. The manual is available for purchase from Captioned Films for the Deaf, Modern Talking Picture Service, 5000 Park Street No., St. Petersburg, FL 33709-9989, (800) 237-6213, V/TDD. It is also available from the bookstores at Rochester Institute of Technology and Gallaudet University. Video tapes for these signs are available for loan from Captioned Films.

A REQUEST

Addison-Wesley Publishing Company has requested information and resources to improve their textbooks and/or to help elementary teachers make science more accessible to disabled students. They are also interested in information on disabled persons working in scientific careers. Send any information to Susan Burgenbauch at Addison-Wesley, 2725 Sand Hill Rd., Menlo Park, CA 94025 or call 415-854-0300.

DOING OUR PART

Linda Rosulek & Greg Stefanich
University of Northern Iowa

Often in schools today, the handicapped gifted are slighted. There are gifted people in every handicapped population, except the mentally retarded and severely developmentally disabled. Whitmore (1981) suggested that a figure as high as 540,000 students are both gifted and disabled in the United States. Remediation has been the prime focus for the gifted students with disabilities, rather than the development of their talents and gifts. Special educators, according to Eisenberg (1981) believed that a gifted child with disabilities should not be in special education. It appears that many gifted, handicapped students are recognized only by their limitations, rather than by any gifts they might possess.

To better serve this often neglected sector of the school population, it is imperative to become aware of some of the characteristics of several gifted populations with disabilities. Each disability has its own unique needs and available resources. Three types of disabilities will be briefly discussed: the visually impaired, hearing impaired, and orthopedically impaired.

According to Maker (1977) visually impaired gifted students appear to reach their potential and accomplish the same levels as the sighted. She also found that meaningful verbal memory was weaker than the nondisabled student. After interviewing gifted visually disabled persons, Maker learned that their desires were to experience a less protective environment and to be given more opportunities to explore, using their other functioning senses.

Those who teach the visually impaired need to become familiar with methods and services from The American Printing House for the Blind, P.O. Box 6085, Louisville, KY, 40206; and instructional aids and materials produced in Science Activities for Visually Impaired Science Experiments for Learners with Physical Handicaps (SAVI/SELPH), Center for Multisensory Learning, Lawrence Hall of Science, University of California, Berkeley, CA 84720.

Several teaching considerations that would be beneficial to these students are to provide opportunities to work in small cooperative groups with supportive sighted partners; provide oral directions, either through direct instruction or by a recording device; if necessary, provide braille materials; and print large forms and

instructions.

The gifted hearing impaired, according to Maker (1977), experience a slower rate of development and have greater difficulty dealing with abstractions than the nonimpaired. Materials and services from the Alexander Graham Bell Association for the Deaf, 3417 Volta Place, N.W., Washington, D.C., 20507 would be useful for teachers to better serve this population. It is imperative that the child be in good visual contact with the instructor, and the instructor use appropriate gestures and body language. If necessary, obtain a person who is competent in sign language to aid the student in class. Because the student has difficulty with abstractions, the teacher should use concrete objects whenever possible.

Orthopedically impaired gifted students, notes Maker (1977), usually do not lag behind their nondisabled counterparts in cognitive maturity. However, they do require some special considerations when in the classroom and, more importantly, support from educators to ensure that they receive educational experiences commensurate with their talents and abilities. An important resource is the National Center on Educational Media and Materials for the Handicapped, Ohio State University, 154 West 12th Avenue, Columbus, Ohio, 43210. Changes in the physical arrangement of the room and laboratory may need to be made to accommodate their special needs. To compensate for the physical limitations, pairing a physically abled student with the impaired student to work cooperatively allows for more exploration.

There is considerable evidence that cooperative learning arrangements permit more positive relationships for all students than do competitive, individualistic or traditional lecture-recitation instructional lessons. Students are best served when teachers understand their obligations and responsibilities, and serve as reliable sources of support.

Often students with disabilities have fewer interactions in social contexts. School settings which necessitate interactions with others are important. Good teachers are constantly in search of opportunities to integrate socially isolated and withdrawn students into cooperative activities. Everyone needs to feel important, appreciated, and included. Quality with equity requires that all students are given equal access to educational endeavors. This must include respect for the unique physical, social, emotional, and academic attribute of every child in a context of inclusion.

(References on following page)

ARTICULATION

We plan to publish an annual bulletin dedicated to addressing science for persons with disabilities. Manuscripts should be submitted by February 15, 1992.

JOURNAL OF THE SCIENCE ASSOCIATION FOR PERSON WITH DISABILITIES

MANUSCRIPT GUIDELINES

Unsolicited manuscripts are welcomed. You are encouraged to share views of the status of science for persons with disabilities, effective teaching practices, curricula, and exemplary work samples that are student produced. Use APA style, double space with wide margins.

The cover page should include:

- Title
- Author
- Author's position
- Author's school
- Author's address
- Date

A running head (abbreviated title that appears on each page with page number.)

A one paragraph abstract

Contributors will be sent a complimentary copy of the publication.

Send Manuscripts to:
Publications Editor: Greg Stefanich
Assistant Editor: John C. Mueller
Dept. of Curriculum & Instruction
University of Northern Iowa
Cedar Falls, Iowa 50614

SCIENCE FOR PERSONS WITH DISABILITIES

GOOD NEWSLETTER

Science Association for Persons with Disabilities Membership 1992

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SAPD Dues for 1992 (\$10.00) \$ _____

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Send to:
Science Association for Persons with Disabilities
Regional Science Center
Moorhead State University
Moorhead, MN 56563