Science Education Initiatives for the 1990s

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To resolve the problems inherent in science education today, four areas require immediate initiatives:

I. Teacher preparation and staff development
II. Curriculum development
III. Instructional support
IV. Research and dissemination

I. Preparation and Staff Development Initiatives

* Development of research-based preservice teacher preparation programs for elementary, middle and high school teachers that are designed cooperatively by science educators, scientists and practicing classroom teachers of science.
* Implementation of staff development programs for teachers of science who have a need to reinforce or enhance their science knowledge and science teaching skills.
* Recruitment of a greater number of highly qualified and competent individuals into science teaching (especially minority populations) and retention of these people in the science teaching profession.

II. Curriculum Development Initiatives

* Development and implementation of more unified, in-depth, hands-on science curricula for preschool, elementary, middle/junior high and high school students.
* Development and utilization of evaluation and assessment tools that measure student achievement of higher order thinking skills.
* Production of materials designed for instructional administrators and lay people (e.g. principals, superintendents, school board members and parents) that would provide better understanding of science education needs of students.
* Implementation of curricula for preparing science laboratory technicians to assist teachers.
* Development of curricula that would instruct teachers in the appropriate uses of technology in the classroom.
* Development of curriculum models that integrate science with the learning of other elementary school subject matter.

### III. Instructional Support Initiatives

* Provision of appropriate electronic technologies to science teachers at all grade levels.
* Provision of funds for the construction of adequate science teaching facilities (e.g., activity centers and laboratories).
* Development of regional science centers that would make the following available to local teachers:
  A. models of effective teaching practices
  B. science updates
  C. research opportunities
  D. media
  E. science equipment and supplies

### IV. Research

* Establishment of long-term funding for regional science education research centers that would conduct and disseminate research on:
  A. designs of science-teaching facilities
  B. appropriate uses of technology
  C. science curriculum for all students
  D. instruction
  E. science teaching practices that are taking place outside the United States