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ON EDUCATION

ORIGINAL: 2187

June 11, 2001

Dr. James Gallagher, Chairman
State Board of Education
333 Market Street, 1st Floor
Harrisburg, PA 17120-0333

COPY


Dear Dr. Gallagher:

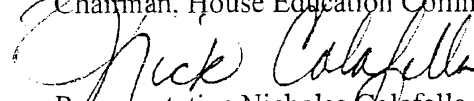
Pursuant to Section 5 (d.2) of Act 181 of 1982, known as the Regulatory Review Act, the House Education Committee offers comments and objections to the State Board of Education's proposed rulemaking #6-273 (22 PA Code, Chapter 4, academic standards for science and technology and environment and ecology). Copies of the proposed rulemaking and Committee staff analysis were sent to each member in advance of the meeting, with a request for any comments. At its meeting on Monday, June 11, 2001, the Committee by unanimous vote agreed to send three sets of comments to the Board for its review, as follows: staff analysis and suggestions; pro-evolution comments; anti-evolution comments. The Committee took this action due to the controversial nature of the issue of the theory of evolution. A significant number of members supported the different versions of comments.

The Committee Chairman has agreed to forward any additional comments offered by individual members. They have been attached to this report.

We appreciate the cooperation of the State Board and its staff, particularly Dr. Peter Garland, in assisting us with those regulations. If there are any questions regarding these comments or objections, please contact my office at 783-9311.

Sincerely,


Representative Jess M. Stairs
Chairman, House Education Committee


Representative Nicholas Colafella
Democratic Chairman

Attachments

cc: John McGinley, Chairman, Independent Regulatory Review Commission
Members of House Education Committee

INDEPENDENT REGULATORY
REVIEW COMMISSION

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**PROPOSED REGULATIONS #6-273
STATE BOARD OF EDUCATION
22 PA CODE, CHAPTER 4
APPENDIX B TO ACADEMIC STANDARDS:
(3) SCIENCE AND TECHNOLOGY; (4) ENVIRONMENTAL
ECOLOGY**

Background:

In 1996 Governor Tom Ridge issued Executive Order #6 which created the Standards for Excellence Commission, a 14-member task force to develop academic content standards. The Commission's work proceeded, with a series of academic content standards being sent, first, to the Department of Education for additional refinement and, then to the State Board of Education for approval and adoption. Simultaneous to the work of this Commission, the State Board of Education began to develop draft language to replace the controversial chapters 3, 5 and 6.

In 1998, the State Board of Education submitted its proposed rewriting of the statewide curriculum for all public schools to the regulatory review process. Chapter 4 of the State Board of Education became effective with its publication as final-form rulemaking in the January 16, 1999, edition of the *PA Bulletin*. That chapter repealed previous Chapters 3, 5 and 6, which had provided the curriculum regulations for Student Learning Outcomes, School Profiles and State Assessments. Certain concepts and language within those chapters were consolidated into Chapter 4 regulations along with updates and program modifications. In addition to the regulatory language, an Appendix A was published concurrently. Appendix A contained the specific units of academic content standards for third-, fifth-, eighth- and eleventh-grade courses of study in (1) Mathematics and (2) Language Arts (Reading, Listening, Speaking and Writing).

At the time the House Education Committee approved Chapter 4, the State Board committed itself to submitting future appendices containing academic standards to the regulatory review process for public input and legislative comment and approval. This appendix is the second installment of proposed academic standards consisting of Units for (3) Science and Technology Standards and Chapter (4) Environment and Ecology Standards.

The passage of Act 16 of 2000, apart from the provisions known as the Education Empowerment Act, brought several changes to the Public School Code of 1949. One of those changes was the adoption of a definition of "PA System of School Assessments Test" or "PSSA Test." This new definition specified that the statewide assessment, known as the PSSA, would be comprised of assessments administered to public school students in the areas of math, reading and science only. These standards in science and technology are significant to the PSSA as they provide the

basis for the science assessment. In addition, they provide a standard to which other assessments and the curriculum of each public school shall be aligned.

Summary:

Each unit contains standards of what a student must know upon completion of the fourth, seventh, tenth and twelfth grades. The eight standards for science and technology are:

- Unifying Themes (3.1)
- Inquiry and Design (3.2)
- Biological Sciences (3.3)
- Physical Sciences, Chemistry and Physics (3.4)
- Earth Sciences (3.5)
- Technology Education (3.6)
- Technological Devices (3.7) and
- Science, Technology and Human Endeavors (3.8)

In the chapter on Environment and Ecology the standards are organized as follows:

- Watersheds and Wetlands (4.1)
- Renewable and Nonrenewable Resources (4.2)
- Environmental Health (4.3)
- Agriculture and Society (4.4)
- Integrated Pest Management (4.5)
- Ecosystems and their Interactions (4.6)
- Threatened, Endangered and Extinct Species (4.7)
- Humans and Environment (4.8)
- Environmental Laws and Regulations (4.9)

Each standard consists of several sub-categories. Those sub-categories are further reduced to descriptive statements (not unlike behavioral objectives) called descriptors.

In addition, each chapter contains a glossary of terms used within the text. The format appears to follow previous standards chapters.

Issues:

Committee staff reviewed the organization and content with the staff of the State Board. At that time, two issues were identified for the consideration of Committee members.

- (1) The theory of evolution. (Science and Technology Standards (3.3.10(D) and 3.3.12(D).)

After several drafts, the State Board of Education attempted to take the middle ground in the controversy over the teaching of evolution.

Some commenters felt that the teaching of evolution exclusively within the curriculum eliminates the religious beliefs of certain faiths regarding the origin of man – beliefs which conflict with evolution. Expressed was the concern that the theory of evolution was being promoted by the scientific community as a fact. They felt that new information or knowledge might alter or even refute the theory of evolution and should be challenged as would any other theories or evidence.

Pro-evolution commenters were concerned that any challenge to the validity of the theory of evolution could open the door to the teaching of alternative non-scientific theories, specifically “creationism.” (Creationism is the Judaeo-Christian belief that the world was created by God in six days, according to literal interpretation of the Scriptures.) Their argument is that there is no comparison between scientific evidence and religious belief to justify the teaching of creationism in a science curriculum.

In its current proposed rulemaking, the State Board has ignored any mention of “creationism,” opting simply to apply scientific information and inquiry to the theory of evolution.

2. The failure to include Agricultural Sciences within the Science Curriculum.
In its current proposal, the State Board has given Agriculture brief mention in the environmental standards.

Act 26 of 1996 promoted the teaching of agriculture to the general student population. Some proponents suggest that the proposed regulations lack consistency with Act 26 and the current Chapter 4, Curriculum and Instruction provisions. They believe Agricultural Sciences should be treated as a science for curriculum purposes across the years. All students need to be made aware of system that provide the world's abundance of food, clothing, and shelter; whether they choose a career in agriculture as a life occupation or not, Agricultural Science is a must. Student awareness of Agricultural Sciences and its changes/impacts becomes and will remain a major issue thru each of our lives.

Today 3 out of every 5 jobs within Pennsylvania and across the United States has a direct impact with Agricultural Sciences regardless of production, processing, technology changes or human resources management many proponents believe that this number will increase as world population grows. Agriculture production alone in 1999 generated over 4.1 billion dollars in cash receipts within the Commonwealth of Pennsylvania. Education in Agricultural

Sciences becomes essential as jobs and economics makes this field one of the major businesses now and in the future; not only within Pennsylvania and across the United States but globally as well.

Agricultural Sciences may be integrated into their learning through the choice of Agricultural Science electives, through integration into the regular curriculum, through the Ag in the Classroom program or whatever vehicle the school district chooses. Either way, the content-specific nature of agriculture and the regulatory history of this issue suggests that it become more than a sub-category of environment, Agricultural Sciences becomes a mandatory issue since all students, throughout their lives will face issues of food and food production.

Current Chapter 4 regulations (22 Pa Code 4.21(f)(4) and 4.22(c)(5)) suggest that agriculture science is to be treated as a planned course of instruction. Greater emphasis on agricultural sciences, at all grade levels, is the desire of the Agricultural Educators and the agricultural community.

Other Staff Comments on the proposed standards:

1. The use of the term "descriptor". The term does not appear in any staff lexicon and seems to be a word coined to mean "description". We suggest the plain-English usage of the term "description". (1. et al)
2. Inappropriate example to illustrate a concept (e.g. p. 7, section 3.1.4D): "Describe scale as a ratio (e.g. pipe fittings)". Perhaps the use of models (trains, boats, cars, buildings) or map scales might be more suitable example to a third-grader. The Board needs to review the examples cited for age appropriateness.
3. Staff also questions how this curriculum will be aligned with the PSSA. The introductory notes on both chapters suggest that the standards apply to completion of courses in grades 4, 7, 10 and 12. The PSSA is administered currently at grades 3, 5, 8 and 11. How does the Department plan to deal with this incongruity in standards structure and test administration? Will the test simply be implemented in the designated grades (4, 7, 10 and 12)? Or will the school districts need to restructure the course sequence to be certain that significant information is taught by testing dates for grades 3, 5, 8 and 11? A note in the preamble or section responding to comments would be helpful.