

# Ohio Mathematics and Science Coalition

## Suggested Practices for the Evaluation of Science Instructional Materials

Select 5 or more critical benchmarks or indicators from the Ohio Science Academic Content Standards at a grade band for which the materials are planned. These choices should reflect what your selection committee judges as important for students to know, understand, and be able to do as they develop science knowledge, skills and understanding.

### *Instructional Materials/Textbook Considerations:*

Do the instructional materials address each critical benchmark or indicator adequately, and at the grade level or grade band selected?

Are there clear connections between the activities/lessons and the critical science benchmarks or indicators selected?

Are there any significant misalignments or omissions of the content and processes expected by the science standards for the grade level or grade band selected?

Is inquiry-based learning a significant part of how the material is presented?

Do the instructional materials provide several opportunities across each year for students to learn about science through hands-on investigations?

Is the science content accurate and well-organized?

Are appropriate organizers, such as charts, graphs, tables and other illustrations presented to help students develop understanding of science concepts?

Is the page presentation attractive, colorful, inviting, informative, but uncluttered?

Is the science presented in a way that helps students make connections to other science, other subjects, current events, and their daily lives?

Do the instructional materials provide opportunities for students to write about science and reflect on their learning and understanding?

Do the instructional materials engage students in reasoning, higher-level thinking and use of scientific evidence?

Do the materials incorporate technology to help develop student understanding for both instruction and assessment?

### **Additional Considerations:**

Do the instructional materials and teacher support materials develop a series of questions, tasks, and investigations that engage students and teachers in the development of scientific processes, communication, reflection and deep understanding?

Do the instructional materials and teacher support materials encourage the use of multiple approaches to teaching and learning? Multiple representations? (e.g., concrete, pictorial, symbolic, related concepts, social concerns, etc.)

Do the teacher support materials make connections among the chapters, topics, and disciplines? Do they specify the prior knowledge required to understand the material/lesson?

Are there references and connections to earlier sections of the material where the prior knowledge was addressed?

Do the instructional materials and teacher support materials provide strategies for reading the scientific and mathematical content needed for understanding?

Do the teacher support materials help teachers to develop science content knowledge and science teaching strategies in topic areas where there may be a need for such support?

Do the teacher support materials provide suggested calendar maps and daily time management suggestions?

Do the teacher support materials provide for effective, research-based, teaching and learning approaches?

Do the teacher support materials and student instructional materials provide differentiated approaches to address the range of ways that students learn and construct understanding?

Are there quality pre-assessments, formative assessments, and post assessments provided to match our course of study/standards and the instructional materials? (e.g., short & extended response, higher level thinking, well-designed multiple choice, providing meaningful data for instructional planning, usable in a variety of learning settings, etc.)

Do the teacher support materials provide evidence of the research base used to develop the program of study? Is this research provided to teachers in some form to help them better understand the program's design and approaches to instruction?

Do the teacher support materials provide suggestions and technical assistance for the technologies and applications used to develop student understanding?

Do the teacher support materials provide suggestions and support for alternative assessment options? For example, student-developed projects may

be suggested by the text. If so, do the teacher support materials provide descriptions of what the project should consist of and how students' projects will be reviewed and graded (rubric)?

Are the materials likely to provide a positive change from the status quo for students and teachers?

Is high-quality support available from the publisher to help meet local professional development needs?

Is there a high likelihood that the instructional materials and teacher support materials will help students and teachers to address local and state content standards and performance expectations?

**Additional Resources:**

View the AAAS Project 2061 Instructional Materials Review Process

<http://www.project2061.org/publications/textbook/default.htm?ql>