

A. Content

If the material you are evaluating is for grades K-4, use numbers 1-9, and 28-76. For grades 5-8 use numbers 19-27 and 28-76. For 9-12 content, go to page 16.

K-4 Content - These criteria are based on the recommendations for science content for grades kindergarten through four in the *National Science Education Standards* (NSES). Refer to Chapter 3: Content and Instruction in this Framework for clarification.

Circle:
 N for No
 M for Minimal
 R for Regularly
 C for Consistently

List specific evidence on the right and summarize your thoughts below each section. Evidence can include page numbers, statements, or other information in the materials.

K-4 Content		
1. The material is infused with <i>unifying scientific concepts and processes</i> such as prediction, organization, systems, change, and measurement.	Rating: _____ N M R C	Provide evidence for your rating: _____
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2. The material helps students develop the <i>abilities necessary to do scientific inquiry</i> .	Rating: _____	Provide evidence for your rating: _____
2a. Students ask a question about objects, organisms, and events in the environment.	N M R C	
2b. Students plan and conduct a simple investigation.	N M R C	
2c. Students employ simple equipment and tools to gather data and extend the senses.	N M R C	
2d. Students use data to construct a reasonable explanation.	N M R C	
2e. Students communicate investigations and explanations.	N M R C	
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3. The material promotes student <i>understanding about scientific inquiry</i> .	N M R C	Provide evidence for your rating: _____
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4. The material emphasizes <i>science and technology</i> .	Rating: _____	Provide evidence for your rating: _____
4a. Abilities of technological design	N M R C	
4b. Understanding about science and technology	N M R C	
4c. Abilities to distinguish between natural objects and objects made by humans	N M R C	

K-4 Content (continued)

Circle:
 N for No
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 C for Consistently

List specific evidence on
 the right and summa-
 rize your thoughts
 below each section.

5. The material emphasizes the personal and societal dimensions of science.	Rating:	Provide evidence for your rating:
5a. Personal health	N M R C	
5b. Characteristics and changes in populations	N M R C	
5c. Types of resources	N M R C	
5d. Changes in environments	N M R C	
5e. Science and technology in local challenges	N M R C	

6. The material accurately presents the <i>history and nature of science</i> .	Rating:	Provide evidence for your rating:
6a. Science as a human endeavor	N M R C	

7. The material includes a balance of content in <i>physical science</i> .	Rating:	Provide evidence for your rating:
7a. Properties of objects and materials	N M R C	
7b. Position and motion of objects	N M R C	
7c. Light, heat, electricity, and magnetism	N M R C	

8. The material includes a balance of content in <i>life science</i> .	Rating:	Provide evidence for your rating:
8a. The characteristics of organisms	N M R C	
8b. Life cycles of organisms	N M R C	
8c. Organisms and environments	N M R C	

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To determine how these materials align with the course/grade level, use a highlighter marker to emphasize which indicators match the standards for your course/grade level

K-4 Content (continued)

<p>9. The material includes a balance of content in <i>earth and space science</i>.</p> <hr/> <p>9a. Properties of earth materials</p> <hr/> <p>9b. Objects in the sky</p> <hr/> <p>9c. Changes in earth and sky</p>	<p>Rating:</p> <hr/> <p>N M R C</p> <hr/> <p>N M R C</p> <hr/> <p>N M R C</p>	<p>Provide evidence for your rating:</p> <hr/> <hr/> <hr/>
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Summary Comments on K-4 Content:

Go to p. 21 to continue evaluation

5-8 Content: These criteria are based on the recommendations for science content for grades five through eight in the *National Science Education Standards* (NSES). Refer to Chapter 3: Content and Instruction in this Framework for clarification.

Circle:
 N for No
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List specific evidence on the right and summarize your thoughts below each section. Evidence can include page numbers, statements, or other information in the materials.

5-8 Content		
10. The material is infused with <i>unifying scientific concepts and processes</i> .	Rating:	Provide evidence for your rating:
10a. Systems, order, and organization	N M R C	
10b. Evidence, models, and explanation	N M R C	
10c. Constancy, change, and measurement	N M R C	
10d. Evolution and equilibrium	N M R C	
10e. Form and function	N M R C	
11. The material helps students develop the abilities necessary to do scientific inquiry.	Rating:	Provide evidence for your rating:
11a. Students identify questions that can be answered through scientific investigations.	N M R C	
11b. Students design and conduct a scientific investigation.	N M R C	
11c. Students use appropriate tools and techniques to gather, analyze, and interpret data.	N M R C	
11d. Students develop descriptions, explanations, predictions, and models using evidence.	N M R C	
11e. Students think critically and logically to make the relationships between evidence and explanations.	N M R C	
11f. Students recognize and analyze alternative explanations and predictions.	N M R C	
11g. Students communicate scientific procedures and explanations.	N M R C	
11h. Students use mathematics in all aspects of scientific inquiry.	N M R C	
12. The material promotes student understanding about scientific inquiry.	Rating:	Provide evidence for your rating:
	N M R C	

5-8 Content (continued)

Circle:
 N for No
 M for Minimal
 R for Regularly
 C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

13. The material emphasizes science and technology. Rating: _____ Provide evidence for your rating: _____

13a. Abilities of technological design **N M R C**

13b. Understandings about science and technology **N M R C**

14. The material emphasizes the *personal and societal dimensions of science*. Rating: _____ Provide evidence for your rating: _____

14a. Personal health **N M R C**

14b. Populations, resources, and environments **N M R C**

14c. Natural hazards **N M R C**

14d. Risks and benefits **N M R C**

15. The material accurately present the *history and nature of science*. Rating: _____ Provide evidence for your rating: _____

15a. Science as a human endeavor **N M R C**

15b. Nature of science **N M R C**

15c. History of science **N M R C**

16. The material emphasizes the content of *physical science*. Rating: _____ Provide evidence for your rating: _____

16a. Properties and changes of properties in matter **N M R C**

16b. Motions and forces **N M R C**

16c. Transfer of energy **N M R C**

5-8 Content (continued)

Circle:

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List specific evidence on the right and summarize your thoughts below each section.

17. The material emphasizes the content of *life science*.

Rating:

Provide evidence for your rating:

17a. Structure and function in living systems

N M R C

17b. Reproduction and heredity

N M R C

17c. Regulation and behavior

N M R C

17d. Populations and ecosystems

N M R C

17e. Diversity and adaptations of organisms

N M R C

18. The material emphasizes the content of *earth and space science*.

Rating:

Provide evidence for your rating:

18a. Structure of the earth system

N M R C

18b. Earth's history

N M R C

18c. Earth in the solar system

N M R C

Summary Comments on 5-8 Content:

To determine how these materials align with the course/grade level, use a highlighter marker to emphasize which indicators match the standards for your course/grade level

Go to p. 21 to continue evaluation

9-12 Content: All courses need to look at questions 50-55; for content specific to a discipline, see questions 56-58. These criteria are based on the recommendations for science content for grades nine through twelve in the *National Science Education Standards* (NSES). Refer to the NSES pages 173-207 and Chapter 3: Content & Instruction in this Framework for the depth of coverage that is recommended.

9-12 Content

Circle:
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List specific evidence on the right and summarize your thoughts below each section. Evidence can include page numbers, statements, or other information in the materials.

19. The material is infused with <i>unifying scientific concepts and processes</i> .	Rating:	Provide evidence for your rating:
19a. Systems, order, and organization	N M R C	
19b. Evidence, models, and explanation	N M R C	
19c. Constancy, change, and measurement	N M R C	
19d. Evolution and equilibrium	N M R C	
19e. Form and function	N M R C	

20. The material helps students develop the <i>abilities necessary to do scientific inquiry</i> .	Rating:	Provide evidence for your rating:
20a. Students identify questions and concepts that guide scientific investigations.	N M R C	
20b. Students design and conduct scientific investigations.	N M R C	
20c. Students use technology and mathematics to improve investigations and communications.	N M R C	
20d. Students formulate and revise scientific explanations and models using logic and evidence.	N M R C	
20e. Students think critically and logically to describe the relationships between evidence and explanations.	N M R C	
20f. Students recognize and analyze alternative explanations and predictions.	N M R C	
20g. Students communicate and defend a scientific argument.	N M R C	

21. The material promotes student <i>understanding about scientific inquiry</i> .	Rating:	Provide evidence for your rating:
	N M R C	

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 C for Consistently

List specific evidence on
 the right and summa-
 rize your thoughts
 below each section.

9-12 Content (continued)

22. The material emphasizes <i>science and technology</i> .	Rating:	Provide evidence for your rating:
22a. Abilities of technological design	N M R C	
22b. Understandings about science and technology	N M R C	

23. The material emphasizes the <i>personal and societal dimensions of science</i> .	Rating:	Provide evidence for your rating:
23a. Personal and community health	N M R C	
23b. Population growth	N M R C	
23c. Natural resources	N M R C	
23d. Environmental quality	N M R C	
23e. Natural and human-induced hazards	N M R C	
23f. Science and technology in local, national, and global challenges	N M R C	

24. The material accurately presents the <i>history and nature of science</i> .	Rating:	Provide evidence for your rating:
24a. Science as a human endeavor	N M R C	
24b. Nature of scientific knowledge	N M R C	
24c. Historical perspectives	N M R C	

9-12 Content (continued)

Circle:
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List specific evidence on the right and summarize your thoughts below each section.

25. The material emphasizes the content of <i>physical science</i> .	Rating:	Provide evidence for your rating:
25a. Structure of atoms	N M R C	
25b. Structure and properties of matter	N M R C	
25c. Chemical reactions	N M R C	
25d. Motions and forces	N M R C	
25e. Conservation of energy and increase in disorder	N M R C	
25f. Interactions of energy and matter	N M R C	

26. The material emphasizes the content of <i>life science</i> .	Rating:	Provide evidence for your rating:
26a. The cell	N M R C	
26b. Molecular basis of heredity	N M R C	
26c. Biological evolution	N M R C	
26d. Interdependence of organisms	N M R C	
26e. Matter, energy, and organization in living systems	N M R C	
26f. Behavior of organisms	N M R C	

27. The material emphasizes the content of <i>earth and space science</i> .	Rating:	Provide evidence for your rating:
27a. Energy in the earth system	N M R C	
27b. Geochemical cycles	N M R C	
27c. Origin and evolution of the earth system	N M R C	
27d. Origin and evolution of the universe	N M R C	

To determine how these materials align with the course/grade level, use a highlighter marker to emphasize which indicators match the standards for your course/grade level

Summary Comments on 9-12 Content

Continue to p. 21 to complete evaluation

B. Delivery of Instruction/Best Practices

Are teaching strategies in this material consistent with the NSES and Best Practice in science education?

Rating:

Provide evidence for your rating:

Circle:
 N for No
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 C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

28. The material is developmentally appropriate for the targeted audience.	N M R C
29. The material suggests ways to determine what students already think about the ideas to be studied and alerts teachers to common misconceptions.	N M R C
30. The material takes into account what students already know, what they think, and what they will learn.	N M R C
31. The material provides students the opportunity to make conjectures, gather evidence, and develop arguments to support, reject, and revise their explanations for natural phenomena.	N M R C
32. Instruction format frames questions for investigation rather than distributing facts and ideas.	N M R C
33. The material engages students in active learning experiences when appropriate and possible.	N M R C
34. Activities are deliberately designed to extend thinking.	N M R C
35. The material uses varied instructional methods that address the diverse ways students learn content and ideas (e.g. projects, seminars, peer teaching, independent study, lecture/discussion, individual and group work, hands-on activities, reflective thinking, etc.)	N M R C
36. The material incorporates technological applications of science and emphasizes the interactions among science, technology, and society.	N M R C
37. The material includes historical examples from various cultures to help students understand the nature of scientific inquiry and the connections between science and society.	N M R C
38. The material reflects how scientists think.	N M R C
39. The material suggests ways to connect science with other learning experiences in the curriculum, such as mathematics, language arts, and social studies.	N M R C
40. The material includes making connections to other ideas and/or to different ways a concept might be used across disciplines.	N M R C
41. Terms are introduced 'as needed' to facilitate communication.	N M R C

Delivery of Instruction/Best Practices (continued)

Are teaching strategies in this material consistent with the NSES and Best Practice in science education? (continued)

Rating: _____

Provide evidence for your rating: _____

Circle:

N for No

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C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

42. Technology is appropriately used in the instruction to enhance understanding. **N M R C**

43. Instructions on manipulating laboratory equipment and materials are clear and adequate. **N M R C**

44. Appropriate safety precautions are included. **N M R C**

Summary Comments on Delivery of Instruction/Best Practices:

C. Assessment

Are the assessments designed with explicit purposes and are they fair to all students?

Rating:

Provide evidence for your rating:

- | | |
|--|----------------|
| 45. Assessment strategies are well aligned with the outcomes and instruction. | N M R C |
| 46. Assessments align with the content and skills to be learned. | N M R C |
| 47. A variety of assessment strategies is included, e.g. performance, paper/pencil, portfolios, student interviews, embedded, and project assessments. | N M R C |
| 48. Assessment strategies suggest how to use results to inform instruction. | N M R C |
| 49. Assessment strategies suggest how to report student achievement. | N M R C |
| 50. Assessment strategies promote student self evaluation. | N M R C |
| 51. Assessments are free from bias. | N M R C |
| 52. Assessments are designed with knowledge of and respect for diverse learning styles, and modifications and adaptations are suggested. | N M R C |
| 53. Assessment strategies are manageable and efficient in a classroom. | N M R C |

Summary Comments on Assessment:

D. Equity

Does the material allow for diversity and promote high expectations for all students?

Rating:

Provide evidence for your rating:

Circle:
 N for No
 M for Minimal
 R for Regularly
 C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

- | | | | | |
|--|----------|----------|----------|----------|
| 54. The material provides alternatives for the diversity of student needs, experiences, and backgrounds. | N | M | R | C |
| 55. The material is interesting, engaging, and effective for both girls and boys. | N | M | R | C |
| 56. The material is accessible, interesting, engaging, and effective for underrepresented and underserved students (e.g. ethnic/racial, urban/rural, socioeconomic, with disabilities, primary language.) | N | M | R | C |
| 57. The material reflects the diversity of our society through activities, use of language, illustrations, and examples. | N | M | R | C |

Summary Comments on Equity:

E. Goals of Science Teaching and Learning

Circle:
 N for No
 M for Minimal
 R for Regularly
 C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

Are the goals of the material consistent with the NSES?	Rating:	Provide evidence for your rating:
58. The material provides evidence that it correlates with the national standards.	N M R C	
59. The sequence of activities is logical and builds conceptual understanding over several lessons.	N M R C	
60. The material provides for student options based on ability, interest, and learning goals.	N M R C	
61. The material provides opportunities to practice scientific reasoning.	N M R C	
62. The material stimulates students' interest and relates to their daily lives.	N M R C	
63. The material provides opportunities for students to work collaboratively.	N M R C	
64. The material encourages student access to the world beyond the classroom.	N M R C	
65. Experiments and activities promote student understanding of how scientists come to know what they know and how scientists test and revise their explanations.	N M R C	
66. The material promotes the learning of science through inquiry.	N M R C	
67. The material develops curiosity, respect for evidence, flexibility, and sensitivity to living things.	N M R C	
68. Excess material is omitted (less is more).	N M R C	

Summary Comments on Goals of Science Teaching and Learning:

F. Implementation

Circle:
 N for No
 M for Minimal
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 C for Consistently

List specific evidence on the right and summarize your thoughts below each section.

How will the material work in your district?	Rating:	Provide evidence for your rating:
69. The material aligns with district goals.	N M R C	
70. The material aligns with district standards.	N M R C	
71. Supplementary materials included in the package are useful.	N M R C	
72. Material has special features that make it especially useful (e.g. copy policy, user-friendly for teachers/students, calls for use of inexpensive materials, etc.).	N M R C	
73. The omissions or weaknesses in the material will not be hard to work around.	N M R C	
74. The school district can afford to buy and sustain the material.	N M R C	
75. The school district will support the implementation of the material.	N M R C	
76. The drawbacks of the material are not fatal to its success in the district.	N M R C	

Summary Comments on Implementation:

Summary Evaluation

Use your ratings and the “Summary Comments” in each section of the Curriculum Materials Selection Tool to summarize your evaluation on the chart below. Mark a + if the criterion is exceptionally well satisfied; a √ if it is adequate; and a O if it is lacking or inadequately met. Add explanations as needed in the comments column. Meet with others doing the evaluation and come to consensus on the material that best fits your district curriculum framework. Then make your best recommendation on whether the material should be adopted or not.

<i>Criteria</i>	<i>+, √, O</i>	<i>Comments</i>
A. Content is appropriate and standards based (Questions 1 – 28).		
B. Instruction is grounded in best practice (Questions 29 – 45).		
C. Assessment is appropriate and equitable (Questions 46 – 54).		
D. Equity issues are addressed appropriately (Questions 55 – 58).		
E. The materials promote and support the goals for science teaching and learning (Questions 59 – 68).		
F. Implementation of these materials in our district is feasible. (Questions 69 – 76).		

Recommendation with justification:

 Evaluator: _____ Date _____

Program Resources

American Association for the Advancement of Science. (1993). *Benchmarks for scientific literacy*. Washington, DC: Author.

Anderson, R. D., & Pratt, H. (1995). *Local leadership for science education reform*. Dubuque, IA: Kendall/Hunt Publishing.

Bybee, R. W. (1997). *Achieving science literacy*. Portsmouth, NH: Heineman Publishing.

Bybee, R. W. (Ed.). (1996). *National standards and the science curriculum: Challenges, opportunities, and recommendations*. Dubuque, IA: Kendall/Hunt Publishing Company.

Bybee, R. W., & McInerney, J. D. (Eds.). (1995). *Redesigning the science curriculum: A report on the implications of standards and benchmarks for science education*. Colorado Springs, CO: BSCS.

Bybee, R. W., Buchwald, C. E., Crissman, S., Heil, D. R., Kuerbis, P. J., Matsumoto, C., & McInerney, J. D. (1989). *Science and technology education for the elementary years: Frameworks for curriculum and instruction*. Washington, DC: The National Center for Improving Science Education.

Bybee, R. W., Buchwald, C. E., Crissman, S., Heil, D. R., Kuerbis, P. J., Matsumoto, C., & McInerney, J. D. (1990). *Science and technology education for the middle years: Frameworks for curriculum and instruction*. Washington, DC: The National Center for Improving Science Education.

Collins, A. (1996). National science education standards: Qualities and quandaries. In R. Bybee (Ed.), *National standards and the science curriculum: Challenges, opportunities, and recommendations*. (pp. 34-39). Dubuque, IA: Kendall/Hunt Publishing.

Lowery, L. (Ed.). (1996). *NSTA pathways to the science standards: Guidelines for moving the vision into practice*. (Elementary school ed.). Arlington, VA: National Science Teachers Association.

National Center for Improving Science Education. (1989). *Getting started in science: A blueprint for elementary school science education*. Washington, DC: The NETWORK.

National Center for Improving Science Education. (1991). *The high stakes of high school science*. Washington, DC: The NETWORK.

National Research Council. (1996). *National science education standards*. Washington, DC: National Academy Press.

National Science Resource Center. (1997). *Science for all children: A guide to improving science education in your school district*. Washington, DC: National Academy Press.

Simpson, P., & Wallace, M. (Developers) (nd). *Transforming teacher education: A Minnesota framework for mathematics and science*. St. Paul, MN: SciMath^{MN}.

Sivertsen, M. L. (1993). *Transforming ideas for teaching and learning science: A guide for elementary science education*. GPO 065-000-00599-9. Washington, DC: U. S. Government Printing Office.

Texley, J., & Wild, A. (1996). *NSTA pathways to the science standards: Guidelines for moving the vision into practice*. (High school ed.). Arlington, VA: National Science Teachers Association.