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AUTHOR Dougherty, Barbara B.; Ellibee, Margaret A.
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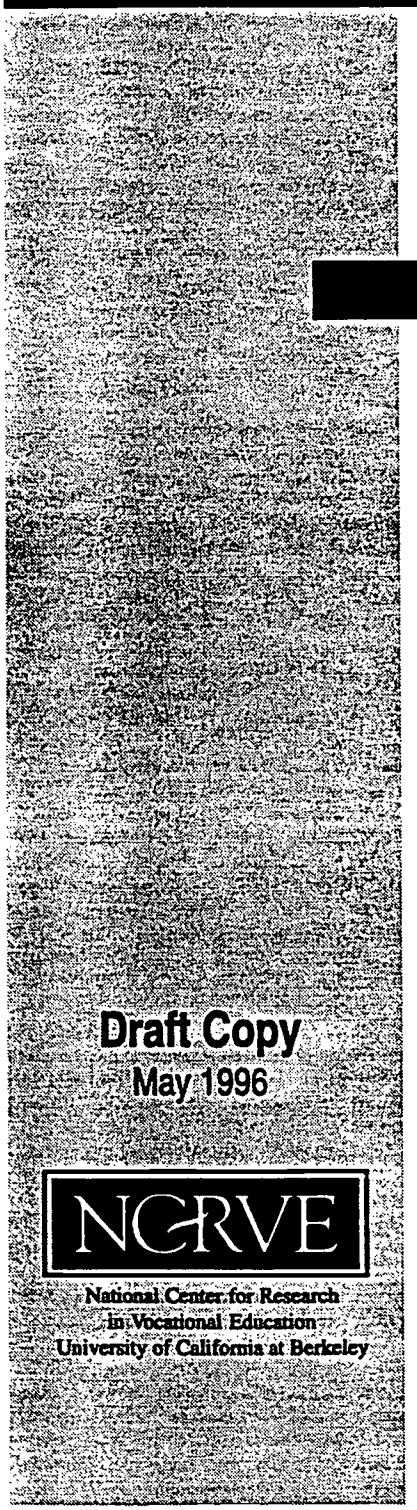
ABSTRACT

This guide to curriculum quality standards for vocational education begins with an outline of potential uses for the standards and indicators. The next section provides a list of the standards and indicators developed by the national task force of NCPQ (National Consortium for Product Quality). The standards guide the NCPQ curriculum review process. They are broad, qualitative ideals of what is valued in instructional products. The indicators represent essential attributes that support the standards and can be designed by the user to evaluate materials in an objective or measurable manner. These standards are listed: content, instructional, student assessment, and equity/diversity. The following section describes the two-phase process that is the NCPQ curriculum product review. The document concludes with a sample product review; a list of sources of technical assistance, including Internet sites, state vocational and technical education curriculum centers, and state liason representatives; a glossary of terms, a list of NCPQ Task Force members; and NCPQ standards and indicators. Contains approximately 125 references. (YLB)

National Consortium for Product Quality



Curriculum Quality Standards for School-to-Work: A Guidebook

Barbara Dougherty
Margaret Ellibee
Co-Directors, NCPQ

Contact Barbara Dougherty and Margaret Ellibee, Project Co-Directors

800-446-0399

Center on Education and Work
1025 West Johnson Street
Madison, Wisconsin 53706

bdougherty@soemadison.wisc.edu
mellibee@soemadison.wisc.edu

World Wide Web Home Page:
http://www.cew.wisc.edu

National Center for Research
in Vocational Education
University of California at Berkeley

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Table of Contents

While other fields at the secondary level have rapidly embraced national curriculum standards and goals, School-to-Work programs continue to vary widely in content, scope, and methodology across the nation. At present, the notion of establishing "national standards" in this content area has focused largely on developing industry skill standards.

Yet in today's changing world of work, critical evaluation of curriculum is a helpful step toward realizing national goals (such as those outlined in Goals 2000) for education and in fulfilling the vision of new and emerging vocationalism (e.g., Tech Prep, youth apprenticeship, and career academies). Standards for curriculum and instructional products, encompassing appropriate student outcomes and highly effective instruction, would establish important benchmarks for products used by schools and postsecondary institutions in implementing School-to-Work initiatives.

The NCPQ

The National Consortium for Product Quality (NCPQ) is a project funded by the National Center for Research in Vocational Education, and directed by the Center on Education and Work, University of Wisconsin-Madison. The NCPQ has been established to accomplish a twofold mission: to develop, research, and implement School-to-Work instructional material standards, and to develop a national review process by which voluntarily-submitted materials can be reviewed, evaluated, and nationally disseminated.

Using information from curriculum practitioners nationwide, the NCPQ Curriculum Quality Standards guidebook before you is designed to assist practitioners in examining curriculum products, adapting materials, or creating original curriculum. The NCPQ strives, through research and technical assistance, to improve curriculum design and practice. By discussing the focus areas of the Standards, and by documenting good examples that are currently in practice, we hope to provide a richer foundation for your efforts to integrate curriculum design, content, and use. Successful implementation, and subsequent meaningfulness to the learner, are essential components in the process of curriculum development and evaluation. Bearing this fact in mind, we intend this guidebook to present a connected or integrated approach regarding curriculum development and curriculum evaluation.

NCPQ Services

The NCPQ provides research-based evaluation and technical assistance for local, state, and national developers of curriculum and instructional materials. Its members assist in curriculum networking, identifying curriculum search sources, and reviewing submitted curriculum or printed instructional material. The NCPQ Standards and Indicators provide developers with an essential tool for evaluating both new and existing materials for content, instructional strategies, assessment, and equity and diversity considerations. When curriculum developers submit materials to the NCPQ for formal review, they are assured of a high-quality third-party review and evaluation of materials. The submitted materials may also have the opportunity to progress to a national review, receive awards, and gain valuable exposure via inservice, curriculum networks and organizations, and NCPQ Product Profiles and newsletters.

The NCPQ was formed to serve the education field by advancing curriculum design and practice through meaningful research and technical assistance. National use of the NCPQ Standards, and the opportunity to apply these standards to a host of instructional materials, will help create a positive interface of curriculum design, content, and program use. In the end, that successful interface is critically important to the ultimate beneficiaries of our work: our students.

Uses of the NCPQ Standards

Educators and community members will find that the Instructional Material Quality Standards established by the NCPQ lend themselves to a wide range of uses, some of which are outlined below.

For curriculum development teams and instructors, the Standards can

- Provide a basis for curriculum design and development;
- Assist in analyzing and evaluating current curriculum and other instructional resources;
- Provide a component to curriculum planning that assesses student outcomes relative to teaching methodologies and student assessment techniques.

Administrators may use these Standards to

- Conduct curriculum reviews;
- Adapt or adopt curriculum;
- Evaluate instructional resources and support;
- Establish local curriculum standards and policies;
- Evalute programs.

For local governing boards' education-business partnerships, the Standards can

- Form an information base to evaluate curriculum content and instructional design;
- Provide an evaluative framework for curriculum adaptation or adoption;
- Form a basis for curriculum planning issues by creating an awareness of national standards and goals;
- Benchmark local curriculum to industry skill standards and education goals.

Teacher educators will find the Standards useful to

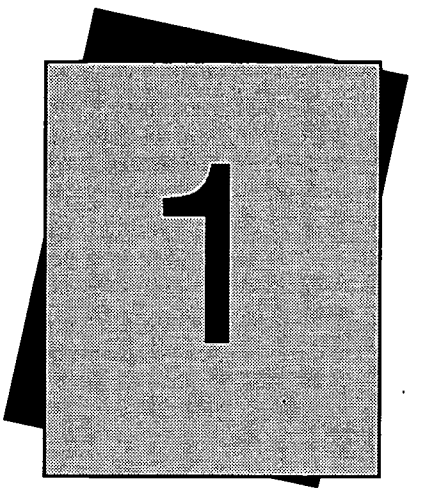
- Provide students with guidelines for analyzing and evaluating curriculum and other instructional resources;
- Design courses and workships on curriculum;
- Provide students with essentials elements to plan programs, develop courses, and create awareness of national standards and goals.

For State Departments of Education personnel, the Standards can:

- Provide a guide for curriculum development;
- Act as a tool to appraise the status of curriculum and other instructional resources used within the state;
- Assist in appraising instructional materials under consideration for state adaptation/adoption action.

Benefits for students include:

- Readily-available details of program outcomes and skills required;
- Accurate information regarding instructional activities and assessment standards.



NCPQ Standards and Indicators

What Constitutes a Meaningful Curriculum Evaluation?

Developed to help practitioners, curriculum developers, and teacher educators enhance the quality of school-to-work curriculum, the NCPQ Standards and Indicators provide an essential tool for evaluating curriculum materials for content, instructional strategies, student assessment, and equity/diversity considerations. A comprehensive curriculum evaluation provides practitioners with a host of information: it guides educators who are considering a curriculum for adoption, it assists curriculum developers in making specific revisions and enhancements, and it guides future curriculum development efforts designed to expand or supplement quality curriculum content. A comprehensive evaluation assists not only the curriculum developer, but also the curriculum implementor--whether classroom instructor, administrator, or curriculum committee--in making informed choices about curriculum materials to guide the teaching-learning process.

The NCPQ Standards - What Might They Look Like in Curriculum Materials?

The NCPQ Standards and Indicators encourage curriculum practitioners to evaluate materials for content, instructional strategies, assessment, and equity and diversity considerations. The Standards are broad, qualitative ideals stating what is valued in curriculum materials. The Indicators represent tangible attributes that support the standards. The Standards are listed in a statement format, while the Indicators appear in a question format. *For a complete listing of the Standards and Indicators, turn to Appendix C.*

For example, within the Content Standard, one Indicator asks, "To what extent has the content incorporated appropriately validated skills, tasks, and/or competencies?" Although this Indicator statement evokes a direct question, it leaves the potential answer of "how" to be determined by curriculum practitioners. In this section, the NCPQ offers tangible examples of "how" to implement the Standards and their associated Indicators. Note, however, that these examples are only suggestions or existing models. *They are by no means the exclusive recommendations or solutions.* In determining "how," curriculum practitioners must consider a spectrum of issues facing curriculum and education. Some of these issues are unique to each educational situation, while others are more common and applicable to most learning environments. Either way, the examples offered here are a basic gauge by which to measure a particular Indicator's presence in a curriculum.

Content Standard

School-to-Work education curricula must focus on the integration of academic foundations with career development, life skills, and occupational competencies.

Indicator

To what extent has the content incorporated appropriately- validated skills, tasks, and/or competencies?

National studies (e.g., *America 2000: An Educational Strategy*, [USDE, 1991]; *Workplace Basics: The Essential Skills Employers Want* [Carnevale, 1988]; *America and the New Economy* [ASTD and USDL, 1991]; *What Work Requires of Schools: A SCANS Report for America 2000* [SCANS, 1991]) have identified skills that are essential for successful workforce training and development and for the nation's economic development. To ensure that curriculum content addresses the issues raised in these national studies, the curriculum should address the following concerns:

- **Has the content been validated by industry?** Does documentation indicate a business/technical advisory committee was used to validate the curriculum content? For example, the Associated General Contractors of America (AGC) carpentry curriculum content and associated skills were cooperatively validated by two committees consisting of educators, curriculum developers, carpenters, and construction professionals.

- **What is the copyright/publication date of the curriculum content?** What was the last revision date, and who conducted the revision?

- **Has the content been certified by licensing and certifying agencies when appropriate?** If the material covers an apprenticeship or a specific occupation requiring licensing or certification, was an appropriate licensing agency involved? For example, the Electronics Industry Association was involved in developing the *Electronics Technician Skills for Today and Tomorrow* skill standards publication.

Content

■ **Has the content been field tested?** Do commentary, trial results, and/or data indicate that the content has been field-tested prior to final publication/development? Has it been used in the classroom?

■ **Are all aspects of the industry presented?** As defined by the *School-To-Work-Opportunities Act of 1994*, "all aspects of an industry" means all aspects related to the particular industry (or industry sector) which a student is preparing to enter, including planning, management, finances, technical and production skills, underlying principles of technology, labor and community issues, health and safety issues, environmental issues.

■ **Is the academic content consistent with national standards?** If academic content is incorporated in the material, it should be consistent with the appropriate national standards. For example, material encompassing math should be consistent with the recommendations of the National Council of Teachers of Mathematics (NCTM); science-based materials should be consistent with the recommendations of the National Science Foundation, and materials involving Social Studies should be consistent with the standards recommended by the National Council for Social Studies.

Indicator

To what extent do the skills and competencies presented in the product correspond to workforce competencies and foundational skills indicated in the SCANS Report?

The *Secretary's Commission on Achieving Necessary Skills (SCANS) Report* skills and competencies, published and released in June 1991, were deemed necessary requirements of high school graduates or of persons entering the workforce—especially those expecting to become successful members of the workforce. The SCANS Foundational Skills and Competencies follow.

The SCANS Foundational Skills:

- **Basic Skills:** reading, writing, arithmetic/mathematics, listening, and speaking;
- **Thinking Skills:** creative thinking, decision making, problem solving, seeing through the mind's eye, knowing how to learn, and reasoning;
- **Personal Qualities:** skills concerning responsibility, self-esteem, sociability, self-management, and integrity/honesty.

The SCANS Competencies:

- **Resources:** time, money, materials and facilities, and human resources;
- **Interpersonal:** team member participation, teaching others, exercising leadership, negotiating, and working with diversity;
- **Information:** acquiring and evaluating information, organizing and maintaining information, interpreting and communicating information, and using computers to process information;
- **Systems:** understanding systems (e.g., complex inter-relationships), monitoring and correcting performance, and improving and designing systems;
- **Technology:** selecting appropriate technology for a task, applying technology, and maintaining and troubleshooting technology.

Example

The following matrix (from *Focus on Your Future...A Success Skills Planning Curriculum for Teens*) exemplifies the relationship of a curriculum's competencies to the SCANS Foundation Skills.

		SCANS Foundation Skills	Basic Skills					Thinking Skills						Personal Qualities				
			A. Reading	B. Writing	C. Arithmetic/Mathematics	D. Listening	E. Speaking	A. Creative Thinking	B. Decision Making	C. Problem Solving	D. Seeing things in the Mind's Eye	E. Knowing how to learn	F. Reasoning	A. Responsibility	B. Self-Esteem	C. Sociability	D. Self-Management	E. Integrity/Honesty
Chapter Headings	From *Success Skills for Teen Parents*																	
1.0	Assessment of Self-Esteem		●	●								●						
2.0	Assessment of Self-Talk		●	●								●						
3.0	Skills to Make Transitions		●	●				●	●	●	●	●		●			●	
4.0	Skills to Maintain Wellness		●	●								●						
5.0	Understanding One's Legal Rights		●	●														
6.0	Skills to Effective Communication		●	●			●					●						
7.0	Skills to Effective Listening		●	●		●						●						

Indicator

To what extent does the product include documentation of validated occupational, academic, career, and life skills and competencies to show where and how those skills and competencies are being incorporated?

Some of the curriculum materials reviewed by the NCPQ have documented skills using a simple matrix configuration or table, such as the example following. Others have been more detailed, and have documented the primary task or competency with supporting subskills, along with the occupational cluster and academic skill group the task is related to, and a description of the task. The following matrix (from *International Trade*, MAVCC, 1994) illustrates one type of design.

Example

Related Academic and Workplace Skills List
Unit 5: International Marketing

Task	Skill Group	Subskill	Description
Evaluate an international marketing plan	Foundation skills	Reading	Comprehending written information, and analyzing and applying what has been read to a specific task.
		Writing	Communicating a thought or idea in a written form in a clear, concise manner.
	Learning skills	Learning to learn	Developing the ability to apply knowledge to other situations.

Indicator

To what extent does the product identify performance levels for skills and competencies?

Performance levels for skills and competencies expected of students can be designated in the curricula in the following ways:

- Identified performance levels that include quantified figures or percentages;
- Competency or skill statements that allow for a "yes" or "no" response;
- Performance descriptions (of what the student will be able to do) that can be reflected in a rating scale.

Three examples follow (from *Food Science and Technology, Fundamentals of Carpentry,* and *Focus on your Future*) illustrate appropriate ways to state performance levels for skills and competencies:

Example

Introduction to Food Sciences. Unit 1 Outcomes: To receive a B for this unit, the student will complete 80% of each of the following outcomes.

Outcome 1: The student will be able to:

1. Define the study of food science and describe the main goal of food scientists.
2. Explain the interrelationship of food science and nutrition.
3. Identify and use laboratory equipment safely.
4. Write accurate and complete reports on food science experiments (Food Science Laboratory Report Form).
5. Know the requirements for working safely in a laboratory.

Example

Carpentry Measurement

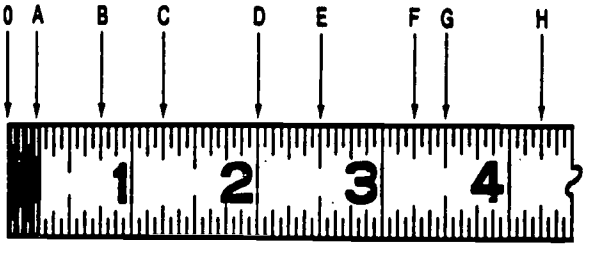
Assignment Sheets 1-2

Assignment sheet #1: Read measurements on carpenter's and engineer's rules.

Name: Score:

The first step in being able to make accurate measurements is to become familiar with the graduations on rules and how to read them. This assignment sheet will allow you to practice reading measurements on rules.

Read the carpenter's rule illustrated below to the nearest quarter inch. Write your answers on the lines provided.



1. 0 to A= _____
2. A to B= _____
3. 0 to C= _____
4. A to D= _____
5. B to D= _____
6. 0 to E= _____
7. C to E= _____
8 B to F= _____
9. D to G= _____
10. A to H= _____

Example

Competency 7.0: Locate, evaluate, and interpret career information.
Total time: 9 hours

- Indicator 7.01: Identify and utilize career information resources (e.g., computerized career information systems, print and media materials, mentors).
- Indicator 7.02: Describe information related to self-assessment, career planning, occupations, prospective employers, organizational structures, and employer expectations.
- Indicator 7.03: Describe the uses and limitations of occupational outlook information.
- Indicator 7.04: Identify the diverse job opportunities available to an individual with a given set of occupational skills.
- Indicator 7.05: Identify opportunities available through self-employment.
- Indicator 7.06: Identify factors that contribute to misinformation about occupations.
- Indicator 7.07: Describe information about specific employers and hiring practices.

Indicator

To what extent is the content current?
To what extent is the content accurate?

Locate the development date of the material. Does the content meet today's standards or requirements for the particular topic or subject area? A hallmark of the material's accuracy and currency would be the documentation of a content or skills validation process used by the material developer. Did incumbent workers or workplace professionals participate in developing the curriculum?

Indicator

To what extent is the content sequenced from basic to more complex concepts?
Is the content designed using coherent clusters or themes?
To what extent are the content objectives and learner objectives aligned?

The learning objectives, outcomes, or concepts should be designed with a meaningful order or approach in mind. However, according to Boyle (1981), "[A] logical order in the sense of the discipline may not be logical from the standpoint of the learner" (p. 52). Bearing this concept in mind, examine the material and note whether the following characteristics are present as they relate to sequenced concepts:

- When pieced together, do the sequenced or clustered concepts reflect the "big picture" of the content area?
- Is the sequenced or clustered content (i.e., embedded concepts) going to be of specific value to the learner (Boyle, 1981)? Is this value stated in the material?
- Is the content (and its concepts) attainable and relevant to the learner in the programming/instructional situation in which it is being implemented?

Boyle, P.G. (1981). *Planning better programs.* New York, NY: McGraw-Hill, Inc.

Indicator

To what extent is the content presented in an interesting and appealing manner geared toward diverse student audiences?

In 1987, John Kellor developed the ARCS (Attention, Relevance, Confidence, and Satisfaction) Model, which focuses on "influencing learners' motivation to learn and for solving problems with learning motivation" (Smith and Ragan, 1993, p. 310). The model can be a useful tool to consider when examining instructional materials and related instructional strategies for opportunities to heighten student interest and relevancy. The ARCS Model includes the following components:

Attention Strategies (included in the curriculum material and supporting instruction) draw the learners' attention to the material and "frequently involve very specific techniques of content presentation or treatment" (Ibid). Examples of these strategies include:

- Incongruity and conflict: The instructor introduces issues and topics that apparently counter student experience, playing "devil's advocate" (Smith and Ragan, 1993);

- Concreteness: The instructor acts on opportunities in the material (or instruction) for visual and verbal presentations, as well as applied practice;
- Variability - the material encourages diversity in instructional format, medium of instruction, layout and design of the instructional material, and learner interaction patterns (e.g., student with instructor, and student with student);
- Humor;
- Inquiry: the material includes problem-solving activities, "providing opportunities for learners to select topics, projects, and assignments" (Ibid, p. 311); and
- Participation: Learning experience encompasses activities such as work site shadowing/experiences, role playing, and/or simulations. "Attention strategies should direct the learners' attention to the task" (Ibid).

Relevance Strategies included in the curriculum material and supporting instruction influence how the content and supporting learning task/outcome/objectives are presented to the student. These strategies could include:

- Experience: The content should build upon the learners' present skills and backgrounds. The analogies drawn in the material should help the students recall personal experiences. The content should be adapatable to student interests.
- Present worth: The content should have an immediate purpose.
- Future usefulness: The instructional goals should be linked to the learners' goals.
- Need matching: The content should include activities that allow learners to "exercise responsibility, authority, and influence" (p. 311).

Confidence Strategies focus on particular "learner performance" included within instructional material, making the content more interesting and appealing to the student. Examples of confidence strategies are: incorporation of learning goals into the instructional materials; learning activities sequenced in order of increasing difficulty that provide a continual challenge; informing students of success given different levels or choices of effort; encouraging students to develop a internal locus of control with regard to learning activities; providing practice skill sets and example techniques" (p. 311-312).

Satisfaction Strategies that can influence interest and motivation include:

- Natural consequences
- Unexpected rewards
- Positive outcomes
- Avoiding negative influences
- Scheduling

The instructional material can better serve diverse student audiences if aspects of these strategies appear in the content.

In addition to the examples included in the ARCS Model, material should actively represent learners of both sexes, and of various ethnic and cultural backgrounds. The content should be free of any bias.

Smith, P.L. and Ragan, T.J. (1993). *Instructional design.* New York, NY: Macmillian.

Indicator

To what extent are career development, career awareness, and mobility incorporated throughout the instructional content?

When career values are reflected in curriculum, students see the connection between learning and "real life." These integrated concepts allow students to adapt to changing work requirements. The following example illustrates how these concepts may appear within an instructional resource.

Example

The CIMC *Forestry Curriculum Guide* (1991) exemplifies an integrated career education unit within a specific occupational curriculum. In addition to career references and resources in each unit, the guide contains an entire unit entitled "Investigate Forestry Career Opportunities." The unit objectives (see below) and related supplements (e.g., "What You Need to Succeed [in forestry]," "Meet The People Who Work In Forestry") detail the following components:

- Terms associated with forestry careers
- Forestry Profession Facts
- Forestry-Related Areas of Study
- Educational Requirements for Nonprofessional and Profes sional Forestry Positions
- Identifying Personal Requirements for a Career in Forestry
- Advantages and Disadvantages of a Forestry Career
- Organizations that Employ Foresters
- The Communication Skills Required in Forestry

The unit itself depicts women in non-traditional occupational roles, uses culturally inclusive language, and offers the student a breadth of forestry-related career knowledge.

Indicator

To what extent does the curriculum product address the following concepts:

- **Are vocational and academic skills integrated?**
- **Are employability and life skills (e.g., getting to work on time) included?**
- **Is inclusive language used?**
- **Is transferability of learned skills/knowledge emphasized?**

Example

The following example is excerpted from curriculum material developed by a high school in Brooklyn, New York. The material is designed for the school's integrated Health Occupations program, and addresses in part the diverse ethnicity of its students. A unit outline from that curriculum (shown below) gives students an opportunity to experience the integration of vocational and academic skills, an emphasis on life skills, and an expansion of knowledge regarding the diversity and commonalities among people and cultures.

The Cycle of Life: Activities of Daily Living/Life Skills

Core Focus: How do different cultures deal with death and dying? Students will:

- Discuss death, cultural differences in acceptance.
- Identify strategies used to prepare for approaching death.
- Describe ways that one person's death can benefit other members of society (e.g., living wills, organ donations).

Global Studies: How do people from India deal with death? Students will:

- Investigate how death is accepted in Indian cultures.

English: How might we reconcile the approaching death of an elderly loved one? Students will:

- Read and discuss "Sixteen" by Jessamyn West. This short story is about a teenager's acceptance of a grandparent's approaching death.

Math: How does the death rate increase as age increases?
Students will:

- Use ratios to compare statistical information on death rates in different cultures, correlating age with other health-related factors.

Instructional Standard

School-to-Work curricula, through active and applied learning experiences in school, community, and work-based settings, enable students to acquire problem-solving, communication, and reasoning strategies.

Indicator

To what extent do the instructional strategies include active and meaningful learning experiences that correspond to stated student outcomes?

Effective instruction engages learners in the process of learning rather than merely transmitting information for them to receive. Relevant experiences promote learners' active involvement and bring the classroom closer to—or into—their future work environments. Moreover, active learning experiences must be meaningful. They should relate to the "real world" and, most importantly, the learning experience should bring about the desired student knowledge and skills. Do the instructional strategies in the material reflect real-world problems, issues, and experiences? Do they align with what the student is expected to know and be able to do? The following example (from *Analyze and Apply--A Guide to Connect Learning to Performance*) illustrates two active and meaningful learning experiences directly related to a stated outcome.

Example

Student Proficiencies: Core proficiencies for success:

1. Demonstrate initiative by critically assessing problems, visualizing and implementing creative solutions.
2. Behave cooperatively as a member of a team.
3. Read for information and application.

Focus Content Proficiencies: Communications

1. Gather evidence to support a specific point of view
2. Deliver a persuasive presentation.
3. Apply critical listening skills to gain relevant information.

Related Content Proficiencies: Social Studies

1. Identify state, county, and municipal laws and procedures which govern construction and purchase of property, including the process of eminent domain.

*Activity 1: Roadway hearing workplace situation**

1. Present roadway hearing workplace situation.
2. Describe the purpose of public hearings: to decide issues when two sides hold opposite views related to governmental action. In this unit, students will have the opportunity to speak for or against the road improvements.
3. Designate "state" and "resident" sides of the room; each student will choose his or her position and move to the appropriate side of the room.
4. Have each group review workplace situation and draw a sketch of the roadway and its surroundings.
5. Ask the groups, state and resident, to compare sketches and agree upon a drawing and technical details that are acceptable to both sides.
6. Explain that the whole group will erect a contour replica from the drawing of the one-mile roadway that will be used as reference throughout the unit; seek volunteers to bring in miniature houses, clay, etc. to construct a replica of the roadway on permanent board the next day.
7. Split the class into pairs (teams): each student will choose a partner from the same "side" of the room (state or resident) to be his/her partner for this unit.

Note: Replica construction. The whole group or a subgroup could construct the replica prior to the next class session. The construction could happen in connection with an art class and/or instructor, if appropriate. If necessary, the replica can be constructed during class time. The class will provide the technical specifications--number of houses, crossroads, trees, driveways, curves, hills, etc.

NCPQ Note: Please note that Activity 1 exemplifies some but not all of the stated student proficiencies (outcomes) for the unit. However, the complete set of activities designed for this unit covers all the proficiencies identified.

Indicator

To what extent do the instructional strategies include teaching techniques that support/reflect the enhancement of the SCANS thinking skills: creative thinking, decision making, problem solving, seeing things in the mind's eye (e.g. organizing and processing symbols, pictures, graphs and other information), knowing how to learn, and reasoning?

Intellectual processes are critical to meeting the challenges of advancing technology and of keeping pace with the rapid changes occurring in the workplace. Thinking skill development is critical for workforce participation. Within the curriculum material, are the instructional strategies designed to develop students' problem solving, decision making, knowledge production, and analytical thinking skills? The following example, from *Developing Entrepreneurial Attitudes*, illustrates an instructional strategy that emphasizes the SCANS thinking skills:

Example

Learning Task: Use CAD to design and develop a package.

You are the president and owner of an independent specialty packaging company. A firm that is developing new hot and cold packs to be marketed to the sports trade has hired you to design the most cost-effective package for the product. You're also asked to ensure that the package has a minimal environmental impact. You have been given permission to consult with the chemistry department and the marketing department of the firm.

- Determine the relationship of surface area to volume and develop the most cost-effective package.
- Consult the marketing department for their suggestions and design requirements.
- Consider various packaging materials and compare the costs.
- Consider the environmental impact of possible materials and be able to justify your final decision.
- Make a scale drawing of your package.
- Make a model of your package.

Indicator

To what extent do the instructional strategies incorporate team or small group projects?

Including teams or small-group projects and cooperative learning activities within an instructional material lends a "real life" touch to classroom experience and fosters greater learning for many students who learn best in that environment. Do some of the learning tasks in the material build around this concept? The following example, from *Guide for Integrated and Applied Curriculum, Instruction, and Assessment*, illustrates the concept of team or small-group projects.

Example

Learning Task: Cut School Budget

Your task force of three to five people has been charged by the school board to suggest ways to cut the total school budget by 20%. The school board members will depend on your work to defend their position regarding all cuts. Your task entails the following:

- Identify a process you would use to prioritize the cuts.
- Document how these changes would affect program needs, curriculum, learning atmosphere, user fees, and extracurricular activities.
- Identify the effects of this cut on a family (two school-aged children) that pays property tax, of which $500 goes toward the school budget.
- Work effectively in a group.
- Create a quality product, process, or performance that will enable the school board to make appropriate budget cuts and to defend those cuts to the general public.
- Identify a compelling personal interest and pursue it by creating strategies and policy to effect change in one's life and in the greater society.

Indicator

To what extent do the instructional strategies encourage students to interact with each other, instructors, and the community? For example, do they encourage students' articulation and reflection on a particular learning experience?

Interactions between and among students, instructors, and community members broaden and enhance students' learning experiences. Interactions also strengthen students' abilities to become competent learners in the changing workplace. Interaction strategies can take the form of teaching experiences for students, as exemplified in the *Food Science* curriculum by Interdisciplinary Resources, Inc. In this example, students articulate and reflect upon their own learning with peers, with instructors, and with students several years younger.

Example

Learning Activity: Mentoring in the elementary or middle school.

In this learning activity, you will share your knowledge in the area of Food Science with elementary/middle school students. You may choose to work with one partner on this mentorship. Your presentation must have instructor approval from the beginning. School field trip procedures will be followed for this activity.

Procedure:

1. At a time that is convenient to the program, arrange a conference outside of class with Food Science instructor.
2. Communicate with the instructor of the school you'll be visiting.
3. After the conference, complete an outline of the proposed mentor project. The outline must meet instructor approval, and should include the following:
    a. Purpose of the project.
    b. Objectives and Goals.
    c. Activities to be completed by the students.
    d. Explanation of any displays, visual aids, and handouts.
    e. Outline of verbal presentation.
    f. Outline of evaluation.

4. Have a practice session with instructor and/or Food Science class.
5. Upon completion of your presentation, summarize the success of the experience, including suggestions for the future.

Indicator

To what extent do the instructional strategies develop students' critical thinking and problem-solving skills?

Now more than ever, intellectual processes are critical to meeting the challenges of technological advancement and keeping pace with the rapid changes occurring in the workplace. Workplace skills have shifted from concrete to abstract tasks. Do the instructional emphases in the material reflect this shift? The example that follows illustrates an instructional strategy designed to develop students' higher-order thinking skills.

Example

Formulate and solve the following problems:

a. You have 10 items to purchase at a grocery store. Six people are waiting in the express lane (10 items or fewer). Lane 1 has one person waiting, and lane 3 has two people waiting. The other lanes are closed. What check-out line should you join?

b. You are considering purchasing one of two cars, both four years old. One car costs $3000 and gets 20 miles per gallon. The other costs $4500 and gets 35 miles per gallon. Which car is the best buy if you plan to keep it two years?

What additional information do you need to answer these questions?

One aspect of formulating problems is identifying whether additional information is needed. Neither of the problems above provides all the information needed to make a decision. Students need to identify the missing information and the likely estimates for the missing quantities. In question *a*, the number of items each person has and the speed of the checkers are considerations. In problem *b* the number of miles traveled each year, the price of gasoline, and cash available are

speed of the checkers are considerations. In problem *b* the number of miles traveled each year, the price of gasoline, and cash available are two considerations. If money has to be borrowed to purchase the more expensive car, the loan can make a difference.

These problems are appropriate for individual or small-group work. Notes can be kept on the variety of questions generated and what additional information is assumed in class, and instructors can observe the willingness of students to engage themselves in finding the necessary information. Calculators are important for question *b*.

(From *Measuring What Counts: A Conceptual Guide for Mathematics Assessment.* Mathematical Science Educational Board, National Research Council, 1993)

Indicator

To what extent do the instructional strategies develop students' skills of writing, speaking, listening, and following directions?

Effective learning projects build on a base of integrated knowledge—content—that incorporates other critical skills and compencies, and provides opportunities for students to develop writing, speaking, and listening skills. Does the material provide opportunities for students to engage and integrate these critical skills? The following instructional strategy, from *Developing Entrepreneurial Attitudes*, illustrates the development of students' critical skills of writing, speaking, listening, and following directions.

Example

Assignment Sheet 5

Many businesspeople might define "business sense" differently, and their definitions are equally valid. All will argue, however, that business sense is essential to an entrepreneur's success, and each businessperson's definition of business sense should give you additional insight into entrepreneurial thinking skills. The following exercise will enable you to discuss business sense with a successful entrepreneur and to consider its relationship to creativity in the business world.

Reading assignment: Read the information presented in the following component.

Objectives: Identify major aspects of entepreneurial thinking and their definitions. Identify the characteristics of a person with business sense, and define those characteristics.

Activity checklist: Cross off each activity below as you complete it.

1. Your instructor will invite a group of local entepreneurs to your class. Your class will be divided into groups, and each group will be assigned one entrepreneur to interview, using the interview outline on the next page. Each student in the group should take notes during the interview process.
2. Using the notes each person has taken during the interview, your group will work together to write an essay that describes the business sense of the entrepreneur your group interviewed.
3. Turn in your essay to your instructor for evaluation.
4. Your instructor will return your essay with suggestions for improvement. Make the improvements your instructor suggests, and return your essay to your instructor for final evaluation.
5. Your group will then make a class presentation on the information included in your group essay.

Indicator

To what extent do the instructional strategies provide the students with real-world experiences (both in and out of the classroom) which reinforce academic and technological applications?

"Real world" learning projects integrate academic and School-to-Work or occupational skills to reflect authentic life and work situations, and they afford opportunities for students to witness the diversity (specifically regarding gender, race, ethnicity, and disability) of today's workforce. Does the material include authentic learning projects in which students can apply knowledge and skills to complex "real world" problems? The two following instructional strategies are designed to incorporate real-world experiences to reinforce the desired academic and technological learning.

Example

Assignment sheet 2: (from *The Entrepreneurial Workplace,* by the MAVCC)

Activity checklist: Cross off each activity below as you complete it.

1. Your instructor will divide your class into groups, with at least three students to a group. Your group should study the information provided in the following scenario.

2. Design a benefits package for ENTY's employees. Prepare a written report describing your benefits package and justifying your group's selections. Provide cost figures for each benefit your group selects.
3. Turn your benefits package report in to your instructor for evaluation.
4. Your instructor will return your report with suggestions for improvement. Make the improvements your instructor suggests, and then return your report to your instructor for final evaluation.

ENTY Scenario: Wanda Marker hated the way her car and her lawn furniture rusted. Using her past experience as a chemist, Wanda developed a new paint product that prevented metal from rusting. She then borrowed money to modify second-hand equipment, set up a production line in her barn, and ENTY was born.

- ENTY has 75 employees.
- Fifty-five of the employees are between the ages of 25 and 35 and have young children.
- Four employees have the responsibility of caring for their parents.
- While ENTY has the latest safety devices, 70 of the company's employees are considered to be in a high-risk group for disabling injuries.
- The plant operates three eight-hour shifts.
- Twenty-five employees have expressed a desire for flexible work hours.

Wanda wants to meet her employees' needs, but benefits can only be 8 percent of gross income ($6,000,000). If benefits were at a higher percentage, the additional cost would necessitate a boost in product price, a move Wanda feels would result in a loss of market share.

Wanda has asked a team of her employees to help her decide which benefits should be included in the employee benefit package. She has assigned each benefit a cost:

Example

Description	Cost (in thousands)
Current medical benefits, without dental or eye care	$250
Dental/eye care coverage	$30
Day care for children	$100
Day care for parents	$50
Disability insurance	$50
Flextime	$100
Life insurance	$30

Daily Nutrition Intake Lab (from *Food Science*, by Interdisciplinary Resources)

Introduction: In this lab activity, students will keep track of their daily nutrition intake and then use this information to analyze the types of nutrients being consumed.

Prior to using the nutrition program, the student must record all foods, beverages, etc. consumed during a 24-hour period. After completing the list, students should list each item in the appropriate food group, listed below.

Here are the available food groups: Baby Foods, Pastries & Candy, Fast Foods, Dietetic Foods & Supplements, Fats-Sugars-Condiments, Beverages, Cereals & Grains, Fruits, Ingredients & Spices, Non-Meat Entrees, Breads & Crackers, Cookies & Snacks, Juices & Drinks, Legumes, Meat-Fish-Poultry, Cakes, Dairy, Soup & Sauces, Vegetables.

Before you use the computer, you need to have the following:

1. A list of foods eaten in the last 24 hours.
2. Next to each food on the list, an abbreviation noting what food group it will be found in.

Once the list has been completed, the student must start up the MacDiet program on the computer.

Assessment Standard

Assessments within School-to-Work curricula must be student-focused in the measurement of attitudes, knowledge, and skills, as well as their application to problem solving within the classroom and workplace learning environment.

Indicator

To what extent are student teams, as well as the individual student, assessed?

Learning to work as a team member or cooperatively is a real-life skill for students, one which leads to an understanding of their future work environments. Therefore, it's imperative that students learn to share in problem solving and learning task responsibilities, as well as gain an awareness of their performance within that context. The following assessment strategies, all from *Guide for Integrated and Applied Curriculum, Instruction, and Assessment*, illustrate the concept of assessing both individual work and effort as a team member.

Example

Content-Related Activity Questions (e.g., individual assessment)

1. Do you think humans will ever be extinct?
2. Do you think humans will change enough to produce new species?
3. What factors might cause this change?

Alternative Assessment Approach to the Same Activity Questions

Students might approach (and the instructor may similarly assess) this learning activity by first problem solving in small groups and then trying to form a consensus in a class discussion.

Related Formal Assessment Questions (found in the chapter test bank questions)

1. How does environmental change encourage the formation of new species?
2. How does the environment change encourage the extinction of an existing animal species?

Example

Assessment for Collaborative Problem Solving Using the SCANS Competencies

	HIGH				LOW
1. Identifies, organizes, plans, and allocates resources • *Time:* Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules. • *Money:* Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives. • *Material and facilities:* Acquires, stores, allocates, and uses materials or space efficiently. • *Human Resources:* Assesses skills and distributes work accordingly, evaluates performance, and provides feedback.	Self 5	4	3	2	1
	Group 5	4	3	2	1
	(Circle one)				
2. Works with others. • *Participates as Member of a Team:* Contributes to group effort. • *Teaches Others New Skills.* • *Serves Clients/Customers:* Works to satisfy customers' expectations. • *Exercises Leadership:* Communicates ideas to justify position, persuades and convinces others, reasonably challenges existing policies and procedures. • *Negotiates:* Works toward agreements involving exchange of resources, resolves divergent interests. • *Works with Diversity:* Works well with men and women from diverse backgrounds.	Self 5	4	3	2	1
	Group 5	4	3	2	1
	(Circle one)				
3. Acquires and uses information. • *Acquires and Evaluates Information.* • *Organizes and Maintains Information.* • *Interprets and Communicates Information.* • *Uses Computers to Process Information.*	Self 5	4	3	2	1
	Group 5	4	3	2	1
	(Circle one)				
4. Understands complex inter-relationships. • *Understands Systems:* Knows how social, organizational, and technological systems work, and operates effectively with them. • *Monitors and Corrects Performance:* Distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions. • *Improves or Designs Systems:* Suggests modifications to existing systems and develops new or alternative systems to improve performance.	Self 5	4	3	2	1
	Group 5	4	3	2	1
	(Circle one)				
5. Works with a variety of technologies. • *Selects Technology:* Chooses procedures, tools, or equipment including computers and related technologies. • *Applies Technology to Task:* Understands overall intent and proper procedures for setup and operaton of equipment. • *Maintains and Troubleshoots Equipment:* Prevents, identifies, or solves problems with equipment, including computers and other technologies.	Self 5	4	3	2	1
	Group 5	4	3	2	1
	(Circle one)				

Example

Assessment form: Work effectively in groups.

The members of the group will individually assess the contribution of each group member to the group. The instructor will average the scores for the final score.

Group member being assessed:

Assessed by:

Rate each component 0-5:

0: The group member did not contribute in this area.

1: There was minimal contribution but not at a level that was expected, nor did it contribute to the overall effectiveness of the group.

2: There was some contribution, but the effort and quality of the contribution did not benefit the group effort.

3: The contribution was in some way beneficial, but not outstanding.

4: The contribution was very beneficial and the effort and quality of the contribution was a substantial benefit to the group effort.

5: The contribution in this area was outstanding and was, in fact, the critical factor in the success of this component.

[The group member] Demonstrated ability to work productively by:

__ Managing time well

__ Demonstrating dependability in completing work

__ Demonstrating accuracy in completing work

__ Demonstrating initiative in completing work

__ Persevering through difficult and complex problems

__ Applying logical reasoning in solving problems or dealing with information

Example cont'd

Demonstrated ability to communicate clearly by:

- ___ Writing and speaking so others can understand
- ___ Asking questions when appropriate
- ___ Giving clear instruction to others
- ___ Checking for accuracy
- ___ Demonstrating effective listening
- ___ Using acceptable language
- ___ Providing necessary detail
- ___ Describing problems accurately
- ___ Interpreting the impact of nonverbal communication

Demonstrated the ability to work cooperatively by:

- ___ Completing tasks
- ___ Solving problems
- ___ Resolving conflicts objectively
- ___ Giving and accepting constructive criticism
- ___ Showing tolerance for individual differences
- ___ Providing information
- ___ Offering support
- ___ Demonstrating respect for others through work and action

Demonstrated the ability to think critically and creatively by:

- ___ Setting goals and working to attain them
- ___ Analyzing, synthesizing, and evaluating information
- ___ Recognizing other points of view
- ___ Making decisions based on careful analysis
- ___ Demonstrating open-mindedness
- ___ Recognizing the difference between facts and opinions

Indicator

To what extent do(es) assessment tool(s) measure the attitude, knowledge, and/or skill presented in the material?

When reviewing assessment tools, the reviewer should ascertain whether the assessment tools act as appropriate information or learning "targets." In other words, does the assessment instrument seem to target or measure what it claims to measure (i.e., test valid-

representing (i.e., reliability)? Dr. Arthur Costa, of California State University-Sacramento, has developed a criteria guide for evaluating content units and assessments. Although Costa's guide is designed for science, the main idea for each criteria statement can be applied to any educational content assessment, and certainly to assessments included in school-to-work curricula.

1. Are there activities/assessments that require students to think about and analyze situations (e.g., assessing metacognition)?
2. Does the unit feature activities/assessments that call for more than one step in arriving at a solution (e.g., assessing metacognition/flexibility)?
3. Are activities/assessments with more than one correct solution included (e.g., empathy/flexibility)?
4. Are there opportunities for students to use their own data and create their own activities/assessments (e.g., creativity/problem posing)?
5. Are students encouraged (in the material/assessment tool) to use a variety of approaches to solve a problem (e.g., flexibility)?
6. Are there assessment exercises that encourage students to estimate their answers and check their results (e.g., accuracy)?
7. Is the [content] information given in the activity/assessment and elicited in the answer accurate (e.g., using past knowledge)?
8. Is there opportunity for assessing skills through exercises that call for "hands-on" or applied activities?
9. Does the assessment or assessment strategy include activities that can be carried out over a period of time? (e.g., persistence)?
10. Are there assessment activities with erroneous information that require students to find the errors or critique the way the problem is designed (e.g., problem posing, checking for accuracy)?
11. Are there opportunities for students to design their own assessment questions, problems or designs?
12. Are there assessment activities that encourage students to work both individually and with other students in finding solutions (e.g., empathy and cooperation)?

Indicator

To what extent does the assessment process ...

Provide instructional feedback?

Provide students with information for skill improvement?

Act as a diagnostic tool?

Allow conversion into a grading system if necessary?

Include opportunities for multiple testing situations?

When applied to student assessment, the concepts of skill improvement, instructional feedback, and diagnostic tools reinforce the need for assessments that provide information necessary to strengthening student learning throughout a curriculum. In a quality curriculum, both formative and summative evaluation methods are necessary, and they provide for multiple testing situations. One also needs to consider whether the assessments can be converted to a grading system if necessary.

Indicator

To what extent are performance and portfolio assessments used to measure student knowledge and skills (e.g., performance of tasks, process, and resulting products)?

The next example, from *Arts Propel: A Handbook for Music* provides an illustration of an assessment "rubric" or framework that provides instructional feedback on a specific performance for both the instructor and the learner. The rubric clearly states what tasks and criteria students will be expected to demonstrate on the assessment. The framework can act as a diagnostic tool, lending itself to a variety of grading systems. In this case, the information is almost "built in" to the lesson itself. Assessment rubrics included in curriculum material can "promote learning by offering clear performance targets to students" (Marzano, Pickering, & McTighe, 1993, p. 29). Performance-based assessments often provide an alternative to "traditional" assessment strategies. Although traditional selected response tests (e.g., true-false, multiple choice) can be meaningfully designed, performance-based assessments (i.e., written reports, essays, and instructions, oral interviews and speeches, and constructed projects) can be included into curriculum material, and perhaps offer students a richer assessment experience.

Example

DOMAIN PROJECT: INDIVIDUAL LESSON

Ensemble or class: [voice]
Grade level(s):
Date:
Teacher:
Student:

Vocal Performance Execution Dimensions
Score = NA if not applicable.

Date:
Condition:
Music Performed:

Teacher scoring Student Performance

	1	2	3
Date:			
Condition:			
Music Performed:			

Pitch Production

1.0-1.9 = Seldom performs pitches accurately or securely
2.0-2.9 = Sometimes performs with accurate pitch but with frequent or repeated errors.
3.0-3.9 = Mostly accurate and secure pitches but with few isolated errors.
4.0-4.9 = Virtually no errors and very secure pitches

Rhythm/Tempo Production

1.0-1.9 = Seldom performs durations accurately or with a steady tempo.
2.0-2.9 = Sometimes performs durations accurately but with erratic pulse or frequent durational errors.
3.0-3.9 = Mostly accurate rhythm and pulse with few durational errors.
4.0-4.9 = Secure pulse and rhythmically accurate.

Diction

1.0-1.9 = Seldom able to regulate vowel colors or consonants.
2.0-2.9 = Generally consistent vowel color with some attempt to regulate consonant sounds.
3.0-3.9 = Consistent vowel colors with increased control of consonants.
4.0-4.0 = Maintains consistent control of diction.

As another consideration when reviewing the curriculum, note the presence of assessment portfolios. Are portfolios used in conjunction with the assessment process? Does the curriculum design allow for the use of portfolios? If portfolios are included in the material, the reviewer could make a number of determinations regarding their intended use. In the book *Student-Centered Classroom Assessment*, Richard Stiggins (1994) notes the following definition and points of review concerning portfolios:

Definition: "A portfolio is a collection of student work assembled to demonstrate student achievement or improvement" (p. 422).

Purpose: The material collected can vary greatly, depending upon the intended objective(s), which ideally would be determined by both the instructor and student.

Objectives: "The knowledge, reasoning, skills, products, and/or effect to be described [or included] in the portfolio will dictate the student work samples to be collected" (Ibid).

Focus of Work: "The portfolio can either show student performance over time, or status at one point of time" (Ibid). This is sometimes called a "cap-stone" portfolio.

Nature of Work: "What kind of evidence [or student work] will be used to show student proficiency--tests, work samples, observations?" (Ibid).

Evaluation: Who is involved in the portfolio evaluation? School-to-work portfolio evaluation will ideally involve the student, instructor, and a related business/community panel.

Indicator

To what extent can the assessments detect change over time?

For example, do the assessments in the curriculum material include pre- and post-tests? Or if a portfolio is developed, does it contain student work, and/or a progression of assessments that document student performance over time? This example excerpted from MAVCC *Developing Entrepreneurial Attitudes* incorporates a portfolio project into the course material and provides the instructor with process information.

Example

What is an Entrepreneur?

Much is written and reported each day concerning the increasing importance of entrepreneurship. Throughout this publication, students will be asked to read and collect articles in current periodicals or other types of resource information on the subject of the unit they are studying. These articles and resource information will be compiled into a portfolio, where students will analyze the information they have collected. Therefore, the instructor will need to have: 1) a format to be used for a portfolio assignment, and 2) a number of resources available in the classroom for student use in completing research for each portfolio assignment.

Example

Portfolio format: Educators in some states are beginning to use portfolio assignments as alternative methods of evaluating student progress in a field of study—especially student progress in higher-order thinking skills. In states where educators use portfolios, the format for these assignments has generally been dictated.

For the portfolio assignments required in this publication, teachers should use the required guidelines for their state if these have been established. If not, the teacher should develop individual guidelines for the portfolio assignments. Instructors will vary in the importance they place on any of the various elements of a written assignment requiring students to perform at the analysis level (grammar, structure, purpose, relevance, etc.). Therefore, the grading requirements of each of these assignments have been left up to you to establish specifically. The curriculum writer's purpose in creating these assignments was to get students to perform analysis in each unit of instruction, and the relevance and organization of the student product are the only criteria established.

Indicator

To what extent are appropriate assessment methods provided that directly reflect student outcomes?

Once again, the example shown here is explicit about what appropriate assessment will be used, about the desired student outcomes, and about the scoring criteria for the outcomes. Because they support one another, the student learning activity and the assessment in this example (from *Student-Centered Classroom Assessement*) are integrated, or contextual.

Example

Exercise: You have volunteered to help out at your local library with the literacy program. Once a week after school, you help people learn how to read. To encourage your student to learn, you tell her about the different kinds of literature you have read, including poems, biographies, mysteries, tall tales, fables, and historical novels. Select three types of literature and compare them, using general characteristics of literature that you think will help your student see the similarities and differences. Be ready to present a visual presentation of this comparison. You will be assessed [based on these criteria]:

Scoring Criteria:

A. Selects appropriate items to be compared.

4: Selects items that are very well suited for addressing the basic objective of the comparison, and that show original or creative thinking.

3: Selects items that provide a means for successfully addressing the basic objective of the comparison.

2: Selects items that satisfy the basic requirements of the comparison, but create some difficulties for completing the task.

1: Selects items that are inappropriate to the basic object of the comparison.

B. Selects appropriate characteristics on which to compare the selected items.

4: Selects characteristics that encompass the most essential aspects of the items that are compared. In addition, the student selects characteristics that present some unique challenges or provide some unique insight.

3: Selects characteristics that provide a vehicle for meaningful comparison of the items, and that address the basic objective of the comparison.

2: Selects characteristics that provide for a partial comparison of the items and may include some characteristics that are extraneous.

1: Selects characteristics that are trivial or do not address the basic objective of the comparison. Selects characteristics on which the items cannot be compared.

C. Accurately identifies the similarities and differences between items on the identified characteristics.

4: Accurately assesses all identified similarities and differences for each item on the selected characteristic. Additionally, the student provides inferences from the comparison that were not explicitly requested in the task description.

3: Accurately assesses the major similarities and differences in the identified characteristics.

2: Makes some important errors in identifying the major similarities and differences in the identified characteristics.

1: Makes many significant errors in identifying the major similarities and differences in the identified characteristics.

Equity & Diversity Standard

School-to-Work curricula must reflect content which portrays and celebrates the active participation of all individuals in the nation's workforce, communities, and educational institutions.

Indicator

To what extent is the material balanced to reflect the experiences, contributions, voices, and perspectives of all groups?

- **Does the content depict a range of family clusters (e.g., adoptive, extended, single parent, same sex)?**
- **Does the content provide a balance of settings, perspectives, and socioeconomic situations (e.g., rural, urban, suburban)?**
- **Are diversity and commonality among people recognized?**
- **Are contributions from people of diverse backgrounds recognized?**

Indicator

To what extent can the suggested instructional strategies be adapted to different learning styles?

Quality curricula engages students with a variety of learning activities adaptable to student's different learning styles, and encourages students to think and create in ways unique to their own preferences and experiences. Factors to consider when reviewing curricula include: Can the instructional strategies in the material be adapted to alternative forms such as group, team, or cooperative educational activities, class presentations, data collecting through surveys of community members? Can the strategies in the material be adapted, if necessary, to meet the learning levels of all students? For example, the following learning task could be adapted in a number of ways: 1) it could become a team or group activity; 2) it could involve a panel discussion or presentations on findings; or 3) it could be expanded to include interviews of paint contractors.

Example

Student Activities (from *All Aspects of the Industry*)

1. Describe briefly the process of estimating and bidding.
2. Name a factor that can alter the final cost of a project after the estimating and bidding process is completed.

3. Envision that you own a painting company. You know that you must be the low bidder to get the contract to paint the outside of the Columbia office building. Would your bid be the same in the summer as in the winter? Why?

Indicator

To what extent do the instructional strategies (i.e., activities and projects) reflect the diversity of today's workforce?

Do the instructional projects and activities in the material reflect women and men in occupations not traditonal to their gender? Do the projects and activities create the impression that persons of color work in all types of occupations? Are aspects of different cultures integrated into the projects and activities encouraging greater understanding of diversity in the workplace? Will the activities or projects enhance and reinforce the concept of an inclusive workplace?

An activity from *All Aspects of the Industry,* a curriculum guide written by the Instructional Materials Laboratory, University of Missouri-Columbia, provides an illustration of diversity issues within the workplace:

Example

Student Activity: Contact a company representative in the area in which you have an interest and ask for examples of cultural diversity affecting the company.

The CORD Applications in Biology/Chemistry curriculum incorporates job profiles into the curriculum content, and the following case illustrates the inclusion of a woman in a nontraditional technical position.

Example

Job Profile: Hydrogeologist

Christa P. is a hydrogeologist who works for a civil engineering firm. The firm does environmental studies for businesses and government agencies.

"A hydrogeologist has to incorporate a basic understanding of groundwater flow with a knowledge of geology and chemistry," says Christa. "Much of my work involves helping companies comply with environmental regulations. For

example, we might be called out to evaluate groundwater if a company's underground storage tanks were suspected of leakage. Or we might be hired to routinely monitor the groundwater in the tank storage area.

When asked what steps she would take in such a situation, Christa explains, "We install monitoring wells—these are small-diameter pipes that are placed into the ground. Groundwater comes up into the pipe, and we're able to sample it. We also do soil borings and test soil for contamination. If we find contamination, we help the company make a plan to remedy the situation. But prevention is always better than remediation."

To what extent does the content challenge traditional cultural assumptions?

Indicator

Are there references within the material to cultural practices that broaden student awareness of a larger world and allow for acceptance and inclusion of self and others? The following example is from the *Health and Medical Technology Interdisciplinary Program Curriculum* by Lafayette High School, Brooklyn, New York. These learning objectives illustrate how course content can broaden students' knowledge in a cultural sense within the context of an integrated curriculum.

Example

Learning Objective: Health Occupations

Core: What are the different types of family units we see in the USA? How do they function, and what impact do they have on the role of the family during an illness? Students will:

- Explore different types of family units
- Describe how families function
- Describe the role of the family during illness

History (Global view): What is the role of the family and its structure in India? Students will learn about the Indian family and the family members' relationship to one another, both within the family and in the society at large.

English: How does one learn to function in interpersonal relationships in the absence of family members who serve as role models? Students will read and discuss the short story "Mother in Mannville," by Marjorie Kinan Rawlings, which deals with an orphan.

Math: How does family size vary between the USA and Asia? Students will learn to read and interpret tables and charts that show the sizes of families in different cultures, including income data, and to relate family size to family structure and type of society (ie, economic factors).

The following example is from the *Guide for Integrated and Applied Curriculum, Instruction, and Assessment* by the Wisconsin Department of Public Instruction. This learning task shows students that cultural differences exist and that these differences have an impact on real-life situations. It allows the student to discover and consider other peoples' preferences and needs, and to apply that knowledge to a real-life experience.

Example

Learning Task: International Guests

A local business is expecting a group of international buyers next month. This business, which sells agricultural equipment, had an unsuccessful experience the last time international buyers came to town. Not only did the clients not sign a contract to buy anything, but they also left town earlier than planned. Something had gone wrong and the suspected root cause was the company's lack of ability to understand and accommodate the clients' culturally-based needs and preferences.

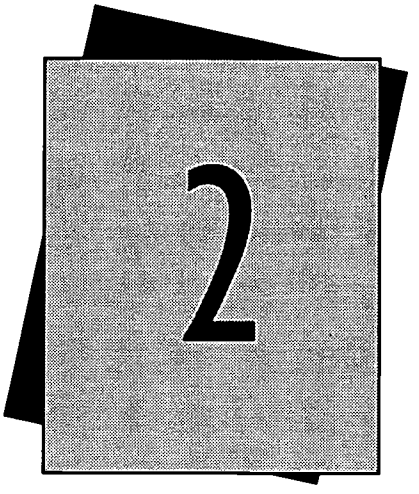
Your group has been asked to design a three-day visit which includes a one-hour reception and four hours of business, both taking place at the company. The rest of the three days will be spent helping the company become better-acquainted with the clients, and helping the clients get to know the company and community.

Working with a small group of other students, research the country's culture and customs (the class will select any country in Asia) and answer the following questions about the clients' probable:

- Food and beverage preferences
- Hotel arrangement preferences (individual vs. shared rooms)
- Leisure activity preferences
- Gift-giving customs

- Leisure activity preferences
- Gift-giving customs
- Attitudes about time (e.g., being on time, taking one's time, etc.)
- Religious practices
- Personal titles (what is the equivalent of Mr./Ms./Mrs.?)
- Communication style (body language, volume, use of silence, etc.)
- Language
- Business customs

Based on your answers to the above questions, design the three-day stay. Include details of what will happen for all 72 hours. Include activities that will make the clients feel welcome and "at home" and avoid elements that make the clients feel unwelcome, offended, or uncomfortable.



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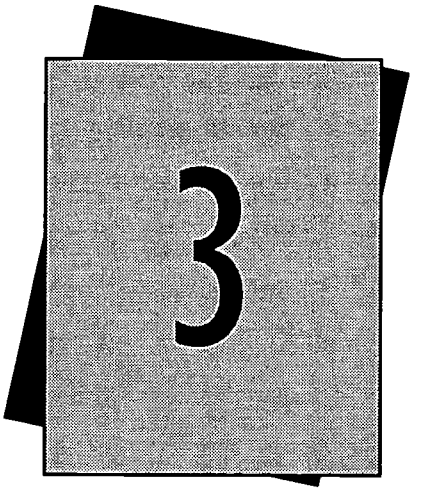


The NCPQ Review Process

A major part of the NCPQ's mission is to identify high-quality School-to-Work curriculum in the field of education. In pursuit of this goal, the National Consortium is seeking to review curriculum products appropriate for use in programs at various levels--secondary through adult. The materials we consider must reflect the following:

- Skills needed in high-wage and high-skill occupations, new and emerging occupations, technology-intensive careers, or curricula addressing new or recently-adopted industry skill standards;
- Curricula which addresses the use of basic or academic skills and competencies (such as those proposed by the *SCANS Report*) taught in an occupational or work context;
- Curriculum and instructional products which reflect work-based learning opportunities, and which are used primarily in youth apprenticeship, cooperative education, and internship programs;
- Curricula with integrated vocational-technical and academic content, such as materials developed cooperatively by vocational and academic instructors;
- Career planning and development curricula designed to enhance school-to-work transitions.

The Review Process

Materials sent to the NCPQ undergo a two-stage review. Phase I, conducted by National Consortium staff, includes a preliminary review of all products using the Standards and Indicators formulated by the National Task Force of the NCPQ. Phase II calls upon the talents of experts nationwide, including other curriculum developers, practitioners, and members of industry.

Phase I

The Phase I Review will provide a general indication of the extent to which the curriculum or instructional product reflects the quality standards. For each product submitted, the nominator will receive a completed Phase I Review Feedback Form. This feedback may be helpful in considering the curriculum for adoption, making revisions and enhancements, and guiding future curriculum development efforts designed to expand or supplement the initial curriculum.

Phase II

Materials receiving high scores on the Phase I review will be forwarded to the National Consortium's Panel of Reviewers. This Phase II review will consist of an in-depth assessment of the product by three to five experts, whose selection is based on their familiarity with both the content and instructional design of the product.

Comprehensive Product Profiles will be prepared and disseminated nationally for products emerging from the Phase II review. The Product Profiles will provide instructors, administrators, curriculum specialists, and teams with detailed information on the product and its content, instructional design features, format, and availability.

How to Submit Material

If you are interested in submitting curriculum or instructional products, please contact Margaret Ellibee or Barbara Dougherty for the Submittal Application Form.

National Consortium for Product Quality

About the NCPQ

Funded by the National Center for Research in Vocational Education, the National Consortium for Product Quality is a curriculum service system for educators. We build on the development and advancement of three key objectives:

- Demonstrate and evaluate standards for quality curriculum products designed for secondary and post-secondary School-To-Work programs.
- Identify, review, and disseminate information on quality curriculum products through extensive curriculum reviews and product profiles that detail quality curriculum and its implementation in the field.
- Provide technical assistance to the field, empahsizing curriculum enhancement by applying the NCPQ Standards, cutting-edge integration strategies, and concepts of authentic pedagogy.

NCRVE

The NCPQ is funded by the National Center for Research in Vocational Education, housed at the University of California-Berkeley.

NCPQ Product Profile

Espresso Ed-Venture

Product Info

Title: Espresso Ed-Venture Youth Training Program

Developer: Springfield Youth Transition Program
812 G Street
Springfield, OR 97477

Available From: Springfield Public Schools Finance Department
Attention: Don Derickson
525 Mill Street
Springfield, OR 97477
Phone 541-726-3229

Cost: $100.00

Grade Level: Secondary and Postsecondary

Abstract

The following information is adapted from the curriculum guide's preface:

This curriculum is a tool for learning "facilitators" to mold in such a way that **all students** can acquire useful entry-level job skills. The design covers 16 chapters, each of which is to run for approximately one week. However, class size, student ability and interest, or other unforeseeable circumstances may necessitate adjusting the timeline. The design allows for the first four chapters to follow in sequence, while the remaining ones can be reorganized, deleted, and/ or further enhanced in order to customize materials to student needs. The format and objectives allow for the instructor's role to resemble that of a job coach or learning facilitator more than in customary instruction. Though the narrative is informal and conversational, the critical essence of the material rests in the experiential activities. It is noted emphatically that trainers, whether certified teachers or other persons, must access supplementary technical information because this curriculum does not include all the information necessary to run a coffee cart. For this support and instruction, the program developers accessed the Boyd's Coffee Company.

Components

Chapters, designed to be taught at the rate of one per week, include Course Introduction, The Product, Production, Machine Maintenance, Preparing for that Food Handler's Permit, Team Building, Social Skills for Servers, Honed Habits of Servers, Troubleshooting, Accepting Feedback, History of the Bean, Handling the Cash, On Your Own, and Taking It To The Street.

What to Look For

The National Consortium for Product Quality has developed a set of Standards to identify benchmarks present in quality School-To-Work curriculum. Text of the Standards follows:

Content Standard: School-to-Work curricula must focus on the integration of academic foundations into career development, life skills, and occupational competencies.

Instructional Standard: School-to-Work curricula, through active and applied learning experiences in school, community, and work-based settings, must enable students to acquire problem-solving, communication, and reasoning strategies.

Student Assessment Standard: Assessments within School-to-Work curricula must be student-focused in measuring attitudes, knowledge, and skills, as well as their application to problem solving within the classroom and workplace environment.

Equity and Diversity Standard: School-to-Work curricula must reflect and celebrate the active participation of all individuals in the nation's workforce, communities, and educational institutions.

Reviewers' Response

★ Never ★★ Seldom ★★★ Sometimes ★★★★ Frequently ★★★★★ Consistently

Content Standard	Reinforces concepts consistently through validated skills and tasks.	★★★★ 1/2
	Corresponds to the SCANS skills and competencies.	★★★★★
	Includes validated matrix of skills.	★
	Identifies performance levels	★★★★
	Has current content	★★★★★
	Has accurate content	★★★★★
	Sequences content from basic to complex/coherent clusters	★★★★★
	Aligns content objectives and outcomes.	★★★★★
	Interests and appeals to diverse audiences.	★★★★ 1/2
	Incorporates career development, career awareness and mobility, and citizenship.	★★★★
	Addresses integrated vocational and general education skills, employability and life skills, and real-life application of skills and knowledge.	★★★★ 1/2
Instructional Standard	Includes meaningful learning experiences that correspond to stated outcomes.	★★★★★
	Includes teaching techniques that support SCANS skills.	★★★ 3/4
	Incorporates team or small-group projects through instructional strategies.	★★★★★
	Encourages students (through instructional strategies) to interact with students, instructors, and the community.	★★★★★
	Develops students' critical thinking and problem-solving skills through instructional strategies.	★★★★
	Develops writing, speaking, listening, and direction-following skills through instructional strategies.	★★★★★
	Reinforces academic/technology applications through real-world experiences.	★★★★ 1/2
Student Assessment	Assesses both teams and individuals.	★★★
	Uses assessment tools that measure accurately the desired learning.	★★★★★
	Includes diverse and flexible measures for student assessment.	★★★★★
	Uses performance and/or portfolio assessments.	★★★★
	Detects change in student knowledge over time.	★★★★★
	Uses appropriate assessment methods that reflect student outcomes.	★★★★★
Equity & Diversity	Reflects a range of family clusters, settings, perspectives, and socioeconomic situations; recognizes diversity and commonalities among people and contributions from people of diverse backgrounds; uses inclusive language.	★★ 3/4
	Challenges traditional cultural assumptions.	★★★
	Adapts instructional strategies to different learning styles.	★★★★★
	Reflects the diversity of today's workforce through instructional strategies.	★★★★★

Reviewer Comments

Content Standard:

This curriculum, in which industry is an active player in the technical content and curriculum delivery, builds on the development of specfic occupational skills while reinforcing academic ones. Within this framework, the curriculum goes beyond preparing students to be "baristas" and allows them to prepare and obtain a Food Handler's permit as well. It moves beyound specific skills lists and provides broad- based content, such as human relations and self management skills, that relates to the occupational area. This curriculum is being informally field tested through the developers' requests for feedback from implementors.

Instructional Standard:

There are a number of paper and pencil instructional strategies, though some student learning is suggested within group activities, such as conducting community interviews, and offering opportuntites for students to articulate and reflect on their learning experiences. There are also learning strategies that promote students' use of higher- order thinking skills to analyze situations and solve problems within a workplace context.

Student Assessment Standard:

The assessment strategies align specifically with what the student is expected to know and be able to do upon completion of learning tasks and the course. These strategies include many opportunities for performance-based assessment and feedback.

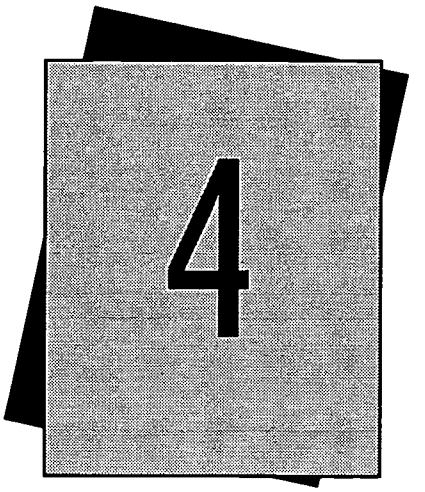
Equity and Diversity Standard:

This curriculum suggests a range of learning strategies to accommodate students with different learning styles (e.g., at-risk students). The curriculum presents the job of "barista" as performed by either male or female students. Overall, to consistantly fulfill the equity and diversity considerations, the curriculum research activity suggested in the "History of the Bean" chapter could be adapted to include topics that compare and contrast coffee-drinking cultures to other cultures where the leading beverage of choice is not coffee, or to challenge traditional cultural assumptions regarding coffee drinking and coffee drinkers.

Response Summary

About the Reviewers

The reviewers contributing to the review of this material have professional backgrounds in teacher education, vocational education, curriculum and instruction, and equity and diversity issues in education. They have classroom experience in academic and vocational education, and have also participated in secondary and post-secondary curriculum development activities.



Sources of Technical Assistance

Sources of Technical Assistance

Internet:

VocServe: To subscribe, type in at "TO": listserv@cmsa.berkeley.edu. In the message area type: subscribe vocnet *yourfirstname yourlastname.* Problems? Call NCRVE (800-762-4093) and ask to speak to David Carlson.

School-to-Work Net: An electronic discussion forum on STW transition, skill standards projects, and the national Youth Fair Chance initiative. Call Dr. Joyce Malyn-Smith or Dr. John Wong at the Center for Education, Employment, and Community Education Development. Phone 617-969-7100, extension 2386. Or send an e-mail to joycem@edc.org. To send mail to the mailing list, please address the message to stwnet@confer.edc.org.

AERA Curriculum Net: E-mail Dr. Gene Glass at Arizona State University: glass@asu.edu and request information on subscribing to AERA-B. This net is primarily focused on higher education, yet it has very useful items for secondary educators.

AskERIC Gopher: On your gopher menu go to: Other Information Sources and Gopher Servers; World-Wide Gopher Servers; North America; USA; All; AskERIC; Lesson Plans, Info Guides, etc.

Other:

National Consortium for Product Quality (NCPQ), Barbara Dougherty, Margaret Ellibee, and Linda Heal. 800-446-0399. Formed to develop, research, and implement School-to-Work product standards, and to develop a national review process for curriculum materials, the NCPQ offers curriculum review, curriculum abstracts, and techical assistance focusing on curriculum design.

National Center for Research in Vocational Education (NCRVE),

Berkeley, California. 800-762-4093. The NCRVE is the nation's largest center for research, development, dissemination and outreach in work-related education. The NCRVE has played a key role in developing and disseminating a new concept of vocational education as it works toward fulfilling its mission of strengthening education.

State Vocational and Technical Education Curriculum Centers

Many states have their own vocational and technical education curriculum centers. These centers provide an array of information, technical assistance, and curriculum materials for the field. Again, you may want to consult with your State SLR for further information regarding the centers. This information was collected from the 1993 Directory of State and Vocational Technical Education Curriculum Centers, published by the East Central Curriculum Center, University of Illinois at Springfield.

Alabama

Vocational Curriculum, Research and Evaluation Center
Room 5234
Gordon Persons Building
50 N. Ripley St.
Montgomery, AL 36130-3901
(205) 242-9108

Alaska

Alaska Vocational Materials Library
Alaska Department of Education
Adult and Vocational Education
801 W. 10th St., Suite 200
Juneau, AK 99801
(907) 465-8729

Arizona

Arizona Center for Vocational/Technological Education
P.O. Box 6025
Northern Arizona University
Flagstaff, AZ 86011
(602) 523-5442

Arkansas

Arkansas Vocational Curriculum Dissemination Center (AVCDC)
University of Arkansas
Graduate Education Building, Room 115
Fayetteville, AR 72701
(501) 575-6606 *or* (800) 632-8754

Hawaii

Western CCC
Hawaii Vocational Curriculum Center
1776 University Ave.
UA2, Room 7
Honolulu, HI 96844-0001
(808) 956-7834

Idaho

Idaho Vocational Curriculum Dissemination Center
College of Education, Room 209
University of Idaho
Moscow, ID 83844-3083
(208) 885-6556

Illinois

East Central CCC
Illinois State Curriculum Center
University of Illinois at Springfield, F-2
Springfield, IL 62794-9243
(217) 786-6375
National: (800) 553-8324 *Illinois:* (800) 252-4822

Indiana

Indiana Literacy and Technical Education Resource Center
140 N. Senate Ave., Room 208
Indianapolis, IN 46204
(317) 233-5200 *or* (800) 233-4572

Kansas

Kansas Competency-Based Curriculum Center
Benton Hall, Room 412
Washburn University-SAS
1700 College
Topeka, KS 66621
(913) 231-1010 Ext. 1534

Louisiana

Louisiana Technical Resource Center
P.O. Box 1159
Natchitoches, LA 71458-1159
(318) 357-3155

Maine

Vocational Curriculum Resource Center of Maine (VCRCOM)
Kennebec Valley Technical College
92 Western Ave.
Fairfield, ME 04937-0029
(207) 453-5000

Massachusetts

Massachusetts Vocational Curriculum Resource Center
758 Marrett Rd.
Lexington, MA 02173
National: (617) 863-1863 *Massachusetts:* (800) 356-8272

Michigan

Michigan Center for Career and Technical Education
230 Erickson Hall
Michigan State University
East Lansing, MI 48824
National: (517) 353-4397 *Michigan:* (800) 292-1606

Minnesota

Minnesota Educational Services at Capitol View Center
70 W. County Rd. B-2
Little Canada, MN 55117-1402
(612) 483-4442
National: (800) 848-4912 *Minnesota:* (800) 652-9024

Mississippi

Southeast CCC
Research and Curriculum Unit
Drawer DX
Mississippi State, MS 39762
(601) 325-2510

Missouri

Instructional Materials Laboratory (IML)
Missouri Vocational Resource Center (MVRC)
8 London Hall
University of Missouri
Columbia, MO 65211-0001
(314) 882-2884
National: (800) 669-2465 *Missouri:* (800) 392-7217

Montana

Montana Center for Research, Curriculum and Personnel Development
Northern Montana College
Box 7751
Havre, MT 59501
(406) 265-3726

Nebraska

Nebraska Vocational Curriculum Resource Center
University of Nebraska at Kearney
West Center, W206
Kearney, NE 68849
(308) 234-8669

New Hampshire

Learning Resources Center
Mason Library
Keene State College
Keene, NH 03431
(603) 358-2750 *or* (603) 358-2749

New Jersey

Northeast CCC
New Jersey Department of Education
Division of Academic Programs and Standards
Office of Adult and Occupational Education
Crest Way
Aberdeen, NJ 07747
(908) 290-1900

New Mexico

Vocational Information and Program Services (VIPS) Project
351 Rio Communities Blvd.
Belen, NM 87002
National: (505) 864-2823 *New Mexico:* (800) 247-8477

North Dakota

North Dakota Vocational Curriculum Library
Bismarck State College
1500 Edwards Ave.
Bismarck, ND 58501
(701) 224-5487

Ohio

Ohio Agricultural Education Curriculum Materials Service
254 Agricultural Administration Bldg.
The Ohio State University
2120 Fyffe Rd.
Columbus, OH 43210-1067
(614) 292-4848

Vocational Instructional Materials Laboratory
Center on Education and Training for Employment (CETE)
The Ohio State University
1900 Kenny Rd.
Columbus, OH 43210
Administrative Offices: (614) 292-5001 *Sales Office:* (614) 292-4277
CETE Switchboard: (800) 848-4815

Oklahoma

Midwest CCC
Oklahoma Department of Vocational and Technical Education Resource Center
Oklahoma Department of Vocational and Technical Education
1500 W. 7th Ave.
Stillwater, OK 74074-4364
(405) 743-5423 *or* (405) 743-5163

Pennsylvania

PDE Resource Center
Vocational Education Information Network (VEIN)
Pennsylvania Department of Education
333 Market St.
Harrisburg, PA 17126-0333
National: (717) 783-9192 *Pennsylvania:* (800) 992-2283

South Carolina

Curriculum Development Section
Office of Occupational Education
1831 Barnwell St.
Columbia, SC 29201
(803) 253-4029

South Dakota

South Dakota Curriculum Center
435 S. Chappelle
Pierre, SD 57501-3210
(605) 224-6287

Tennessee

Division of Vocational Education Curriculum Center
Tennessee Department of Education
Gateway Plaza Building
710 James Robertson Parkway, 4th Floor
Nashville, TN 37243-0383
(615) 741-1931

Texas

Educational Development and Training Center
East Texas State University
East Texas Station
Commerce, TX 75429
(800) 356-EDTC

Home Economics Curriculum Center
Texas Tech University
Box 41161
Lubbock, TX 79409-1161
(806) 742-3029

Instructional Materials Service
Texas A&M University
College Station, TX 77843-2588
(409) 845-6601

Utah

Utah Applied Technology Resource Center
3305 S. 5th East
Salt Lake City, UT 84106
(801) 481-7259

Vermont

Vermont Home Economics Resource Materials
Oxbow Vocational Center
P.O. Box 618
Bradford, VT 05033
(802) 222-5212, Ext. 32

Virginia

Virginia Vocational Curriculum and Resource Center
2200 Mountain Rd.
Glen Allen, VA 23060-2208
(804) 261-5075

Washington

Northwestern CCC
Clover Park Technical College
4500 Steilacoom Blvd. S.W.
Tacoma, WA 98499-4098
(206) 589-5764

West Virginia

Curriculum Technology Resource Center
Cedar Lakes Conference Center
Ripley, WV 25271
National: (304) 372-7874 *West Virginia:* (800) 982-5672

Wisconsin

Center on Education and Work
University of Wisconsin - Madison
964 Educational Sciences Building
1025 W. Johnson St.
Madison, WI 53706
(608) 263-2929 *or* (800) 446-0399

State Liaison Representatives by Region

East Central Region:

Delaware
Lewis Atkinson
Department of Public Instruction
J.G. Townsend Building
Dover, DE 19001
Phone 302-739-4638; Fax 302-739-3092

District of Columbia
Ted Glenn
Penn Center Administration Unit
Second Floor
1709 3rd Street NE, Room 204
Phone 202-576-6308; Fax 202-576-7899

Illinois
Fran Beauman
DAVTE/ISBE
100 N. 1st St.
Springfield, IL 62777
Phone 217-782-4620; Fax 217-782-0679

Indiana
Linda Warner
Department of Workforce Development
Government Center South E 204
140 N. Senate Ave, Room 208
Indianapolis, IN 46204
Phone 317-233-5200; Fax 317-233-5333

Maryland
Doris Sharkey
Maryland Dept. Of Education
DCTAL
200 West Baltimore, Third Floor
Baltimore, MD 21201
Phone 410-333-2062; Fax 410-333-2099

Michigan
Naomi Bryson
Michigan Dept. Of Education
PO Box 30009
Lansing, MI 48909
Phone 517-373-8358; Fax 517-373-8776

Minnesota
Barbara Herrmann
Instructional Services Section
State Board of Technical Colleges
550 Cedar St.
St. Paul, MN 55101
Phone 612-296-3092
Fax 612-296-0872

Ohio
Debbie Catri
Instructional Materials Lab
1900 Kenney Rd.
Columbus, OH 43210-1090
Phone 800-848-4815; Fax 614-292-1260

Pennsylvania
Evelyn Werner
PDE Resource Center
333 Market St.
Harrisburg, PA 17126-0333
Phone 717-783-9539; Fax 717-783-5420

Virginia
Peggy Watson
Curriculum and Resource Center
2200 Mountain Rd.
Glen Allen, VA 23060-2208
Phone 804-261-5075; Fax 804-261-5079

West Virginia
Keith James
Curriculum Technical Resource Center
Cedar Lakes Conference Center
Ripley, WV 52571
Phone 304-372-7874; Fax 304-261-7875

Wisconsin
Betty Brunelle
Wisconsin Technical College System
PO Box 7874
Madison, WI 53707-7874
Phone 608-266-0025; Fax 608-266-1285

Midwest Region:

Arkansas
Jean McEntire
Luther Hardin Building
#3 Capitol Mall, Room 309D
Little Rock, AR 72212-4084
Phone 501-682-1084; Fax 501-682-1509

Iowa
Harold Berryhill
Bureau of Technical and Vocational Education
Grimes State Office Building
Des Moines, IA 50319-0146
Phone 515-281-4711; Fax 515-281-6544

Kansas
Ben Clay
Washburn University
Benton Hall, Suite 412
1700 Southwest College
Topeka, KS 66621
Phone 913-231-1010, ext. 1534;
Fax 913-231-1027

Louisiana
Mervin Birdwell
Louisiana Technical Resource Center
210 Highway 3110, South Bypass
PO Box 1159
Natchitoches, LA 71458-1159
Phone 318-357-3155; Fax 318-357-3108

Missouri
Harley Schlichting
University of Missouri
Instructional Materials Laboratory
8 London Hall
Columbia, MO 65211-0001
Phone 314-882-2884; Fax 314-882-9935

Nebraska
Ann Masters
Nebraska Department of Education
301 Centennial Mall South
Box 94987
Lincoln, NE 68509
Phone 402-471-4816; Fax 402-471-0117

New Mexico
Betty Campbell
New Mexico Department of Education
Education Building
Santa Fe, NM 87501-2786
Phone 505-827-6665; Fax 505-827-6696

Oklahoma
John Friedemann
Oklahoma Department of Vocational and Technical Education
1500 West 7th Avenue
Stillwater, OK 74074-4364
Phone 405-743-5595; Fax 405-743-5154

Texas
Sylvia Clark
Career and Technology Education
Texas Education Agency
1701 N. Congress Ave
Austin, TX 78701
Phone 512-463-9446; Fax 512-475-3575

Northeast Region:

Connecticut
Joan Briggaman
Connecticut Department of Education
25 Industrial Park Road
Middletown, CT 06459
Phone 203-638-4102; Fax 203-632-1854

Maine
Lloyd Keasts
Bureau of Applied Technology and Adult Learning
Maine Department of Education
Statehouse Station 23
Augusta, ME 04333
Phone 207-287-5854; Fax 207-289-5894

Massachusetts
Stafford Peat
Division of Occupational Education
Massachusetts Department of Education
School and Employment Services
350 Main Street
Malden, MA 02148
Phone 617-388-3300; Fax 617-388-3394

New Hampshire
Judith Hildebrandt
Mason Library Learning Resource Center
Keene State College
Main Street
Keene, NH 03431
Phone 603-358-2749; Fax 603-271-1953

New Jersey
Doris Dopkin
Office of Adult and Occupational Education
New Jersey Department of Education
Crest Way
Aberdeen, NJ 07747
Phone 908-290-1900; Fax 908-290-9678

New York
Vacant
Occupational Education Program Development
New York Department of Education
Room 1623, 1 Commerce Plaza
Albany, NY 12234
Phone 518-474-4806; Fax 518-486-3761

Puerto Rico
Miriam Escribano Fuetes
Division of Vocational Education
Puerto Rico Department of Education
PO Box 190759
Hato Rey, PR 00919-0759
Phone 809-763-5355; Fax 809-763-5355

Rhode Island
John Keough
Rhode Island Department of Education
22 Hayes Street
Providence, RI 02908
Phone 401-277-3126; Fax 401-277-6178

Vermont
Donald King
Vocational and Technical Education
Vermont Department of Education
State Office Building
120 State Street
Montpelier, VT 05602
Phone 802-828-3101; Fax 802-828-3140

Virgin Islands
Irwin Sewer
Virgin Islands Department of Education
PO Box 6640
Charlotte Amalie, VI 00801
Phone 809-774-3366; Fax 809-774-4917

Northwest Region:

Alaska
Sue Ethelbah
Alaska Department of Education
PO Box F
Juneau, AK 99811
Phone 907-465-2980; Fax 907-465-8729

Colorado
Dale Beckman
Director of Instruction
1391 N. Speer Blvd., Suite 600
Denver, CO 80204-2554
Phone 303-620-4056; Fax 303-825-4295

Idaho
Donald Eshelby
Division of Vocational Education
PO Box 83720
Boise, ID 83720-0095
Phone 208-334-3216; Fax 208-334-2365

Montana
Gus Korb
Northern Montana College
PO Box 7751
Havre, MT 59501
Phone 406-265-3738; Fax 406-265-3777

North Dakota
Ron Mehrer
Division of Vocational Education
15th Floor, Capitol Tower
Bismarck, ND 58505
Phone 701-224-36195; Fax 701-224-3000

Oregon
Claudia Leppert
Oregon Department of Education
700 Pringle Parkway SE
Salem, OR 97310-0290
Phone 503-378-3584; Fax 503-378-5159

South Dakota
Larry Nelson
South Dakota Department of Education
Division of Vocational Education
Kneip Building
Pierre, SD 57501
Phone 605-773-3297; Fax 605-773-6139

Washington
Geri Modrell
Superintendent of Public Instruction
Business Education
PO Box 47200
Olympia, WA 98504-7200
Phone 206-753-5647; Fax 206-753-4515

Wyoming
Ellen Mellot
Vocational Director
Hathaway Building
Cheyenne, WY 82002
Phone 307-777-7415

Southeast Region:

Alabama
Jim Kendrick
Vocational Curriculum Development Unit
Alabama Department of Education
Gordon Persons Building, Room 5234
50 North Ripley Street
Montgomery, AL 36130-3901
Phone 205-242-9108; Fax 205-242-0234

Florida
John Denmark
Florida Department of Education
Agriculture Education Programs
Florida Education Center
1224 Gains and Duval Street
Tallahassee, FL 32399-0400
Phone 904-922-2890; Fax 904-487-0426

Georgia
Jeff Chandler
Georgia Department of Education
Vocational and Applied Technology
1770 Twin Towers East
Atlanta GA 30334-5040
Phone 404-657-8301; Fax 404-651-8984

Kentucky
John Horton
Division of Instructional Support
Office of Technical Education
20th Floor, Capitol Plaza Tower
Frankfort, KY 40601
Phone 502-564-2890; Fax 502-564-4800

Mississippi
Ronda Cummings
Mississippi State University
Research and Curriculum Unit
PO Drawer DX
Mississippi State, MS 39762
Phone 601-325-2510; Fax 601-325-3296

North Carolina
Meg Murphy
Division of Vocational Education
North Carolina Department of Public Instruction
301 North Wilmington Street
State Education Building
Raleigh, NC 27601-2825
Phone 919-715-1673; Fax 919-715-1628

South Carolina
Roger Goupil
South Carolina Department of Education
Office of Occupational Education
1831 Barnwell Street
Columbia, SC 29201
Phone 803-253-4029; Fax 803-253-4035

Tennessee
Lynne Cohen
Division of Vocational and Technical Education
Tennessee Department of Education
710 James Robertson Parkway, 4th Floor
Nashville, TN 37243-0383
Phone 615-532-2837; Fax 615-741-6236

Western Region:

American Samoa
Claire Tuia Poumele
Assistant Director of Secondary Programs
Department of Education
Box 656
Pago Pago, American Samoa 96799
Phone 011-684-633-1246;
Fax 011-684-633-5184

Arizona
Charles Losh
State Administrator
Vocational and Technical Education
Arizona Department of Education
1535 West Jefferson
Phoenix, AZ 85007
Phone 602-542-5282; Fax 602-542-1849

California
T. Chris Almedia
Industrial and Technology Education
Career and Vocational Education Division
California Department of Education
721 Capitol Mall, 4th Floor
Sacramento, CA 95814
Phone 916-657-5425; Fax 916-657-5079

Federated States of Micronesia
Oliver Joseph
Administrator--Vocational Education,
Manpower, and Training
Department of Education
PO Box PS 87
FSM National Government
Palikir, Pohnpei FM 96941
Phone 011-691-320-2609;
Fax 011-691-320-5500

Guam
Teresa Fejarang
Associate Dean, School of Technology and
Human Resources
Guam Community College
PO Box 23069
Guam Main Facility
Guam, Mariana Islands 96921
Phone 011-671-734-4311;
Fax 011-671-734-1003

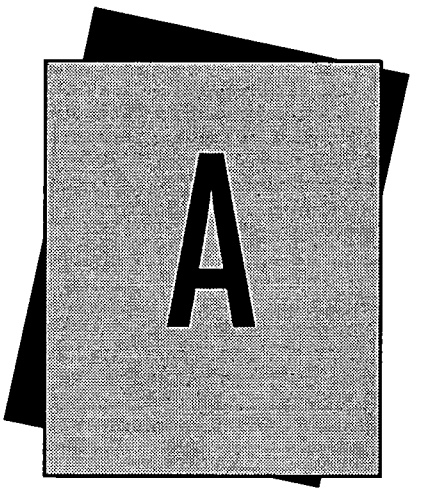
Hawaii
Barbara White
Coordinator of Research and Development
Office of the State Director
1221 Kapiolani Blvd, Suite 220
Honolulu, HI 96814
Phone 808-591-1888; Fax 808-591-1999

Nevada
Keith Rheault
Nevada Dept. Of Education
Capitol Complex
400 West King Street
Carson City, NV 89710
Phone 702-687-3144; Fax 702-687-5660

Northern Marianas
Patrick Tellei
Vocational Education Coordinator
Public School System
PO Box 1370CK
Commonwealth of Northern Marianas
Saipan, MP 96950
Phone 011-670-322-4052;
Fax 011-670-322-4056

Republic of Palau
Martin Sokau
Vocational Education Coordinator
Ministry of Education
Bureau of Curriculum and Program
Improvement
PO Box 189
Korror, Republic of Palau 96940
Phone 011-680-488-2830;
Fax 011-680-488-2830

Republic of the Marshall Islands
Allison Nashion
Asst. Secretary for Vocational and
Secondary Education
Ministry of Education
PO Box 3
Majuro, MH 96960
Phone 011-692-625-3202;
Fax 011-692-3861



Appendix A: Glossary of Terms

Glossary of Terms

All aspects of the industry: "All aspects of the industry or industry sector a student is preparing to enter, including planning, management, finances, technical and production skills, underlying principles of technology, labor and community issues, health and safety issues, and environmental issues, related to such industry or industry sector" (School-To-Work Opportunities Act of 1994, Section 4, Definitions).

Benchmark: A goal or best practice. The benchmarking process involves a continuous and systematic analysis of curriculum and its development process. The benchmark evolves as the curriculum evolves.

Competency A knowledge, skill, or attitude needed by a learner to enter, maintain, and/or advance in a subject area or in the workforce.

Curriculum products: Print, software, and/or video materials addressing particular content, instructional effectiveness, student assessment, and equity and diversity considerations. Products may be targeted to students and/or instructors, and provide the learner and instructor with some direction on how, what, where, and when class-related learning will take place.

Emerging vocationalism: "Developments crucial to the future of education and vocational education and which include a focus that:

- Integrates academic and vocational education;
- Integrates secondary and postsecondary education;
- Develops closer linkages between school and work" (Hayward and Benson, 1993; Rosenstock, 1991).

Integrated[1]: An approach to teaching, learning, and curriculum design that consciously applies materials, methods, and language from more than one discipline to examine a central theme, issue, problem, concept, topic, or experience.

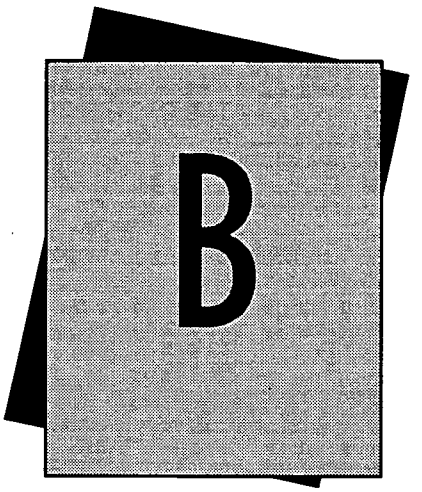
Life Skills: A knowledge or competency which may contribute to a person's life ambitions. Life skills may include: basic skills (e.g., reading, writing, arithmetic and mathematical operations, listening, and speaking); thinking skills (e.g., thinking creatively, decision making, problem solving, visualization, knowing how to learn, and reasoning) and personal qualities (e.g., responsibility, self-esteem, sociability, self-management, and integrity and honesty).

Rubric: A framework or typology.

School-to-Work[2]: A learning concept that encompasses the integration of school-base learning and work-based learning, academic and occupational learning, and establishment of effective linkages between secondary and postsecondary education. Additionally, School-to-Work recognizes learning opportunities that include career majors and the understanding of all aspects of an industry.

[1]Jacobs, H. (1989). *Interdisciplinary Curriculum: Design and Implementation.* Alexandria, VA: Association for Supervision and Curriculum Development, p.8.

[2] Public Law 103-239. (1994). *School-to-Work Opportunities Act of 1994.* Alexandria, VA: American Vocational Association, p. 13.



Appendix B: NCPQ Task Force Members

NCPQ Task Force Members

Carol Bell
Project Director
New Mexico VIPS

Betty Brunelle
Assistant State Director
Wisconsin Technical College System

Naomi Bryson
State Vocational Curriculum Liason
Michigan Department of Education

Pat Cartwright
Curriculum Specialist
Madison Area Technical College

Rebecca Douglass Woodhull
Director
East Central Curriculm Coordination Center
University of Illinois at Springfield

Susan Forman
Director of Relations
Mathematical Sciences Education Board
Washington, DC

Katherine Hanson
Director
Women's Educational Equity Act Publishing Center
Newton, MA

Harley Schlicting
Director
Instructional Materials Laboratory
University of Missouri-Columbia

Jane Huston
Assistant Executive Director
Mid-America Vocational Curriculum Consortium

Ronald Mehrer
Project Director
North Dakota State Board for Vocational & Technical Education

V. Jane Muhl
Professional Program in Nursing
University of Wisconsin-Green Bay

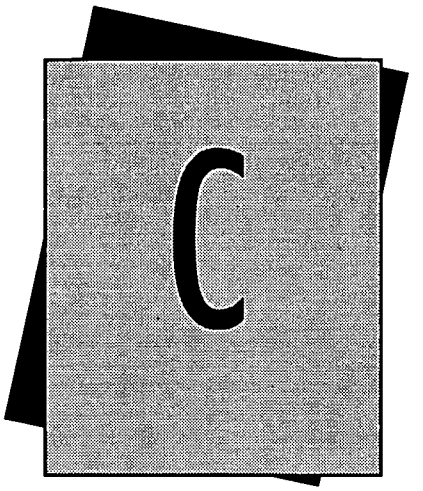
Tom Owens
Senior Research Associate
Northwest Regional Education Laboratory
Portland, OR

Jan Huss
Private Consultant
Evanston, IL

Claudia Leppert
West Valley School District
Spokane, WA

Barbara Dougherty
Project Co-Director
Center on Education and Work
University of Wisconsin-Madison

Margaret Ellibee
Project Co-Director
Center on Education and Work
University of Wisconsin-Madison

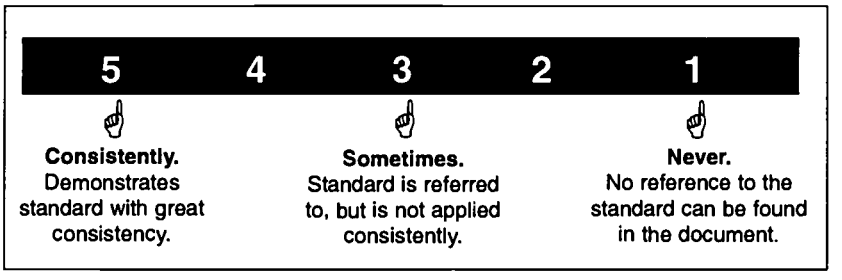


Appendix C:
NCPQ Standards and Indicators

NCPQ Standards and Indicators

The following is a comprehensive list of the Standards and Indicators agreed upon by the National Task Force of the National Consortium for Product Quality. These Standards guide the curriculum review process.

For each Standard statement, reviewers numerically rate the statement's presence in the material using the Likert scale that follows.



Content Standard

School-to-Work curricula must focus on the integration of academic foundations into career development, life skills, and occupational competencies.

- To what extent has the content incorporated validated skills, tasks, and/or competencies to consistently and continually reinforce concepts?
- To what extent do the skills and competencies presented in the product correspond to competencies and skills indicated in the SCANS report?
- To what extent does the product include documentation (e.g., a matrix) of validated occupational, academic, career, and life skills and competencies to show where and how those skills and competencies are being incorporated?
- To what extent does the product identify performance levels for skills and competencies?
- To what extent is the content current?
- To what extent is the content accurate?
- To what extent is the content sequenced from basic to more complex concepts or coherent clusters?
- To what extent are the content objectives and learner objectives aligned?
- To what extent is the content presented in an interesting and appealing manner geared toward diverse student audiences?
- To what extent are career development, career awareness and mobility, and citizenship incorporated throughout instructional content?
- To what extent does the instructional material address the following concepts:
  - Are School-to-Work and academic skills integrated?
  - Are employability and life skills (eg, getting to work on time) included?
  - Is inclusive language used?
  - Are diversity and commonalities among people recognized?
  - Are contributions from people of diverse backgrounds recognized?
  - Is transferability of learned skills/knowledge emphasized?

Instructional Standard

School-to-Work curricula, through active and applied learning experiences in school, community, and work-based settings, must enable students to acquire problem-solving, communication, and reasoning strategies.

- To what extent do the instructional strategies include active and meaningful learning experiences that correspond to stated student outcomes?
- To what extent do the instructional strategies include teaching techniques that enhance the SCANS thinking skills: creative thinking, decision making, problem solving, seeing things in the mind's eye, knowing how to learn, and reasoning?
- To what extent can the suggested instructional strategies be adapted to different learning styles?
- To what extent do the instructional strategies (ie, activities and projects) reflect the diversity of today's workforce?
- To what extent do the instructional strategies incorporate team or small group projects?
- To what extent do the instructional strategies encourage students to interact with each other, instructors, and the community?
- To what extent do the instructional strategies develop students' critical thinking and problem solving skills?
- To what extent to the instructional strategies develop students' skills of writing, speaking, listening, and following directions?
- To what extent do the instructional strategies provide the students with real-world experiences (both in and out of the classroom) which reinforce academic and technology applications?

Student Assessment Standard

Assessments within School-to-Work curricula must be student-focused in measuring attitudes, knowledge, and skills, as well as their application to problem solving within the classroom and workplace environment.

- To what extent are student teams, as well as the individual student, assessed?
- To what extent does the assessment tool(s) measure the attitude, knowledge, and/or skill presented in the material?
- To what extent does the assessment process include feedback and alternative testing opportunities?
- To what extent are performance and portfolio assessments used to measure student knowledge and skills?
- To what extent can the assessments detect change over time?
- To what extent are appropriate assessment methods provided that directly reflect student outcomes?

Equity/Diversity Standard

School-to-Work curricula must reflect content which portrays and celebrates the active participation of all individuals in the nation's workforce, communities, and educational institutions.

- To what extent is the material balanced to reflect the experiences, contributions, voices, and perspectives of all groups?
- To what extent does the content challenge traditional cultural assumptions?

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