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Common Career Technical Core Standards Development Project
Marzano Research Laboratory (MRL)
David Yankoski, December 2012

The Common Career Technical Core (CCTC) standards were developed in 2012 and were based on a previously updated and validated set of Knowledge and Skill Statements for 16 Career Clusters® and 79 Career Pathways. This technical report outlines the process used by the National Association of State Directors of Career and Technical Education Consortium (NASDCTEc) and working groups from participating states, assisted by Marzano Research Laboratory (MRL), to revise and validate the existing Knowledge and Skills Statements and build a foundation for the development of the CCTC.

The purpose of the CCTC project was to develop a common set of consistent and quality standards for Career Technical Education (CTE) in order to provide alignment and support for college and career readiness across the states. The process of transforming the statements into the CCTC started in January 2011 when Subject Matter Experts (SME) began the process of reviewing and rating the 2008 version of the Knowledge and Skills Statements. In addition, benchmark standards were collected from business, industry, and postsecondary institutions along with state standards and other resources. A writing team was convened in the fall of 2011 to analyze the collected input, review the benchmark standards and to propose revisions. The revised statements were validated by industry representatives using an online survey. These revised statements formed the baseline for the development of the CCTC (for more information on the revision of the Knowledge and Skills Statements process see the technical report for revision).

In November 2011, CTE State Directors were provided an opportunity to sign a declaration of support for and to participate in the development of CCTC standards. Forty-two states, the District of Columbia, and the Republic of Palau declared support and were provided an opportunity to identify one SME for each of the 16 Career Clusters®. States identified the SME from curriculum consultants; business; industry; postsecondary education specialists; master teachers; or others. Other states identified a key facilitator that garnered input and feedback from statewide advisory boards or industry councils about the standards.

CCTC working groups composed of the SMEs identified by the CTE State Directors in January and February 2012. The 42 states, the District of Columbia, and Palau provided over 320 working group members across the 16 Career Cluster® areas.

Marzano Research Laboratory (MRL) joined the CCTC project in March 2012, to facilitate and support development of the CCTC.

A 5-phase process was used:

Phase 1: State review of the 2012 version of the Career Cluster® and Career Pathways Knowledge and Skills Statements.
Phase 2: Working group revision.
Phase 3: Public feedback.
Phase 4: Working group validation.
Phase 5: Final standards.

A complete timeline of the CCTC standards project is available in Appendix A.

CCTC Validation and Revision

Phase 1 – State Review of the 2012 Career Cluster™ and Career Pathway Knowledge and Skills Statements

The goal of Phase 1 was to gather feedback from participating state CCTC working group members on the validated 2012 Career Cluster® and Career Pathway Knowledge and Skills Statements.
Introduction to the revision process: Two webinars were held March 19 and 21, 2012 to inform participating state working groups about the background of the project and of the process for providing feedback. The content of the webinars included (Folkers & Hoegh, 2012):

1. Background information on the CCTC development, purpose, and process. In addition to information about the project itself, Jan Hoegh of MRL shared background information about MRL and the role that MRL would play in the revision and validation process.

2. The purpose and design of the CCTC. The CCTC standards are designed to be used to frame overall programs of study, the expectations over a series of courses. The state and industry standards, written much more focused in nature, are used to develop courses within the overall program of study. The standards are designed with a set of Career ClusterTM standards applicable to the overall Career Cluster®, with Career Pathway standards specific to each Career Pathway within the Career ClusterTM.

3. Process and timeline. The project timeline and procedures were discussed. The design and procedures for gathering information were discussed. Specific information on the design of the survey instrument was shared as described below.

The two webinars were recorded and provided as a resource for working group members unable to attend the live session or for further review.

Collection of feedback: MRL developed a survey instrument to gather feedback on the statements. The survey was available from March 21 to April 3, 2012, using a web-based survey tool called SurveyMonkey. A unique survey and link were created for each of the Career Clusters® and CCTC working group members were provided the link for each of the surveys through a secure online portal.

Feedback was limited to one response from each state for each survey. Many states chose to gather feedback from a wide variety of people within the state and summarize the feedback into one submission.

Instructions for completing the survey were provided as a part of the aforementioned introductory webinar, and on the introduction page of the survey. Survey respondents were asked to rate the Content and Level of Processing for each individual statement. Two ratings were provided: Needs Work and On Target. Needs Work was defined as "the Content or Level of Processing requires edits to the Knowledge or Skills Statement". On Target was defined as "the Content or Level of Processing is acceptable." Respondents were given the opportunity to add comments, suggestions or feedback to any statement. Respondents were required to rate the Content and Level of Processing for each statement, but were not required to provide written feedback, although written feedback was requested for any Needs Work rating.

Content was defined by the question "Does the statement represent a core or critical knowledge and skill required for the industry?" The intent of this question was to reveal whether the statement reflected the critical content required for a program of study. Level of Processing was defined by the question "Does the statement require an appropriate level of cognition and challenge?" Respondents were asked to consider the Level of Processing using a model of cognition described by Margaret Kilgo (2009). This model employs four levels of processing:

1. Literal Thinking
2. Interpretive thinking
3. Creative thinking
4. Evaluative thinking

Respondents were asked to take into account not only the verbs used to describe a Level of Processing, but also the content with which a student is expected to interact.

In addition, demographic data and contact information were solicited, and respondents were given the opportunity to (1) indicate whether they could accept the statements as written and (2) provide comments on the process that had been employed thus far.

Survey results: A mean of 13 states responded to the surveys for each of the Career Clusters®. MRL summarized the ratings and comments into 16 individual Career ClusterTM reports. The percentage of responses for both On Target and Needs Work were reported for both Content and Level of Processing. The aggregate mean percentage of On Target responses for Content was 76.5. The aggregate mean of On Target responses for Level of Processing was 79.75.
A total of 3,067 written comments were received from 234 individuals. The written comments for each statement were categorized into one of four categories:

1. Content – Comments that dealt with the content or knowledge/skill contained in the standard.
2. Level of Processing – Comments that dealt with the cognitive requirements of the standards, or whether the standard was appropriate for the grade level.
3. Measurability – Comments that dealt with whether the standard was measurable as written.
4. Clarity/Rewrite – Comments that suggested improvements to the wording of the standard.

When comments were determined to apply to more than one category, they were placed in the category that best represented the whole statement.

The majority of comments (57 percent) were categorized into the clarity/rewrite category. Twenty-seven percent of comments were categorized as content. Level of processing and measurability comments combined for 16 percent of comments. The comments on the statements focused strongly on revisions of the wording and language, rather than concerns about the Content or Level of Processing. This reinforced the validation of the existing statements rather than write new ones.

These summary reports served as the basis for the working group meetings in Phase 2.

Complete results of the state review are listed in Appendix B.

Phase 2 – Working Group Revision

During Phase 2, held April 23 - 26, 2012, MRL and NASDCTEc facilitated a two-hour web meeting session for each of the 16 Career Clusters®. An average of 15 working group members participated in each session. The purpose of this session was to offer suggestions for the revision of each statement based on the results of the state feedback.

After an introductory presentation by Dean Folkers, Deputy Executive Director of NASDCTEc and Jan Hoegh, Associate Vice President of MRL, participants entered virtual meeting rooms to consider the comments, offer revisions and other feedback on the draft Knowledge and Skills Statements. One room was facilitated by Jan Hoegh and one by David Yanoski, Associate Director of Research and Development, MRL. Dean Folkers was available to answer questions and to deal with any technical issues.

MRL utilized the following protocol in both virtual meeting rooms to ensure consistency:

1. The summary report was visible to all participants utilizing Adobe Connect®.
2. Statements that received less than 80 percent approval in either Content or Level of Processing were chosen for review. Statements that received better than 80 percent approval in both categories were not reviewed in detail until the end of the session.
3. Revisions were made to the statement to improve the wording or language, but not to change the content or intent of the statement.
4. Each eligible statement went through a three-step revision process:
    a. Participants were asked to view the individual statement, percentage of responses, and comments.
    b. Participants were given the opportunity to offer comments and suggestions. Any suggested changes were made to the statement immediately by the facilitator, allowing participants to view the revised statement.

c. Participants were asked if they could accept the statement as written. One hundred percent agreement was required before moving on to the next statement.

5. Based on available time, concerns with other statements not chosen for initial review were considered.
6. At the end of each review session, participants were asked for any further comments, concerns or feedback on the set of statements. These were recorded on the bottom of the working document for later review.

Although two hours were scheduled for each of these sessions, many of the sessions exceeded this time period in order to allow the working teams time to comment on all statements chosen for review.

Phase 3 – Public Feedback

The revised statements were put into an online survey instrument, utilizing the same format as the first survey for the collection of public feedback. A webinar was held on April 27, 2012 to inform the public on the background of the CCTC project, the process for developing the CCTC, the progress that had been made up to that point and to answer any questions about the process (Folkers, 2012). The survey was then released for a two - week public comment period, from May 7 to May 18, 2012. In addition to rating each statement, and providing comments, respondents were asked to provide demographic data, their current position, and years of experience with the content area.

A mean of 61 surveys were started for each Career Cluster® with a total of 978 people starting a survey across all content areas. Approximately 50 percent of people who started the survey completed. Seventy percent of respondents identified themselves as representatives of secondary education, with responses from postsecondary education (14 percent), state agencies (8 percent), business (4 percent), other (2 percent), and industry (2 percent) rounding out the responses. There were no responses from federal agencies. The high number of secondary education professionals reflects the interest in the work that was built from industry - validated Knowledge and Skills Statements. Because of the significant involvement of business and industry during the initial revision and validation of the Knowledge and Skills Statements, the input through the public comment period was lower and represented more of the educators involved with the teaching and learning of the industry skills.

Complete demographic results are available in Appendix C.

Seventy – eight percent of responses submitted via the public comment period, across all content areas, felt that the content of the statements was On Target, while 79 percent felt that the Level of Processing was On Target. The written comments across all Career Clusters® fell into four general categories:

1. Clarity/Rewrite

The majority of comments, across all content areas, asked that the language or wording of standards be made clearer and more succinct. In addition, the comments asked that language referring to the reason for, or result of, the expectation be left out in order to make the goal easier to read and understand.

2. High School Appropriate

There were a number of comments concerning the feasibility or appropriateness of the expectation for high school students. Because the statements were designed to reflect the goals of a program of study, these comments reflected a misunderstanding of the purpose of the standards.

3. Lack of Resources

Another clear theme was the concern that local schools did not have the resources (financial, equipment, expertise) to meet the standard. Because the standards define the ultimate goal for a student in a program of study, and programs vary widely around the country, it was determined that these comments could not be an important consideration in the final revisions.

4. Lack of Specificity

Commenters were concerned that the standards were fairly broad and represented overall program of study objectives rather than individual course objectives. These comments reflected a misunderstanding of the purpose of the standards.

The comments and ratings indicated significant public concern with only two content areas: Transportation, Distribution & Logistics (TDL) (with approval of only 59 percent in both categories) and Science, Technology, Engineering & Mathematics (STEM) (with approval ratings of 66 percent and 69 percent). An analysis of the comments in both areas indicated that the respondents misunderstood the purpose of the standards, expecting specific course-level standards instead of broad program of study standards. In addition, comments on the STEM standards indicated that respondents expected the standards to reflect individual concerns that were not applicable to the purpose of the standards.

Overall, the feedback collected in the public comment period indicated an overall strong level of support for the CCTC Standards, with close to 80 percent approval in both Content and Level of Processing.

Complete results of the Public Feedback are listed in Appendix D.

Phase 4 – Working Group Validation

After the public comment period, the working groups met in one hour web meetings for each of the 16 Career Clusters® to validate the revised statements. These sessions were facilitated by Jan Hoegh and Margaret McInteer, MRL Associate.

These sessions utilized the following protocol:

1. This session was designed for the working group to validate the revised and updated CCTC standards.

2. Teams were asked to indicate their level of satisfaction with the revised statements utilizing polling tools available through the web meeting room. Statements receiving an average of three or higher (on a scale of 1 to 5) were considered approved by the working group.

3. Those statements not receiving consensus were further reviewed and revised based on feedback from the working group. The statements were displayed using the Adobe Connect® meeting room tools, and revisions were made immediately, allowing working group members to view the revised statement. Consensus of the group was obtained before moving on to the next statement.

4. All working groups agreed to further revision by MRL to provide a consistent application of terms, verbs, and conventions across all of the Career Clusters®. The adjustments made were in style and consistency across the Career Clusters™ and not the content.

Phase 5 – Final Standards

All changes made during Phase 4 were incorporated into the final standards document. In addition, any comments made during Phase 3 – public feedback about individual statements that received less than 70 percent On Target -- were considered as a part of the final revisions made by MRL. As indicated above, the majority of comments dealt with clarity of language, choice of terms and wordiness issues. All comments were considered and suggestions were adopted when MRL felt that the suggestion resulted in a better final product. Comments that fell into the other categories indicated above (high school appropriate, lack of resources, and lack of specificity) were considered, but most were rejected based on a misunderstanding of the purpose of the standards.

This final set of statements was revised for grammar, NASDCTEc/NCTEF style guide consistency, clarity and readability based on internal feedback from both MRL and NASDCTEc. No changes were made to the content expectations; however, changes were made to the language in order to make the standards more consistent within and across Career Clusters®.

Career Ready Practices

These were reviewed and validated in 2011 by business and industry leaders, state education leaders, secondary teachers, and postsecondary educators as a part of the validation process for the Career Cluster®/Career Pathway Knowledge and Skill Statements.

Review/Validation: The validated statements were released for public comment during the Phase 3 – public feedback period. An online survey instrument was created, asking respondents to rate each practice as On Target or Needs Work and to provide written comments or feedback on each practice. The feedback collected through the public comment period was used to provide additional input and validation on the individual Career Ready Practices.

Results: Three hundred two respondents provided feedback on the Career Ready Practices. An aggregate mean of 78 percent of On Target responses was collected. A threshold of 70 percent On Target responses was used for approval of the standard.

Only one standard area fell below the 70 percent approval level: Communicate Clearly, Effectively, and with Reason. An analysis of the comments revealed dissatisfaction not with the wording of the practice statement, but specifically with the use of the word "conversationalist" in the description about the statement. Revisions were made to the description by NASDCTEc and MRL to eliminate this word.

The statements for the Law, Public Safety, Corrections & Security Career ClusterTM (LPSCS) were revised following the same five-phase process as the other Career Clusters®. However, it was determined after the process was completed that an incorrect set of initial statements was transmitted by the contractor and subsequently did not reflect the correct validated revisions. In order to maintain the consistency of procedure, the decision was made to repeat the process for this Career Cluster™ and reconvene the CCTC working group.

The following protocol was used:

1. The correct statements were put into an online survey utilizing the same format as the Phase 1 survey, and made available to the LPSCS CCTC working group that provided the initial comments. The survey was made available for two weeks, from July 27, 2012 to August 13, 2012.

2. The results were summarized using the same format.

3. The working group was reconvened on August 21, 2012 to consider the comments and feedback. The same three-step procedure was utilized during this session.

4. The statements were not made available for public comment but relied on the high level of confidence achieved during the initial comment period.

5. The revised statements were then further revised by MRL for clarity and consistency.

Results: The average of On Target responses for Content was 88 percent across the 78 Knowledge and Skills Statements, with On Target responses for Level of Processing averaging 87 percent. Ninety-nine total written comments were received, breaking down into clarity/rewrite comments (76 percent), measurability (15 percent), content (8 percent), and level of processing (0 percent).

Complete results are available in Appendix E.

Common Career Technical Core standards

The statements resulting from this process were adopted by NASDCTEc Board of Directors on June 4, 2012 as the Common Career Technical Core (CCTC). The NASDCTEc Board approved the final standards in June 2012, and they were released to public on June 18, 2012

Successes of the Project

The online format of the data collection process ensured the opportunity for states to participate in a national process in tight fiscal times. In addition, the process presented an opportunity to utilize technology and save a significant amount of human and fiscal resources, while ensuring engagement. Over 1,500 individual responses were received through the process, with over 4,000 individual comments.

Recommendations for Improvement

1. A major issue throughout the course of the standards validation process was the lack of understanding of the purpose of the standards for use the program level versus the course level. Despite attempts to communicate the intended purpose during each webinar, the comments and feedback received indicated that there was still a great deal of misunderstanding of the purpose. Those people that provided feedback but did not view the webinar did not receive information about the purpose of the standards. In addition, this information was not communicated to those people participating in the public feedback phase. This resulted in a number of comments that did not reflect meaningful feedback. In order to address this issue, future surveys for this purpose should contain language in the instruction page and on each page of the survey outlining the purpose of the standards. In addition, all communication soliciting participation should include this language.

2. In gathering public feedback, the decision was made to utilize the same survey format and questions as the state feedback phase. However, the public feedback portion was intended to serve a different purpose: validation and approval of final standards rather than gathering comments and feedback. A different survey asking for acceptance of the overall set of standards, and offering an opportunity to comment on the set of standards as a whole rather than comments on individual standards would have better met the designed purpose of the public feedback stage. In addition, this would have resulted in a shorter survey, and likely would have resulted in a higher percentage of completion.

3. The inclusion of a question asking respondents whether they could accept the standards as written in Phase 1 – State Feedback was premature, and led to concerns from respondents that their feedback was moot.

4. Future efforts should ensure that participants have an opportunity to test the online web meeting system and have the correct set-up to ensure a smooth start to each of the meetings.

5. Reduce the amount of context at the front end of the working group meetings to ensure the time is effectively and efficiently utilized in the online environment. This, of course, is a balance between ensuring the participants understand the purpose and expectations while not providing too much information up front.

References:

Folkers, D. (2012, April). Common career technical initiative [Webinar]. Retrieved from: https://cisco.webex.com/ec0605ld/eventcenter/recording/recordAction.do?theAction=poprecord&actname=%2Feventcenter%2Fframe%2Fg.do&actappname=ec0605ld&renewticket=0&renewticket=0&apiname=lsr.php&entappname=url0107ld&needFilter=false&&isurlact=true&rID=60369262&entactname=%2FnbrRecordingURL.do&rKey=fda91d6c91fce484&recordID=60369262&siteurl=ciscosales&rnd=6220172769&SP=EC&AT=pb&format=short

Folkers, D., & Hoegh, J, (2012, March). Common career technical core initiative [Webinar]. Retrieved from: http://www.careertech.org/file_download/42dbae52-2781-43a5-8907-c50b4517090b

Kilgo, M. (2009). Scope and Sequence Workshop [Handout]. Retrieved from http://margaretkilgo.com/Workshop-SS.htm

Resources:

Common Career Technical Core Project website: http://www.careertech.org/career-technical-education/cctc/

Common Career Technical Core standards: https://careertechorg.presencehost.net/file_download/9afd13df-19b8-4689-ab18-2d7846b4258e.pdf

Marzano Research Laboratory (MRL) website: www.marzanoresearch.com

National Association of State Directors of Career and Technical Education Consortium (NASDCTEc) website: www.careertech.org

Appendix A
Common Career Technical Core Standards Project Timeline

Preliminary:
Spring 2011 - Winter 2011: A comprehensive review and validation by industry and education experts of the existing Career Clusters® Knowledge and Skills Statements, which served as the foundation for the CCTC.

December 2011 - January 2012: States signed a declaration of support for the development of the CCTC.
February - March 2012: Supporting states nominated working group members to participate in the development of the draft CCTC.

March 2012: The development of the first draft of the CCTC is completed.

Phase 1:
March 19 and 21, 2012: Initial webinars informing the working groups of the feedback process.
March 21 - April 3, 2012: State feedback collection.
CCTC working groups review and comment on the first draft of the standards.
Synthesis of the results conducted in preparation for the working group meetings.

Phase 2:
April 23-26, 2012: Working groups meet to review the feedback collected from the survey and recommend changes and modifications.
Public feedback survey developed.
April 27, 2012: Public feedback webinar

Phase 3:
April 30 - May 11, 2012: Public comment period.
Public feedback synthesized

Phase 4:
May 23 and 24, 2012: Working groups finalize standards.

Phase 5:
May - June 2012: MRL and NASDCTEc finalize standards.

Final standards:
June 2012: Public release of CCTC.
June 2012 and beyond: States move to adoption of CCTC.
August 2012: Drafted Technical report

Appendix B
Results: Phase 1 - State Review of Knowledge and Skill Statements
Summary of Feedback

Career Cluster®	Number of respodents	States responding	Mean of "On Target" responses (%)		Categories of Comments: # of comments/percentage of total comments All percentages rounded
			Content	Level of Processing	
Agriculture, Food & Natural Resources	20	OR, AR, MI, NY, MO, FL, CA MO, PA, WY, OH, NC, IA, CO WI, IN, NJ, KY, NV, ME, NE	82	75	214 total comments Clarity/Rewrite: 95/44% Content: 62/29% Measurability: 1/1% Level of Processing: 56/26%
Architecture & Construction	17	OR, AR, NJ, NY, FL, NC, ME, IA WI, MO, OH, MS, NM, NC, IN, WY, CO	78	81	231 total comments Clarity/Rewrite: 87/38% Content: 63/27% Measurability: 4/2% Level of Processing: 77/33%
Arts, A/V Technology & Communications	15	OR, AR, NM, CO, NV, IN, NC, MN, NJ MO, NY, MS, WI, OH	79	68	214 total comments Clarity/Rewrite: 76/36% Content: 66/27% Measurability: 27/11% Level of Processing: 45/18%
Business, Management & Administration	15	OR, CO, NY, AR, IA, MI, IN, NC, WI MS, OH, NV, NJ, OK, KY	79	85	136 total comments Clarity/Rewrite: 96/71% Content: 36/26% Measurability: 3/2% Level of Processing: 1/1%
Education & Training	18	OR, KS, CA, AR, NM, MO, NY, MD NJ, WI, NC, OK, IN, IA, MI, MS, ME CO	81	83	307 total comments Clarity/Rewrite: 100/48% Content: 84/41% Measurability: 4/2% Level of Processing: 19/9%

Appendix B
Results: Phase 1 - State Review of Knowledge and Skill Statements
Summary of Feedback

Career Cluster®	Number of respodents	States responding	Mean of "On Target" responses (%)		Categories of Comments: # of comments/percentage of total comments All percentages rounded
			Content	Level of Processing	
Finance	12	OR, CO, AR, MS, IN, MN NC, WI, NY, NV, OH, OK	74	77	175 total comments Clarity/Rewrite: 127/73% Content: 36/21% Measurability: 1/1% Level of Processing: 11/6%
Government & Public Administration	6	AR, MS, NC, NY, OH, MO	67	85	85 total comments Clarity/Rewrite: 35/41% Content: 16/19% Measurability: 15/18% Level of Processing: 18/21%
Health Sciences	17	OR, AR, OK, NC, WI, OH IN, CT, IA, VT, WV, NJ, NV NY, OR, CO, ND	70	79	201 total comments Clarity/Rewrite: 100/50% Content: 63/31% Measurability: 21/10% Level of Processing: 17/8%
Hospitality & Tourism	17	OR, NY, MO, AR, NV, NC WI, NM, IN, MN, IA, OK NC, MS, WI, VT, CO, OH	83	86	198 total comments Clarity/Rewrite: 123/62% Content: 49/25% Measurability: 2/1% Level of Processing: 24/12%
Human Services	15	OR, CA, AR, ND, IN, MO NC, OH, WI, MS, MN, IA, MI NJ, OR	82	80	155 total comments Clarity/Rewrite: 100/65% Content: 18/12% Measurability: 9/6% Level of Processing: 28/27%

Appendix B
Results: Phase 1 - State Review of Knowledge and Skill Statements
Summary of Feedback

Career Cluster®	Number of respodents	States responding	Mean of "On Target" responses (%)		Categories of Comments: # of comments/percentage of total comments All percentages rounded
			Content	Level of Processing	
Information Technology	12	AR, NC, NV, CO, IN, WI, NJ NC, NY, OH, OK, FL	74	85	201 total comments Clarity/Rewrite: 175/87% Content: 20/10% Measurability: 3/1.5% Level of Processing: 3/1.5%
Law, Public Safety, Corrections & Security	13	AR, MS, MN, NJ, NC, MD, WI OH, NY, NV, NC, IN, CO	86	89	85 total comments Clarity/Rewrite: 188/58% Content: 64/20% Measurability: 31/10% Level of Processing: 43/13%
Manufacturing	18	OR, KS, AR, MS, NC, NY, NJ NV, FL, MO, MN, OH, NC WI, IN, MD, CO, CT	67	70	20771 total comments Clarity/Rewrite: 186/67% Content: 64/23% Measurability: 13/5% Level of Processing: 14/5%
Marketing	14	CO, MO, AR, MO, NC, MN WI, IN, MS, OH, NC, NV, ME OK, MI, NC	79	76	154 total comments Clarity/Rewrite: 98/64% Content: 38/25% Measurability: 14/9% Level of Processing: 4/3%
Science, Technology, Engineering & Mathematics	19	OR, NC, CO, FL, NY, MN WY, AR MO, OK, NM, NC WI, MI, IN, ND, NJ, CT	60	75	202 total comments Clarity/Rewrite: 132/65% Content: 56/28% Measurability: 4/2% Level of Processing: 10/5%

Appendix B
Results: Phase 1 - State Review of Knowledge and Skill Statements
Summary of Feedback

Career Cluster®	Number of respodents	States responding	Mean of "On Target" responses (%)		Categories of Comments: # of comments/percentage of total comments All percentages rounded
			Content	Level of Processing	
Transportation, Distribution & Logistics	16	OR, AR, FL, MS, NC, NV MD, MO, WI, NV, OH, MN IN, NY, CO	83	82	91 total comments Clarity/Rewrite: 39/43% Content: 37/41% Measurability: 4/4% Level of Processing: 11/12%

Appendix C
Results: Phase 3 - Public Feedback
Demographic Data

Career Cluster®	Business and Industry	Industry Association	Secondary Education	Postsecondary Education	State Agency	Other
All percentages rounded	**% of responses**	**% of responses**	**% of responses**	**% of responses**	**% of responses**	**% of responses**
Agriculture, Food & Natural Resources	4	1	67	12	12	4
Architecture & Construction	3	2	73	10	10	5
Arts, A/V Technology & Communications	1	0	86	10	1	2
Business, Management & Administration	4	0	75	16	4	1
Education & Training	0	0	65	19	11	5
Finance	9	0	59	14	9	9
Government & Public Admistration	0	0	63	0	25	13
Health Sciences	3	0	67	21	4	4
Hospitality & Tourism	2	2	71	13	13	0
Human Services	4		76	4	14	0
Information Technology	2	2	76	13	4	4

Appendix C
Results: Phase 3 - Public Feedback
Demographic Data

Career Cluster®	Business and Industry	Industry Association	Secondary Education	Postsecondary Education	State Agency	Other
All percentages rounded	**% of responses**	**% of responses**	**% of responses**	**% of responses**	**% of responses**	**% of responses**
Law, Public Safety, Corrections & Security	0	0	73	18	5	5
Manufacturing	9	13	57	15	4	2
Marketing	7	0	74	13	3	3
Transportation, Distribution & Logistics	5	2	59	23	10	2
Science, Technology, Engineering & Mathematics	3	0	73	16	2	6

Appendix D
Results: Phase 3 - Public Feedback
Summary of Feedback

Career Cluster®	Number of respodents	Number of respodents who completed entire survey	Mean of "On Target" responses (%)		Categories of Comments
			Content	Level of Processing	Comments across all Career Clusters® fell into 4 general categories:
Agriculture, Food & Natural Resources	140	60	78	78	1. Clarity/Rewrite The majority of the comments asked that the language or wording of standards be made clearer and less wordy.
Architecture & Construction	63	33	85	86	
Arts, A/V Technology & Communications	91	48	73	73	
Business, Management & Administration	96	44	72	75	2. High School Appropriate There were a number of comments concerned about whether the standard was an appropriate expectation for high school students, or was feasible for high students to perform.
Education & Training	80	40	86	84	
Finance	22	11	78	85	
Government & Public Administration	8	6	75	77	
Health Sciences	70	30	75	80	
Hospitality & Tourism	48	18	82	80	3. Lack of resources Another clear theme was the concern that local schools did not have the resources (financial, equipment, expertise to mee the standard.
Human Services	49	20	79	82	
Information Technology	53	20	85	86	
Law, Public Safety, Corrections & Security	22	7	91	96	
Manufacturing	46	19	78	78	
Marketing	32	18	80	80	4. Lack of specificity Commenters were concerned that the standards were fairly broad and represented overall program of study objectives rather than individual course objectives
Science, Technology, Engineering & Mathematics	97	61	66	69	
Transportation, Distribution & Logistics	61	30	59	59	
Total and Means	978	465	77.63	79.25	

Appendix E
Results: Amended Process - Law, Public Safety, Corrections & Security - State Review of Knowledge and Skill Statement Summary of Feedback

Career Cluster®	Number of respodents	States responding	Mean of "On Target" responses (%)		Categories of Comments: # of comments/percentage of total comments All percentages rounded
			Content	Level of Processing	
Law, Public Safety, Corrections & Security	11	IA, OH, GA, MS, MD, WI, NV, MO, WI, NY, OK	88	87	99 total comments Clarity/Rewrite: 76/77% Content: 8/8% Measurability: 15/15% Level of Processing: 0/0%