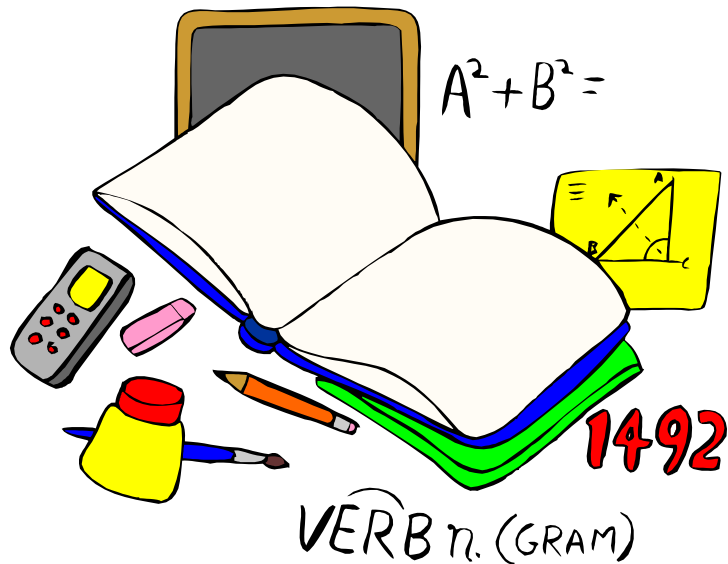


GUIDE TO CAREER AND TECHNICAL EDUCATION



ACADEMIC CLASSROOM ASSESSMENTS

INTRODUCTION

On October 18, 2001, the Illinois State Board of Education (ISBE) adopted four major goals, one of which relates to student achievement and supporting local districts so all students will meet the Illinois Learning Standards (ILS). To address the achievement of this goal, the Board adopted a standards-led approach to teaching and learning. It is critical that Career and technical education (CTE) instructors connect to and add value to efforts of local districts to improve student competence in all learning areas and performance on statewide achievement tests.

CTE instructors already incorporate the standards into their curriculum on a daily basis since many occupational skills cannot be successfully accomplished or measured without the application on language arts, math, social science or science skills. Whether CTE students are seeking employment after high school or continuing their education at an institution of higher education, they must be able to read, listen, speak, write, perform mathematical functions and apply social science skills and scientific processes proficiently to be considered skilled in their chosen career area.

To clearly demonstrate this connection to the ILS, CTE instructors also must assess the academic skills in their classrooms. State Board staff initiated the Career and Technical Education Academic Classroom Assessments project to measure the academic skills (ILS) required of students to successfully complete CTE classroom activities.

As a result of this project, a total of 149 sample assessments have been developed by CTE instructors in the areas of Agriculture (34); Business, Marketing and Management (31); Family and Consumer Sciences (33); Health Occupations (23); and Industrial Technology (28). Each of these sample assessments addresses one or more of the ILS in the areas of Language Arts, Mathematics or Social Science. These sample assessments cover a portion of the content covered in CTE classes. They are intended to stimulate the development of additional assessments by CTE instructors and serve as a guide for integrating the assessment of applicable ILS into the assessment of student performance of occupational skills.

For further information on the assessments or for assistance in using this [Guide](#), contact the Career Development Division at 217/782-4620.

A handwritten signature in black ink, reading "Richard J. Miguel". The signature is written in a cursive style with a large, stylized initial "R".

Richard J. Miguel, Manager
Standards Aligned Learning

GUIDE TO CAREER AND TECHNICAL EDUCATION ACADEMIC CLASSROOM ASSESSMENTS

Over 40% of the Illinois juniors who took the Prairie State Achievement Exam (PSAE) in the spring of 2001 and 2002 did not meet the standards for the five content areas of reading, mathematics, writing, science and social science. Although student scores were fractionally higher in reading, writing and science in 2002, significant achievement gains were not obtained. Couple the PSAE results with the requirement of the No Child Left Behind (NCLB) Legislation for ALL students to be proficient in reading and mathematics by the end of the 2013-2014 school year and the result is significant emphasis being placed on increasing the skills of all students in these learning areas.

It is, therefore, critical that Career and Technical Education (CTE) instructors connect to and add value to efforts of local districts to improve student competence in the learning areas and performance on statewide achievement tests such as the PSAE. The Illinois Learning Standards (ILS) are the roadmap to this connection and are critical to improving student performance. These standards are incorporated into CTE curriculum on a daily basis since most occupational skills cannot be successfully accomplished or measured without the application of language arts, math, social science and science skills. Whether CTE students are seeking employment after high school or continuing their education at an institution of higher education, they must be able to read, listen, speak, write, perform mathematical functions and apply social science skills and scientific processes proficiently to be considered skilled in their chosen career area.

Because CTE can and must be a contributing partner in improving student performance, the "Guide to Career and Technical Education Academic Classroom Assessments" is designed to assist in connecting student assessment processes with the ILS. Until this connection is made, limited concrete evidence will exist to demonstrate that the ILS are included in CTE curriculum and that CTE adds value to a student's ability to meet or exceed these standards.

CONNECTING CTE INSTRUCTION WITH THE ILLINOIS LEARNING STANDARDS

"After 50 years in education, I am convinced that few other teaching strategies will so effectively help increase student achievement as helping students make the connections between classroom subject matter and the real-life challenges they will face throughout their lives." Dale Parnell made this statement in his book, Contextual Teaching Works. In this statement he was implying that students learn best through applying the theories they learn in school to real-world applications. CTE instructors have long recognized this need to connect theories with real-world applications. They know ALL students can learn but realize students learn in different ways. The application of knowledge to "real life" problems is an extremely effective way for students to learn and be able to apply their knowledge during assessment situations.

The stakes to ensure all students meet or exceed reading and mathematics standards increased with the signing of the federal NCLB legislation by President George W. Bush on January 8, 2002. Although much of the emphasis of this legislation is currently at the elementary grades, the final student performance will be measured at the end of the public school experience. Following are two performance goals from the Illinois Consolidated State Application for NCLB which specify expected outcomes that will impact high school programs and students:

- By 2013-2014, all students will reach high standards, at a minimum attaining proficiency or better in reading/language arts and mathematics.
- All students will graduate from high school with a regular diploma by 2013-2014.

As can be seen from these expectations, the high school years will be critical if Illinois is to achieve the expected performance levels. Students enrolled in CTE courses will be expected to demonstrate the required academic skills at the "meets" or "exceeds" level of performance. As a result, CTE instructors must be actively involved in assuring that student participation in CTE programs adds value to achieving

these expected outcomes. Whenever possible, curriculum must be stretched to ensure CTE students achieve the higher levels of the ILS.

Work to date by CTE instructors in aligning curriculum with the ILS has shown that it connects with many of the Learning Standards. Although these connections have been identified, it is not the intent of CTE to actually teach the Learning Standards but, instead, to reinforce the ILS through applied learning. This reinforcement enables CTE to increase the ability of students to meet or exceed the ILS at the higher levels of performance.

CTE instructors, as a group, teach to multiple Illinois Learning Standards across content areas. For example, culinary arts teachers may require students to create a restaurant menu. This one activity may involve the study of the economic concepts of supply and demand, mathematics concepts of percent increase and decrease to price menu items to make a profit, English/language arts proofreading skills, physical development and health concepts in nutrition and fine arts skills in designing the look of the menu. This same type of cross-disciplinary activity is not always available within academic disciplines. For this reason alone, CTE clearly adds value to the total school curriculum by bringing many skills together within one real-world application. Through this, students can see the application of knowledge to "real" situations they will encounter upon completing their education.

The CTE sample classroom assessments developed to date relate to the learning areas of Language Arts, Mathematics and Social Science. These sample assessments demonstrate how CTE skills connect with the Learning Standards in daily classroom settings and add value to student learning as measured against the Illinois Learning Standards. For instance, in the area of Language Arts, the following connections can easily be made:

- Learning to apply technical vocabulary (Standard 1A)
- Reading and understanding technical manuals (Standard 1B)
- Using correct grammar, spelling, punctuation, capitalization and sentence structure in writing assignments (Standard 3A)
- Writing for specific purposes such as job application letters or persuasive letters to companies (Standard 3B)
- Listening effectively in both informal and formal situations (Standard 4A)
- Speaking before groups and with other individuals (Standard 4B)
- Writing research reports using appropriate sources and styles (Standards 5A/B/C)

Mathematical skills are vital to the successful completion of many occupational skills. Specific examples of mathematical skills used in CTE courses and student organizations include:

- Calculating interest rates (Standards 6C/8A/8C)
- Using metric measurements (Standard 7A)
- Using algebra to determine sales prices (Standard 6D)
- Calculating the resistance in electrical wire (Standards 6D/7A)
- Accurately measuring the area of a floor, wall or ceiling or the acres in a field (Standards 7A/7B)
- Using geometry to calculate angles and ensuring that buildings are square (Standards 7A/7C/9A/9B)
- Conducting market research, analyzing the results and explaining the findings using statistics (Standard 10B)
- Calculating the depreciation rate for equipment (Standards 8A/8B)

Social Science skills are also addressed in many career programs. Specific examples include:

- Understanding how the laws of supply and demand often influence prices and consumer choices (Standards 15A/B/C/D)
- Understanding the impact of state, national and international social systems, government regulations and labor laws on the production of goods and services (Standard 15D)
- Understanding how changes in our social system impact families and the aging population (Standard 18B)

In summary, the connection between CTE instruction and the Illinois Learning Standards is clear. It is easy to see that the successful attainment of many occupational skills is intertwined with numerous skills found within the learning areas of Language Arts, Mathematics and Social Science. Because they are so closely aligned, these academic and occupational skills may be assessed jointly so all students are held to the same high standards whether associated with an occupational skill or an Illinois Learning Standard. It is the purpose of the sample CTE classroom assessments to show how this assessment can occur using assessments and scoring rubrics originally designed for use in content area classrooms. More information regarding these assessments and rubrics follows.

SAMPLE CTE ASSESSMENT DEVELOPMENT AND INTENDED USE

To assist CTE instructors and administrators make the assessment connection with the ILS, a set of sample classroom assessments applicable to CTE have been developed by a group of Illinois CTE instructors (see Appendix A for the list of assessment developers). A total of 149 individual sample assessments were developed in the areas of Agriculture (34); Business, Marketing and Management (31); Family and Consumer Sciences (33); Health Occupations (23) and Industrial Technology (28). Each of these sample assessments addresses one or more of the ILS in the areas of Language Arts, Mathematics or Social Science. In total, the 149 sample assessments incorporated the assessment of 40 of the 54 standards in these 3 learning areas. Although the Science standards were not addressed in this first development effort, there are plans to develop CTE related sample assessments in this learning area at a later date.

A process similar to that used to develop the sample content-area classroom assessments was used with the CTE assessments. This process is described below:

- Potential assessment developers who had been heavily involved in the alignment of their curriculum with the ILS were identified by system directors and others.
- Existing content-area classroom assessments were reviewed and selected by the assessment developers for their adaptability and use in CTE classrooms.
- Following this review, selected assessments were modified by the CTE instructors.
- The modified assessments were then reviewed by experts in language arts, math and social science to ensure they were valid and met the same rigor as the original content-area assessments.
- The CTE assessments were then reviewed and endorsed by ISBE content-area specialists in language arts, mathematics and social science.

The CTE sample assessments will serve to assist CTE instructors in connecting their everyday student assessment process with the ILS rather than solely assessing student progress in meeting the Illinois Learning Standards. It should be noted that these assessments are samples and cover only a portion of the content covered in CTE classes. Given the magnitude of content coverage in the various curricula offerings in the five occupational areas, it would be impossible and impractical to develop comprehensive statewide assessment material. The sample assessments are intended to stimulate the development of additional assessments by CTE instructors and serve as a guide for incorporating the assessment of applicable ILS into the assessment of student performance of occupational skills.

In summary, 149 CTE sample assessments have been developed by CTE instructors for CTE instructors and have undergone the same scrutiny and rigor as the sample assessments specifically developed for Language Arts, Math and Science. The sample CTE assessments can be accessed through the Illinois State Board of Education web page at

<http://www.isbe.net/ils/descriptors.htm>

Click on "Classroom Assessments" which can be found in the lower right corner of this page directly across from the Career Development and Preparation box to find the assessments by occupational area.

STANDARDS ALIGNED LEARNING

Before taking a more in-depth look at the sample CTE assessments, it is essential that CTE instructors have a basic understanding of standards aligned learning and the Illinois Learning Standards (Language Arts, Mathematics and Social Science) and their related Performance Descriptors.

Assessment Mindset

CTE instructors are faced with the challenge of offering curriculum content, instructional methods and forms of assessment that are aligned with standards. Standards aligned learning links curriculum, instruction and assessment. Assessment becomes an essential part of instruction. In such a system, assessment and instruction are like two sides of the same coin.

Classroom assessments should enhance student learning and instruction. Classroom assessments should not only demonstrate what students need to know and be able to do, but they should also focus on understanding and procedural skills. The assessment becomes a guide for the student learning by providing teachers with information needed for making instructional decisions.

This assessment mindset makes a shift from thinking of assessment as something done only at the end of teaching to assessment as an on going, integrated, part of instruction. Assessment experts suggest that we begin with the end in mind. Instead of starting with textbooks and lesson plans, instructors should begin with the desired outcomes (performance standards), then determine acceptable evidence for meeting the standard and finally plan the learning experiences and instruction to ensure students achieve the desired standard.

Illinois Learning Standards

In 1997, the Illinois State Board of Education (ISBE) adopted a set of learning standards that were divided into the seven learning areas of English Language Arts, Mathematics, Science, Social Science, Physical Development and Health, Fine Arts and Foreign Languages. Considerable work by ISBE and local district personnel to incorporate the Learning Standards into the curriculum and instruction occurring in Illinois' K-12 classrooms has occurred. CTE has embraced the standards and is also an active partner in this process. Although much work has been done, more still remains. It is important that all CTE instructors are familiar with the Learning Standards applicable to their instructional area and teach to these standards.

The area of English Language Arts has 13 separate standards associated with 5 learning goals. The five goals include 1) reading, 2) literature, 3) writing, 4) listening and speaking and 5) research. CTE sample assessments have been developed in all learning goals but literature. The application of the other four goals was readily apparent to the assessment writing team.

The Mathematics area also has 5 goals that include 18 different standards. The five areas are 1) number sense, 2) estimation and measurement, 3) algebra and analytical methods, 4) geometry and 5) data analysis and probability. There are CTE sample assessments in all five goal areas. Most career programs regularly incorporate mathematical processes into their curriculum. In addition to frequently using the foundational skills of addition, subtraction, multiplication and division, CTE students often use algebraic equations, geometric concepts and trigonometric functions to solve career related problems.

Assessments associated with the data analysis and probability goal in Mathematics along with the research goal in Language Arts are ways curriculum in upper-level CTE courses could be stretched. CTE students should be expected to meet or exceed standards in these areas as well as occupation specific standards if they are to be successful employees in today's high tech labor force.

The third learning area, Social Science, also has clear links to the CTE curriculum. Again there are five Social Science goals including 1) political systems, 2) economics, 3) history, 4) geography and 5) social systems. Most CTE sample assessments were developed in the goal areas of economics, geography

and social systems. Many occupations are linked closely to supply and demand concepts, the availability of raw materials and the choices that customers make. CTE instruction can and does add value to a student's understanding of various standards in the Social Science learning area.

A complete list of the Learning Standards is included on the Career and Technical Education Academic Classroom Assessments CD. A copy of the Learning Standards may be obtained by contacting the ISBE Public Information Center at 217/782-4321 or can be accessed through the Illinois State Board of Education web page as follows:

- Open the ISBE web page at www.isbe.net
- Select the Standards Aligned Learning button on the left hand side of the page
- Select the Curriculum and Instruction Division
- Select Illinois Learning Standards
- An alternative is to type <http://www.isbe.net/curriculum/CTE/cte.htm> in the address line of your Internet browser

Performance Descriptors and Stages

A set of performance descriptors has been developed for each learning standard that serves to further delineate the intent of the standard and assists in directing the associated assessments of the standard. Descriptors for each of the learning standards have been developed for ten Stages labeled A through J. The CTE sample assessments were developed at Stages H, I and J as these stages most closely related to the developmental levels of students at the high school level. Some high school students may still be lacking in skills developed at the upper junior high level (Stage H) while others may be functioning at the upper high school level (Stage J). An example is helpful to understand this concept.

The number sense goal in Mathematics (Goal 1) has an associated standard that states: "Solve problems using comparison of quantities, ratios, proportions and percents." The performance descriptors for this standard for Stage H are:

- Develop, use, analyze and explain methods for solving number sentences or word problems involving proportions with rational numbers.
- Solve problems that involve percents, including percent increase and decrease, regardless of the piece of information that is missing.

At Stage J, the performance descriptors for the same standard are:

- Explain the connection of percents to growth patterns, error and probability.
- Set up and solve proportions for direct and inverse variations of quantities involving powers and multiple variables.

This example clearly shows the difference in difficulty level between these two stages of performance descriptors. The descriptors serve to add clarity to the standards and become critical to understanding what the standard says and how it could be assessed to determine whether students meet or exceed its expectation.

A full set of Performance Descriptors associated with Stages H - J for each Language Arts, Mathematics and Social Science standard can be found on the CTE CD or by accessing the Illinois State Board of Education web page as follows:

- Open the ISBE web page at www.isbe.net
- Select the Standards Aligned Learning button on the left hand side of the page
- Select the Curriculum and Instruction Division
- Select Illinois Learning Standards
- Select Performance Descriptors & Classroom Assessments Aligned to the ILS
- Select the tan box for Performance Descriptors Intermediate-Advanced on the Career Development and Preparation line
- An alternative is to type <http://www.isbe.net/curriculum/cte/advdescriptors.htm> in the address line of your Internet browser

UNDERSTANDING SAMPLE CLASSROOM ASSESSMENTS

Similar formats were utilized to develop the CTE sample assessments and those developed by academic instructors for each learning standard. Each assessment includes the following:

- Performance Standard: description of the performance to be assessed in terms of performance descriptors and the rubric's criteria;
- Assessment Procedures: step-by-step directions for administering the assessment;
- Rubric: criteria for evaluating student work and determining the levels of performance; and
- Student Work: examples of student work validated by educators representative of the learning area at the "meets" and "exceeds" performance levels.

The rubric and student work will be addressed in the next two sections of this Guide.

The sample assessment on the following pages, Calculating Garden Center Pricing, will be used to demonstrate the parts of an assessment.

CALCULATING GARDEN CENTER PRICING

Performance Standard 6D.H

Calculate the original pricing of a poinsettia, to allow for the percentage of markup desired.

- *Mathematical knowledge:* determine costs after percentage decrease.
- *Strategic knowledge:* solve problem using systematic process.
- *Explanation:* explain completely what was done and why it was done.

Procedures

1. ***In order to solve problems using comparison of quantities, ratios, proportions and percents,*** provide students with sufficient learning opportunities to develop the following:
 - Solve problems that involve percents, including percent increase and percent decrease, regardless of information that is missing.

Horticulture students interested in managing a greenhouse/nursery, retail garden center or floristry business need to be able to calculate percent increase and percent decrease to price merchandise and run a profitable business. This standard aligns with Skill 21 from the Retail Garden Center Cluster occupational skill standards and Skill 19 from the Floristry Cluster occupational skill standards (Stock and price merchandise).
2. Give students the assessment sheet, and have them work individually. They may use calculators but must explain their calculations on their sheet.

The Hale High School FFA chapter is having a sale on 4" potted poinsettias they have grown in their greenhouse. They have advertised 10% off all 4" poinsettias. These plants cost the students \$2.32 each. They want to price the poinsettias so that the markup will be at least a 60%, even at the sale price. What is the lowest regular selling price for each poinsettia that will ensure this markup?
3. Use the standard scoring rubric. Give each student a score in each of the three categories. A score of 4 should indicate completely correct solutions to all parts of the problem, with complete and correct justifications of their reasoning. A 3 should represent correct or nearly correct solutions to all parts, with only minor computational errors making their solutions inaccurate; their rationale should be sound but may not be completely explained. A 2 would indicate that students have some idea about how to answer the questions but make major errors in computation and/or reasoning that affect their answers. A 1 may have a correct answer for one part but generally shows little understanding in their rationale for their procedures and processes. A score of 0 generally reflects no correct responses and no logical rationale for their procedures and processes.
4. Minor errors in computation include making errors in the actual addition or multiplication and rounding incorrectly. Major errors include using the wrong operations or formulas to relate terms.
5. The lowest possible regular price is \$4.14. This will allow the sale price of 10% off to be \$3.72 which is 160% of the given cost of \$2.32. In each case the price was rounded up to make sure that the store made a minimum of their 60% markup. Students who take the percentage of the wrong price or who use the wrong operation should receive no more than a 2 on this item. Students who do not round appropriately may receive a 3 but not a 4 in mathematical knowledge.

Examples of Student Work

- Meets
- Exceeds

Time Requirements

- One class period

Resources

- Copies of the "Calculating Garden Center Pricing" task sheet
- Pencil
- Calculator
- Mathematics Rubric

NAME _____ DATE _____

CALCULATING GARDEN CENTER PRICING

Student Task Sheet

Solve the following problem. Make sure to completely explain your reasoning.

The Hale High School FFA chapter is having a sale on 4" potted poinsettias they have grown in their greenhouse. They have advertised 10% off all 4" poinsettias. These plants cost the students \$2.32 each. They want to price the poinsettias so that the markup will be at least a 60%, even at the sale price. What is the lowest regular selling price for each poinsettia that will ensure this markup?

MATHEMATICS RUBRIC

NAME _____ DATE _____

- Exceeds standard (must receive a 4 in each area)
- Meets standard (must receive all 3's or a combination of 3's and 4's)
- Approaches standard (must receive all 2's or any combination which may include a 3 or a 4)
- Begins standard (has no 3's or 4's but not all 1's)
- Absent (has all 1's and 0's)

	Mathematical Knowledge	Strategic Knowledge	Explanation
4	<ul style="list-style-type: none"> • Wrote the right answer. • Used math words correctly to show understanding of how math works. • Worked it out with no mistakes. • Used the right math words and labeled the answers. 	<ul style="list-style-type: none"> • Identified all the important parts of the problem, and knew how they went together. • Showed all the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote what was done and why it was done. • If a drawing was used, all of it was explained in writing.
3	<ul style="list-style-type: none"> • Knew how to do the problem, but made small mistakes. 	<ul style="list-style-type: none"> • Identified most of the important parts of the problem. • Showed most of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote mostly about what was done. • Wrote a little about why it was done. • If a drawing was used most of it was explained in writing.
2	<ul style="list-style-type: none"> • Understood a little, but made a lot of big mistakes. 	<ul style="list-style-type: none"> • Identified some of the important parts of the problem. • Showed some of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote some about what was done or why it was done but not both. • If a drawing was used, some of it was explained in writing.
1	<ul style="list-style-type: none"> • Tried to do the problem, but didn't understand it. 	<ul style="list-style-type: none"> • Identified almost no important parts of the problem. • Showed almost none of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote or drew something that didn't go with the answer. • Wrote an answer that was not clear.
0	<ul style="list-style-type: none"> • No answer attempted. 	<ul style="list-style-type: none"> • No strategy shown. 	<ul style="list-style-type: none"> • No written explanation.
Score			

NAME STUDENT WORK - MEETS DATE _____

CALCULATING GARDEN CENTER PRICING

Student Task Sheet

Solve the following problem. Make sure to completely explain your reasoning.

The Hale High School FFA chapter is having a sale on 4" potted poinsettias they have grown in their greenhouse. They have advertised 10% off all 4" poinsettias. These plants cost the students \$2.32 each. They want to price the poinsettias so that the markup will be at least a 60%, even at the sale price. What is the lowest regular selling price for each poinsettia that will ensure this markup?

$$2.32 \cdot 1.6 = 90\% r \qquad 2.32 \cdot 1.6 = 3.712$$
$$\frac{3.712}{.9} = 4.12\bar{4} = 4.13 = r$$

First I set up the equation $2.32 \cdot 1.6$ equals $90\% r$ to represent that 10% off the regular price is a 60% profit of the \$2.32 poinsettias. In the equation $r =$ regular price of the poinsettias, the answer to the problem. Then 2.32 by 1.6 to find that \$3.712 is a 60% profit of \$2.32. That means that 10% of the regular price (r) is \$2.32. Then I divided 3.712 by $.9$ because that means that \$2.32 is 90% of r . I got \$4.12 $\bar{4}$ as the answer, then I rounded it to \$4.13 for the regular sales price.

NAME STUDENT WORK - EXCEEDS DATE _____

CALCULATING GARDEN CENTER PRICING

Student Task Sheet

Solve the following problem. Make sure to completely explain your reasoning.

The Hale High School FFA chapter is having a sale on 4" potted poinsettias they have grown in their greenhouse. They have advertised 10% off all 4" poinsettias. These plants cost the students \$2.32 each. They want to price the poinsettias so that the markup will be at least a 60%, even at the sale price. What is the lowest regular selling price for each poinsettia that will ensure this markup?

$$\begin{array}{r}
 2.32 \cdot .1 = .232 \\
 .232 \\
 \times 6 \\
 \hline
 1.392 \\
 \hline
 1.40
 \end{array}$$

$$\begin{array}{r}
 2.32 \\
 + 1.40 \\
 \hline
 3.72 \leftarrow \text{sale price}
 \end{array}$$

$$\frac{3.72}{x} = \frac{9}{10}$$

$$x = 4.1\bar{3}$$

$$\frac{4.14}{10} = .414$$

$$\begin{array}{r}
 4.14 \\
 - .42 \\
 \hline
 3.72
 \end{array}$$

In order to find the lowest regular selling price for the poinsettias, you must first consider the profit. The FFA chapter pays \$2.32 for each poinsettia and they want to make a 60% profit so the sale price is 60% more than \$2.32. To do this you take 10% of \$2.32 which is .232 and multiply it by six. Take that product and add it to 2.32 to find \$3.72. This is the lowest you could sell this for and still make a 60% profit. In order to put it on sale for 10%, you need to add 10% to \$3.72. This also means that \$3.72 is 90% of the regular price. So $\frac{3.72}{x} = \frac{9}{10}$. This also means that $\frac{10}{9}$ or 1 equals 4.14. To check this you take ten percent off of 4.14 which is $4.14 - .42$. This equals 3.72. Since 3.72 is the lowest price you could sell it for without making less than a 60% profit. So in the end you sell the poinsettia for \$4.14 and take 10% off because of the sale. That is \$3.72 which gives them a 60% profit because they bought it for \$2.32. The regular selling price is \$4.14.

The sample assessments begin with a notation of the specific standard and stage being addressed. In this sample it is Standard 6D, Stage H and is coded in orange. This notation is followed by the criteria to be used in the rubric to assess the student's performance. These criteria are coded in green and match the green coding on the scoring rubric.

The first item in the procedures section always begins with a statement of the standard in bold/italic type followed by the applicable performance descriptors for the stage. Note that not all descriptors associated with the stage must be assessed. At least one or more descriptor for the standard/stage must be assessed to some degree. The procedures section is coded in blue.

The CTE sample assessments also clarify the connection between the standard and the CTE area at the end of the first procedure statement. This is often a good starting place for CTE instructors as they review the assessments applicable to their teaching area.

Following this information is a set of directions for conducting the assessment. The expected student work is explained in this section of the procedures. This section concludes with a description of the evaluation procedures as applied against the scoring rubric.

Also contained within each sample assessment is a link to examples of student work that meet and/or exceed the standard (not available at this time for some of the content area assessments and the CTE sample assessments), the estimated time requirements to complete the assessment and a list of resources needed to administer the assessment. Although student work is currently unavailable for the CTE assessments, a sample "meets" response and "exceeds" response for the Mathematics Standard 6D, Stage H is contained on Pages 10 and 11. These items are coded in fuchsia.

Many of the CTE sample assessments also include a student task sheet applicable to the assessment. The Student Task Sheet for this sample is shown on Page 8 of this Guide. If a task sheet is not included, the required student work is adequately explained in the procedure section of the sample assessment. Scoring rubrics are also included with each assessment. See Page 9 of this Guide for the Mathematics scoring rubric.

SCORING RUBRICS

The use of scoring rubrics developed specifically for each learning area is the most important concept for CTE instructors to understand and be able to apply in their classroom. If the rubrics are not used to judge student work, it is questionable whether the assessment of the academic skill has actually occurred. Using the scoring rubrics to measure student achievement may require further in-service.

Each learning area has a general rubric or a goal-specific rubric that focuses the evaluation of all student work on the essential elements of learning in that area. For example, in Mathematics the expectation is that all students should develop not only mathematical knowledge but also mathematical strategies (e.g., reasoning and problem solving) and the ability to explain and justify these strategies. This can be seen on the math rubric on Page 9. Each classroom assessment augments the learning area rubric by providing the task specific kind of evidence teachers should look for in the student work.

The rubrics developed for Language Arts, Mathematics and Social Science were incorporated into each CTE sample assessment. The scoring rubrics pertain to the academic skill contained in the assessment and do not address the occupational skill being measured by the assessment. CTE instructors will need to modify the rubric to include skill-specific scoring.

Appendix B contains the scoring rubric for assessments in Mathematics and Social Science. Both of these rubrics contain three dimensions that are used to separate the skills students have regarding the assessment. In Mathematics the dimensions are called mathematical knowledge, strategic knowledge and explanation. In Social Science the three dimensions are called knowledge, reasoning and communication.

A common rubric was not used with the Language Arts assessments since the dimensions being assessed within vocabulary, reading, writing, speaking, etc. are different for each standard. It was necessary to develop standard-specific rubrics to accommodate the differences that exist between the standards. These rubrics can be viewed within the sample Language Arts assessments. As in the other learning areas, the concepts of dimensions and levels within each dimension remain the same while the number of dimensions and levels may vary in Language Arts from rubric to rubric.

For all rubrics, each dimension is divided into levels. Each level is defined by several criteria which reflect a student's ability and skills. Student skills in each dimension range from fully developed to still being developed and may not be the same for each dimension. For example, a student may perform at Level 4 in Social Science knowledge, at Level 3 in reasoning and at Level 2 in communication. Such an analytic rubric allows teachers to take these differences into account when assessing their students.

The Social Science rubric will be used to add further clarity to each dimension. Again, a copy of the complete rubric is found in Appendix B.

- Dimension 1: Knowledge – Knowledge of evidence from the social sciences such as facts/supporting details; themes/issues; and concepts/ideas is basic to the social sciences.
- Dimension 2: Reasoning – Analysis, evaluation and synthesis of evidence. While facts are the essential starting point for demonstrating ability in the social sciences, a student must also be able to demonstrate the ability to reason. Reasoning makes facts, issues and concepts meaningful. When reasoning occurs, a student is engaged in the content and develops a deeper understanding of the subject.
- Dimension 3: Communication – Demonstrate knowledge and reasoning through oral, written, visual, dramatic or mixed media. To be useful, a student's knowledge and reasoning must be communicated to a wider audience. Effective communication requires focus and organization. The most important aspect of communication is the student's ability to express clearly his or her ideas.

In summary, CTE instructors must be able to utilize the scoring rubrics developed for each of the learning areas. Without them, the assessment of academic skills comes into question. The dimensions used can also have application to the assessment of occupational skill standards. It makes sense that ALL students should be judged against their knowledge and reasoning skills and their ability to communicate that knowledge and reasoning to others. These are foundational skills for successful employees in the workplace. Therefore, CTE instructors should hold their students to this same level of performance.

APPENDIX A

LISTING OF ASSESSMENT DEVELOPERS

ASSESSMENT DEVELOPERS

Agriculture

Doug Anderson, Paxton-Buckley-Loda High School
Jess Smithers, Fithian High School
Richard Treat, FCAE Project

Business, Marketing and Management

Kathy Bennett, Gibson City-Melvin-Sibley High School
Gayle Appel, O'Fallon High School
Jack Scurte, Technology Center of DuPage

Family and Consumer Sciences

Cheryl Lipe, Springfield High School (Retired)
Rita Ryan, Mahomet-Seymour High School
Russe Ann Weber, Charleston High School

Health Occupations

Beth Schubert, Career Tec (Freeport)
Sharen Wolke, Eastern Illinois Education for Employment System

Industrial Technology

Ed Niemann, Champaign Central High School
Bob Fredres, Technology Center of DuPage
Pat Sipes, Frankfort Community High School

Content Area Consultants

Sherry Meier, Illinois State University (Mathematics)
Tom Smith, West Region Education Center, Jacksonville (English/Language Arts)
Fred Walk, Normal Community High School (Social Science)

PROJECT STAFF

John Klit, CTE Consultant

Illinois State Board of Education Staff:

Richard Carlson, Principal Education Consultant (Social Science)
David Hellwig, Education Consultant
Lynn Johnston, Principal Education Consultant (CTE)
Joyce Krumtinger, Principal Education Consultant (Mathematics)
Linda Lafferty, Principal Education Consultant (CTE)
Rebecca Phillips, Principal Education Consultant (English/Language Arts)

APPENDIX B

MATHEMATICS AND SOCIAL SCIENCE RUBRICS

MATHEMATICS RUBRIC

NAME _____ DATE _____

- Exceeds standard (must receive a 4 in each area)
- Meets standard (must receive all 3's or a combination of 3's and 4's)
- Approaches standard (must receive all 2's or any combination which may include a 3 or a 4)
- Begins standard (has no 3's or 4's but not all 1's)
- Absent (has all 1's and 0's)

	Mathematical Knowledge	Strategic Knowledge	Explanation
4	<ul style="list-style-type: none"> • Wrote the right answer. • Used math words correctly to show understanding of how math works. • Worked it out with no mistakes. • Used the right math words and labeled the answers. 	<ul style="list-style-type: none"> • Identified all the important parts of the problem, and knew how they went together. • Showed all the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote what was done and why it was done. • If a drawing was used, all of it was explained in writing.
3	<ul style="list-style-type: none"> • Knew how to do the problem, but made small mistakes. 	<ul style="list-style-type: none"> • Identified most of the important parts of the problem. • Showed most of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote mostly about what was done. • Wrote a little about why it was done. • If a drawing was used most of it was explained in writing.
2	<ul style="list-style-type: none"> • Understood a little, but made a lot of big mistakes. 	<ul style="list-style-type: none"> • Identified some of the important parts of the problem. • Showed some of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote some about what was done or why it was done but not both. • If a drawing was used, some of it was explained in writing.
1	<ul style="list-style-type: none"> • Tried to do the problem, but didn't understand it. 	<ul style="list-style-type: none"> • Identified almost no important parts of the problem. • Showed almost none of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote or drew something that didn't go with the answer. • Wrote an answer that was not clear.
0	<ul style="list-style-type: none"> • No answer attempted. 	<ul style="list-style-type: none"> • No strategy shown. 	<ul style="list-style-type: none"> • No written explanation.
Score			

SOCIAL SCIENCE RUBRIC

NAME _____

DATE _____

- Exceeds standard (total points 11 - 12)
- Meets standard (total points 8 - 10)

- Approaches standard (total points 5 - 7)
- Begins standard or absent (total points 1 - 4)

	Knowledge of evidence from the social sciences: facts/ supporting details; themes/ issues; and concepts/ideas	Reasoning: Analysis, evaluation and synthesis of evidence	Communication: Demonstrates knowledge and reasoning through oral, written, visual, dramatic or mixed media presentation
4	<ul style="list-style-type: none"> • Key concepts/themes/ issues/ideas are thoroughly identified, defined and described. • Significant facts/ supporting details are included and accurately described. • Has little or no factual inaccuracies. 	<ul style="list-style-type: none"> • Identifies and logically organizes almost all relevant evidence. • Uses appropriate and comprehensive critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches informed conclusions based on the evidence. 	<ul style="list-style-type: none"> • Almost all ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes. • The presentation is well focused with a well-defined thesis. • Presentation shows substantial evidence of organization. • Presentation shows attention to the details of specific performance conventions.
3	<ul style="list-style-type: none"> • Key concepts/themes/ issues/ideas are identified, defined and described. • Facts/supporting details are included. • May have a major factual inaccuracy, but most information is correct. 	<ul style="list-style-type: none"> • Identifies and organizes most of the relevant evidence. • Uses partial critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches informed conclusions based on the evidence. 	<ul style="list-style-type: none"> • Most ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes. • The presentation demonstrates a focus and thesis with several narrative gaps. • Presentation demonstrates adequate evidence of organization. • Presentation has mistakes in attention to the details of specific performance conventions.
2	<ul style="list-style-type: none"> • Some key concepts/ themes/issues/ideas are identified, defined and described. • Some facts/supporting details are included. • Has some correct and some incorrect information. 	<ul style="list-style-type: none"> • Identifies some relevant evidence and omits most of the other evidence. • Uses unclear, inappropriate or incomplete critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches incomplete or inaccurate conclusions based on the evidence. 	<ul style="list-style-type: none"> • Some ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes. • The presentation demonstrates an inadequate focus and thesis. • Presentation demonstrates inadequate evidence of organization. • Presentation has insufficient attention to the details of specific performance conventions.
1	<ul style="list-style-type: none"> • Few or no key concepts/ themes/issues/ideas are identified, defined and described. • Few or no facts/supporting details are included. • Information is largely inaccurate, absent or irrelevant. 	<ul style="list-style-type: none"> • Important evidence relevant to the problem is not identified. • Critical thinking skills and habits of mind are absent. • Conclusions are lacking, absent or unclear. 	<ul style="list-style-type: none"> • Expression of almost all ideas in the presentation is unclear. • The presentation demonstrates little focus and lacks a thesis. • Presentation demonstrates little or no evidence of organization. • Presentation has multiple mistakes in attention to the details of specific performance conventions.
Score			