

Evaluation Tools

Automotive Technologies

School

Teacher

CTE Program - Level III

3	2	1	0	0
90% +	80% +	70% +	60% +	Less than 60%
Mastered	Exceeded	Attained	Approaching Attainment	Unattained
<p>Student presents a clear, specific understanding of the competency. All notes, assignments, test, work place records and labs required are completed on time, are extremely well organized and questions are answered accurately. High interest and excitement have lead the student to reach far beyond the requirements. Student has read related materials and has used many sources of information for reports and or experiments. The student has used his/her new knowledge when participating in all oral discussions, assignments and written work. Student makes connections between classroom and work place. The students' notes, tests, labs, workplace records, debates, CTSO participation, and assignments are of the highest level of achievement above 90%.</p>	<p>Student presents a clear, specific understanding of the competency. High interest and excitement leads the student to an investigation that reaches beyond requirements. All notes, assignments, tests, workplace records and labs required are completed on time, are very well organized and questions are answered accurately. The student has used more resources than required and demonstrates new knowledge both orally and in written work and uses this knowledge in his/her assignments and oral participation. New knowledge is evident when student shows connections between classroom and work place relationships. Student notes, tests, labs, work place records, CTSO participation, debates and assignments are clearly organized, carefully done, and often go beyond teacher expectations. All tests are beyond the standard level of achievement between 80% to 89%.</p>	<p>Student meets assignment expectations. The student demonstrates new knowledge learned in oral participation and or written tasks. The work is well organized and complete. The student understood the assignments. He/she used the resources required and organized information in all notes, assignments, tests,work place records, debates and labs. All notes, assignments and labs are complete, carefully done and the student meets just above the minimum requirements and expectations. All tests, work place records, CTSO participation, assignments and labs meet the standard level of achievement between 70% to 79%.</p>	<p>Student knowledge of the topic is understood, but at minimum level of competency. The assignments, notes and labs are occasionally incomplete and could be organized better. Some resources have been used, but it is not clear what the student understood. Some of the information included by the student was not important to the topic. Student does most of what is required, but nothing more. Some of the work may not be finished. Tasks are not carefully done and the information from the resources is not used. Tests, labs, notes, CTSO participation, and workbased learning results are at a level of achievement between 60% to 69%.</p>	<p>Student knowledge of the subject is not shown. Steps through the process were not followed. Notes, tests, assignments, workbased learning and labs lack neatness, organization, detail and evidence of new knowledge. Work does not meet requirements. Parts are missing. Participation is weak, or student is often not participating. Labs, tests, CTSO participation, and assignments are poorly done and fall well behind the standard level of achievement. Overall, the student has failed to grasp new concepts covered in the competency. The level of achievement is below 60%.</p>

Definition of Rubric:

"A rubric is a printed set of guidelines that distinguishes performances or products of different quality. A rubric has descriptors that define what to look for at each level of performance. Rubrics also often have indicators providing specific examples or tell-tale signs of things to look for in work."

The word rubric derives from the Latin word for red. Long ago, a rubric was the set of instructions for a law or liturgical service, typically written in red. Thus, a rubric instructs people on how to "lawfully" judge a performance. A good rubric allows valid and reliable--criterion-referenced--discrimination of performance.

Career Preparation

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Rubric for Tire and Wheel Inspection and Service

Expectations	Level 1	Level 2	Level 3	Level 4
Remove and install wheel on vehicle	safely supports vehicle and removes wheel only with constant supervision	Safely supports vehicle, removes wheel and describes variations in procedures with little/no supervision	Safely supports vehicle, removes wheel and describes variations in procedures with little/no supervision	Safely supports vehicle, removes wheel and assist other students in correct variations procedures
Inspect wheel and tire, determine service required	Demonstrates some knowledge of safe testing procedures with constant reminders or supervision required	Demonstrates correct and safe testing procedures with some supervision and reminders required	Demonstrates correct and safe testing procedures with some supervision and reminders required	Demonstrates correct and safe testing procedures without supervision or reminders required
Service wheel using tire changer and balancer	Demonstrates some knowledge of safe servicing procedures with constant reminders or supervision required	Demonstrates correct and safe servicing procedures with some supervision and reminders required	Demonstrates correct and safe servicing procedures with some supervision and reminders required	Demonstrates correct and safe servicing procedures without supervision or reminders required
Repair tire using tire plugs and tire patches	Requires constant supervision to make repairs safely and correctly	Repairs tire with some supervision	Repairs tire safely and correctly without assistance	Repairs tire without assistance and is able to effectively assist others
Discuss tire construction, disposal and sizing methods	Requires significant help to identify tire nomenclature and serviceable life of tire	Identifies some tire nomenclature and suggests serviceable life of tire	Defines and interprets tire by reading tire stamping and suggests life-cycle of tire and materials	Formulates suggestions of equivalent tire specifications and discusses the problem of tire disposal
Service wheel bearings	Requires constant supervision to remove wheel bearing assembly	Removes and repacks wheel bearings only with assistance	Lubricates and reinstalls wheel bearings and adjusts bearings pre-load to specification	Services wheel bearing and correctly determines condition through interpretation

A student whose achievement is below level 1 (50%) has not met expectations for this assignment or activity.

Source: www.curriculum.org/occ/profiles/10/pdf/TTJ2OC.pdf

Demonstrates continuous learning

- 4 points** Fully aware of various sources of information beyond classroom materials. Shows excellent initiative in use of supplementary resources.
- 3 points** Shows reasonable awareness and use of external resources.
- 2 points** Some evidence of effort to locate and use external resources.
- 1 points** Little or no awareness and/or use of external resources.
- 0 points** Unscorable.

Shows evidence of teamwork

- 4 points** Actively participates and shares relevant information. Listens to and involves teammates. Attends to messages from teammates and responds appropriately. Works hard to produce a final project/product of substantial quality.
- 3 points** Significant participation but some room for improvement. Quality of final project/product is reasonable.
- 2 points** Some participation with teammates. Final project/product quality may suffer to some degree.
- 1 points** Lack of participation with teammates. Quality of final project/product adversely affected.
- 0 points** Unscorable.

Effective Use of Written Communication Tools

- 4 points** Detailed documentation. Appropriate use of computer resources. Clear, concise, organized final report.
- 3 points** Minor problems with documentation. Acceptable use of computer resources. Good final report with only minor deficiencies.
- 2 points** Some documentation. Reasonable use of computer resources. Significant deficiencies with final report.
- 1 points** Little or no documentation. Limited use of computer resources. Poorly organized final report.
- 0 points** Unscorable.

Thermometer Rubric <http://www.exemplars.com/rubrics/thermometer.html>

Categories	Novice	Apprentice	Practitioner	Expert
Understanding	I did not understand the problem.	I understood parts of the problem. I got started, but I couldn't finish.	I got it. I understood the problem and have an appropriate solution. All parts of the problem are addressed.	I got it!! I did it in new ways and showed you how it worked. I can tell you what concepts are used.
Strategies, Reasoning, Procedures	I couldn't get started. I don't know how to begin.	I am stuck. I have part of the solution, but now I don't know what to do. I'm not sure my answer is right. I could use some help.	I have a correct solution. I used a plan to solve the problem.	My solution is effective and inventive. I used big ideas to solve the problem. I addressed the important details. I showed you some other ways I can solve this problem. I checked to make sure my answer was right.
Communication	I did not explain how I solved the problem. I didn't use pictures, tables or graphs to show you how I solved the problem.	I explained some of what I did. I tried to use pictures, tables, graphs and numbers to explain how I did the problem.	I clearly explained how I solved the problem. I used language and pictures, tables, graphs to explain how I did the problem.	I clearly detailed how I solved the problem. I included all the steps so you don't have to guess what I did. I used words, pictures, graphs and/or models.

What I Need to Do

Criteria	What I Need to Do	Evidence of What I Did
Communication Using Data	<ul style="list-style-type: none"> • My data will be in a chart, table, graph or other document and will be labeled. • My data needs to prove my exploration. • Someone can read my explanation and understand it. (Area provided for student work). 	(Area provided for student work).
Technology Concepts and Related Content	<ul style="list-style-type: none"> • Terms I should use and understand: (Student should create list). • Things I need to be sure to observe or pay attention to: (Student should create list). • A "Big Idea" that might help me to connect my learning to other things I know or want to learn more about. 	(Area provided for student work).
Tools and Technologies	<ul style="list-style-type: none"> • These are the tools I need to use to collect data and do the task: (Student should create list). • I need to check for mistakes. 	(Area provided for student work).
Procedures and Reasoning Strategies	<ul style="list-style-type: none"> • To complete the task I need to follow these steps: • I need to record these dates: 	(Area provided for student work).

Although not specifically automotive-could be adapted:

Task Specific Rubric/Benchmark Descriptors

- Novice** Use of correct formulas is minimal or non-existent. Written explanations express confusion and incorrect information. Diagram work is sparse and incorrect. Sometimes no final answer is given.
- Apprentice** Has some accurate formulas to find partial correct solutions to the problem. Written explanations usually include a point at which the student becomes stuck. Diagram work includes some incorrect information at times.
- Practitioner** Uses accurate formulas to find correct solutions to the problem. His/her written explanations are clear and straightforward. Diagram work is accurate.
- Expert** Uses multiple approaches to the task to find correct solutions. Written explanations show the student's thoughts clearly. Diagram usage is solid and correct.

Author

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Career and Technical Education

Student Organization

SkillsUSA

Automotive Technology Option A

Contest Name: Automotive Service Technology

Evaluation tool: This contest requires some of the competencies taught under this option

Automotive Collision Repair Option B

Contest Name: Collision Repair Technology

Evaluation tool: This contest requires some of the competencies taught under this option

To access the scope of these contests:

SkillsUSA Championships Technical Standards 2002-04

Goodheart-Willcox Publisher

www.skillsusa.org

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PROBLEM-SOLVING TASK HOLISTIC 5-POINT SCORING SCALE

This scale evaluates the process employed in response to a problem solving task. It takes into consideration the level of student knowledge and understanding with respect to the given problem solving task; the selection and implementation of appropriate procedures and/or strategies; and the accuracy of the solution obtained.

4 - Response is characterized by all of the following:

- The student selects and implements relevant concepts and procedures/strategies needed to solve this problem.
- The student considers all constraints of the problem situation.
- The solution and all relevant work is correct; or, there is a mistake due to some minor computational or copying error.

3 - Response is characterized by one of the following:

The student selects appropriate procedures/strategies to solve this problem; however, the response/solution is not entirely correct because **one** of the following is apparent:

- There is evidence the student has **a** misconception or has failed to consider **a** relevant concept needed to solve the problem correctly
- The student fails to consider **a** constraint of the problem situation.
- The student has considered **an** irrelevant variable or failed to consider a relevant variable.

The response/solution is generally correct; however, from the information provided it is not completely clear how the student arrived at this solution.

2 - Response is characterized by one of the following:

The student selects appropriate procedures/strategies to solve this problem; however, the response/solution is not correct because **one or more** of the following are:

- There is evidence that the student has **several** misconceptions or has failed to consider **several** relevant concepts needed to solve the problem correctly.
- The student fails to consider **several** constraints of the problem situation.
- The student has also considered **several** irrelevant variables or failed to consider **several** relevant variables.
- The student did not carry the procedures/strategies far enough to reach a solution. The response/solution is generally correct; however, there is no information showing how the student arrived at this response/solution.

1 - Response is characterized by the following:

An incomplete and/or incorrect response/solution is provided **evidencing an attempt** to solve the problem. In addition, one or more of the following are apparent:

- The student did consider a constraint or variable of the problem situation.
- The student understands some concepts relevant to the problem task.
- The student selected a totally inappropriate procedure/strategy.

0 - Response is characterized by the following:

- It is blank.
- The student response only repeats information in the problem task.
- An incorrect solution/response is given and no other information is shown.
- The solution/response and supportive information is totally irrelevant to the problem task.

<http://www.cse.ucla.edu/CRESST/pages/Rubrics.htm>

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Rubric for Electronics Measurement Exercise (Resistance, Voltage and Current)

Criteria	Level 1	Level 2	Level 3	Level 4
<p>Students will:</p> <p>Knowledge</p>	<p>Demonstrates understanding of only some key terms, component functions; displays some major errors in measurement techniques or calculations</p> <p>Student displays limited initiative in proper use of terminology and symbols, demonstrating knowledge of identified concepts and techniques</p>	<p>Demonstrates understanding of most key terms, component functions; displays minimal errors in measurement techniques and/or calculations</p> <p>Student demonstrates some adequate initiative in proper use of terminology and symbols, demonstrating knowledge of identified concepts and techniques</p>	<p>Demonstrates understanding of all key terms, component functions and unit values; displays correct measurement techniques and calculations</p> <p>Student demonstrates considerable initiative in proper use of terminology and symbols, demonstrating knowledge of identified concepts and techniques</p>	<p>Demonstrates thorough and comprehensive understanding of all terminology; component functions and unit values; advanced knowledge of measurement techniques and precision calculations</p> <p>Student exhibits exceptional initiative in use of terminology and symbols and demonstrating knowledge of identified concepts and techniques</p>
<p>Inquiry</p>	<p>Demonstrates proper and safe use of testing equipment with some important exceptions</p> <p>Demonstrates some knowledge of safe handling of testing, troubleshooting and recording procedures but requires constant remedial help in following instructions</p>	<p>Demonstrates proper and safe use of testing equipment with minor exceptions</p> <p>Demonstrates safe handling of testing, troubleshooting and recording procedures, but requires remedial help in following instructions</p>	<p>Demonstrates proper and safe use of testing equipment as required</p> <p>Demonstrates thorough and safe handling of testing, troubleshooting and recording procedures</p>	<p>Establishes exceptional clean and safe use of testing equipment beyond normal requirements</p> <p>Demonstrates ability to assist others in following safe and thorough testing, troubleshooting and recording procedures</p>
<p>Communication</p>	<p>Test report requires important remedial work; contains missing elements or errors</p>	<p>Test report requires minimal remedial work; contains some minor missing elements or errors</p>	<p>Test report is clear and contains all required elements without error</p>	<p>Test report contains researched elements beyond requirements; demonstrates professional level work and effort</p>
<p>Application</p>	<p>Requires constant prodding to work with colleagues in completing assignment</p> <p>Demonstrates some trouble in identifying important hazards and demonstrates proper safety procedures with a high level of supervision required</p> <p>Requires a high level amount of supervision and reminders to work safely and cleanly</p>	<p>Requires some minimal prodding to work with colleagues in completing assignment</p> <p>Can identify all important hazards and demonstrates proper safety procedures with a low level of supervision required</p> <p>Works safely and cleanly with a low level of required supervision</p>	<p>Works well with colleagues in completing assignment</p> <p>Can identify all hazards and demonstrates proper safety procedures at all times</p> <p>Works safely and cleanly with minimal supervision at all times</p>	<p>Goes out of way to assist others in completing assignments</p> <p>Can identify all general and specific hazards and demonstrates a thoroughness in applying proper safety procedures at all times, including before and after class</p> <p>Demonstrates leadership in assisting and supervising others to work safely and cleanly</p>

Source: http://www.octe.on.ca/g11armdoc/tqj3e_unit1.doc.

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Problem-Solving Task

This scale evaluates the process employed in response to a problem-solving task. It takes into consideration the level of student knowledge and understanding with respect to the given problem solving task; the selection and implementation of appropriate procedures and/or strategies; and the accuracy of the solution obtained.

4 Response is characterized by all of the following:

- The student selects and implements relevant concepts and procedures/strategies needed to solve this problem.
- The student considers all constraints of the problem situation.
- The solution and all relevant work is correct; or, there is a mistake due to some minor computational or copying error.

3 Response is characterized by one of the following:

The student selects appropriate procedures/strategies to solve this problem; however, the response/solution is not entirely correct because one of the following is apparent:

- There is evidence the student has a misconception or has failed to consider a relevant concept needed to solve the problem correctly.
- The student fails to consider a constraint of the problem situation.
- The student has considered an irrelevant variable or failed to consider a relevant variable.

The response/solution is generally correct; however, from the information provided it is not completely clear how the student arrived at this solution.

2 Response is characterized by one of the following:

The student selects appropriate procedures/strategies to solve this problem; however, the response/solution is not correct because one or more of the following are:

- There is evidence that the student has several misconceptions or has failed to consider several relevant concepts needed to solve the problem correctly.
- The student fails to consider several constraints of the problem situation.
- The student has also considered several irrelevant variables or failed to consider several relevant variables.
- The student did not carry the procedures/strategies far enough to reach a solution.

The response/solution is generally correct; however, there is no information showing how the student arrived at this response/solution.

1 Response is characterized by the following:

An incomplete and/or incorrect response/solution is provided evidencing an attempt to solve the problem. In addition, one or more of the following are apparent:

- The student did consider a constraint or variable of the problem situation.
- The student understands some concepts relevant to the problem task.
- The student selected a totally inappropriate procedure/strategy.

0 Response is characterized by the following:

- It is blank.
- The student response only repeats information in the problem task.
- An incorrect solution/response is given and no other information is shown.

The solution/response and supportive information is totally irrelevant to the problem task.

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STUDENT RESEARCH MODULE

QUESTIONING

- 4 The question is clear, well-focused and requires high level thinking skills in order to research.
- 3 The question is clear and well focused. The question requires moderately high level thinking skills.
- 2 The question is incomplete and unclear. The teacher needed to help form a question.
- 1 Was unable to come up with a research question.

PLANNING

- 4 Made really good use of time. Was able to remain focused on the tasks and make changes when needed. Was able to develop a clear method to organize the information. Was able to make revisions in the plan when needed.
- 3 Was able to work within the time frame the teacher gave . Was able to develop a system to organize information. Was able to make revisions with help from the teacher.
- 2 Needed teacher help to list and organize what was needed to do. There are some steps missing in the planning. Made revisions with teacher help.
- 1 Was unable to come up with an organized plan and work within the time limits.

GATHERING

- 4 Used a variety of resources and carefully selected only the information that answered the question. Was able to continually revise the search based on information found.
- 3 Used many resources to find information that answered the question. Tried revising the search, but had some problems doing so.
- 2 Used 1 or more sources. Original question or focus guided the search, although should have made revisions. Made errors in selection of references
- 1 Lost focus during the gathering process and therefore the information was not accurate and complete.

SORTING

- 4 Thoroughly selected and organized information that answered the question in a organized way. Selected information that was appropriate.
- 3 Sorted information and organized information that answered the question without too many errors.
- 2 Tried to organize the information found, but made some mistakes. Wasn't able to completely stay focused on information that would answer the question.
- 1 Was unable to sort and organize the information found to answer the question.

SYNTHESIZING

- 4 Used the information found in a meaningful way to create an original product that clearly answers the question with accuracy, detail and understanding.
- 3 The product answers the question in a way that reflects learning using some detail and accuracy.
- 2 The product is not complete and only answers part of the question.
- 1 The product is incomplete and contains missing details and it isn't completely accurate.

TOTAL POINTS:

Student's Name:

Teacher:

http://www.bcps.org/offices/lis/models/tips/rubrics_sec/teach_rubric.html

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STUDENTS USING TECHNOLOGY

Key Questions	Below Standard	Standard	Above Standard
Does the student demonstrate an ability to operate technology appropriate to his or her academic level?	<ul style="list-style-type: none"> • Does basic operations with help • Unable to troubleshoot 	<ul style="list-style-type: none"> • Performs routine tasks independently with a minimum of assistance • Can troubleshoot common operational difficulties 	<ul style="list-style-type: none"> • Performs complex tasks independently • Can troubleshoot some advanced operational difficulties
Does the student use technology tools safely, responsibly, and ethically?	<ul style="list-style-type: none"> • Seldom works cooperatively and collaboratively with technology • Demonstrates little or no evidence of ethical use of technology • Demonstrates little or no evidence or concern for personal or physical safety 	<ul style="list-style-type: none"> • Usually works cooperatively and collaboratively with technology • Demonstrates ethical use of technology • Uses technology with appropriate concern for personal and physical safety 	<ul style="list-style-type: none"> • Takes a leadership role in collaborative work with technology • Models a high level of respect for personal and physical safety • Models technology with appropriate concern for personal and physical safety
Does the student use technology as a problem-solving and decision-making tool?	<ul style="list-style-type: none"> • Demonstrates little or no evidence of formulating problems or choosing appropriate strategies for using technology • Uses few or inefficient technology resources to gather information • Seldom evaluates accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources 	<ul style="list-style-type: none"> • Formulates problems and chooses appropriate strategy with some guidance using technology • Uses a variety of technology resources to gather information • Usually evaluates accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources 	<ul style="list-style-type: none"> • Formulates problems and chooses appropriate strategy using technology • Consistently uses the most appropriate technology resources to gather information • Almost always researches and evaluates the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources
Does the student use technology to produce school assignments and projects?	<ul style="list-style-type: none"> • Needs much assistance to produce a product using technology • Tends to use a minimum of resources repeatedly • Communicates and/or illustrates ideas with difficulty using technology 	<ul style="list-style-type: none"> • Uses technology to design, develop, publish and present a product with a minimum of assistance • Routinely uses a variety of resources • Communicates and/or illustrates ideas with technology 	<ul style="list-style-type: none"> • Designs and develops advanced products with little or no assistance • Consistently seeks new resources to support work projects • Fluently communicates and/or illustrates ideas with technology

Source: <http://jls.palo-alto.ca.us/eslr/eslrTechnology.pdf>

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Technology Education: Career Report Rubric

Student Name _____

CATEGORY	4	3	2	1
Quality of Information	Information gathered provides answers to the main questions along with several supporting details and/or examples for each.	Information gathered provides answers to main questions along with 1-2 supporting details and/or examples.	Information gathered provides answers to main questions, but no details and/or examples are given.	Information gathered has little or nothing to do with the questions posed.
Amount of Information	All topics are addressed, and all questions answered, with at least 3 sentences about each.	All topics are addressed and most questions answered, with at least 3 sentences about each.	All topics are addressed, and most questions answered with 1-2 sentences about each.	All topics not addressed OR most questions answered with words or phrases instead of sentences.
Organization	Information is very well organized with headings that relate clearly to the material.	Information is organized with headings, but some material under the headings may be out of place.	Information is generally organized, but no headings are used.	There appears to be little organization of the material.
Mechanics	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors.	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.
Sources	Sources for information and graphics are documented in the designated format.	Most sources for information and graphics are documented in the designated format.	Sources for information and graphics are documented, but most are not in the correct format.	Some sources for information and graphics are not documented.

Source for lesson and rubric: http://www.geocities.com/tech_ed_2000/units/wadd/career.htm

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