

Draft Scoring Criteria for Creative and Practical Problem Solving, April 30, 2015

Performance Indicator	Emerging	Developing	Accomplished	Exemplary
A. Observe and evaluate situations in order to define problems.	<p>I can</p> <ul style="list-style-type: none"> make observations about situations. 	<p>I can</p> <ul style="list-style-type: none"> make observations about situations identify relationships to make inferences about a problem. propose possibilities to define a problem. 	<p>I can</p> <ul style="list-style-type: none"> categorize observations and information from multiple sources identify situational constraints and articulate the problem. 	<p>I can</p> <ul style="list-style-type: none"> analyze situations to define complex problems and explain their relevance within the world.
B. Frame questions, make predictions, and design data collection and analysis strategies.	<p>I can</p> <ul style="list-style-type: none"> ask a basic, descriptive, question that reflects a single variable to gain knowledge. make simplistic prediction. 	<p>I can</p> <ul style="list-style-type: none"> ask questions to clarify my comprehension take new information into consideration when making predictions. replicate elements of a data collection process. 	<p>I can</p> <ul style="list-style-type: none"> ask clarifying and probing questions to determine various ways to solve the problem make predictions considering various angles of the problem create a data collection system tailored to the problem and identify ways to analyze those data. 	<p>I can</p> <ul style="list-style-type: none"> locate my problem within a larger framework of thinking, and critique the predictions of others describe possible impacts or effects at multiple levels reverberations design a data collection system that can be applied to other contexts.
C. Identify patterns, trends, and relationships that apply to solutions.	<p>I can</p> <ul style="list-style-type: none"> describe data I have gathered about the nature of the problem. From this data, I see few or no patterns, trends, or parameters that will assist me in designing possible solutions. I do not notice that my data may be insufficient. 	<p>I can</p> <ul style="list-style-type: none"> look at data I have gathered about the nature of the problem. From this data, I can determine some and /or simplistic patterns, trends, and parameters that will assist me in designing possible solution. I may not notice that my data may be insufficient. 	<p>I can</p> <ul style="list-style-type: none"> identify the most important or relevant data from among all the data I have gathered. From this data, I can identify patterns, trends, and parameters that will assist me in designing possible solutions. I can determine whether my data is sufficient or if I need to gather more data. 	<p>I can</p> <ul style="list-style-type: none"> identify patterns, trends, and parameters within my data that will assist me in designing possible solutions. I can also determine whether my data is sufficient or if I need to gather more data I can prioritize the significance of the patterns, trends, and parameters as they impact the design of possible solutions.
D. Analyze, evaluate, and synthesize evidence,	<p>I can</p> <ul style="list-style-type: none"> describe or summarize evidence, arguments, claims, 	<p>I can</p> <ul style="list-style-type: none"> describe evidence, arguments, claims, beliefs and/or points of view to 	<p>I can</p> <ul style="list-style-type: none"> analyze, evaluate, and synthesize evidence, arguments, claims, and beliefs; I can analyze the interrelationships among 	<p>I can</p> <ul style="list-style-type: none"> analyze, evaluate, and synthesize evidence, arguments, claims, and beliefs;

arguments, claims, and beliefs.	beliefs and/or point of view.	explain my reasoning.	or between concepts in a clear and concise way.	<ul style="list-style-type: none"> I can analyze the interrelationships among or between concepts in a clear and concise way that enhances and elevates my reasoning, argument or goal to generate innovative solutions to comparable problems.
E. Generate a variety of solutions, use evidence to build a case for best responses, critically evaluate the effectiveness of responses, and repeat the process to generate alternate solutions.	I can <ul style="list-style-type: none"> consider strengths and weaknesses of solutions from a pre-established list and I can identify a possible solution. 	I can <ul style="list-style-type: none"> consider strengths and weaknesses of solutions from a pre-established list use evidence to justify a possible solution. 	I can <ul style="list-style-type: none"> generate and consider a range of solutions and compare the strengths and weaknesses of each, using evidence to justify the choice of solution. 	I can <ul style="list-style-type: none"> generate a range of alternative solutions and use evidence to critique the potential effectiveness of each solution with careful consideration of real-life constraints.
F. Identify opportunities for innovation and collaboration.	Within a team, I can contribute effectively to create ideas when my role is clearly defined. Still needs revision	Within a diverse team of peers, I can make a tangible and useful contributions to create and promote ideas. Still needs revision	I can <ul style="list-style-type: none"> collaborate with a range of peers and field experts/organizations to support my work. exercise flexibility and make necessary compromises to create and promote new ideas. 	I can <ul style="list-style-type: none"> create a group which will collaborate to support my work and invite input from field experts/organizations. I can synthesize information and viewpoints from all collaborators to create and promote new ideas.
G. Use a range of tools, including technology, to solve a problem.	I can <ul style="list-style-type: none"> identify tool/s, device/s, program/s or applications that can help me solve the problem. 	I can <ul style="list-style-type: none"> identify a range of appropriate tools, including technology, to help solve a problem. choose between tools in order to adequately address the problem. 	I can <ul style="list-style-type: none"> use a range of tools, including technology, to help solve a problem. evaluate tools so as to choose the tool that will effectively (best) solve a problem. articulate and/or explain why the tool is the proper (best) choice. 	I can <ul style="list-style-type: none"> use a wide range of tools, including technology, to solve a challenging problem. I can develop generalizations about the tools used and apply them to new problems or situations
H. Persist in solving challenging problems and learn from failure.	I need guidance to recognize what is needed to solve a problem. I sometimes give up when the task is too difficult.	I understand that problem solving requires flexibility and adaptability, and that learning from failure enables me to better address the challenge at hand.	I demonstrate an understanding that problem solving requires flexibility and adaptability, and have applied that understanding with the goal of solving the challenge at hand.	I demonstrate an understanding that problem solving requires flexibility and adaptability, have applied that understanding with the goal of solving the challenge at hand, and can connect that understanding to other learning experiences and contexts.

Task Model for Creative & Practical Problem Solving- 4/30/2015

Vermont Transferable Skills Assessment System

How many of the Performance Indicators from Transferable Skill 3 can be assessed through a single task?

- a. Observe and evaluate situations in order to define problems.
- b. Frame questions, make predictions, and design data collection and analysis strategies.
- c. Identify patterns, trends, and relationships that apply to solutions.
- d. Analyze, evaluate, and synthesize evidence, arguments, claims, and beliefs.
- e. Generate a variety of solutions, use evidence to build a case for best responses, critically evaluate the effectiveness of responses, and repeat the process to generate alternate solutions.

What features must an assessment have in order to produce work that can demonstrate a student's proficiency in these Performance Indicators?

- The task must be open-ended & lend itself to many possible solutions

In their final product....

- The students must define the problem that they are addressing
- The students must explain their own research questions and how they searched for/gathered information/data
- The students must engage in their own research – gathering observations, information from texts or interviews, or other data
- The students must describe how they worked within real-world constraints/parameters
- The students must interpret, evaluate, and analyze data/information
- The students must evaluate the effectiveness of several solutions and support their evaluation with evidence
- The students must synthesize their findings to make a claim about their best proposed solution, and support their choice with evidence

Recommended Instructional Practices:

- Group work- collaboration
- Help students learn strategies for selecting the best physical or organizational tools to design their solution
 - a. google docs
 - b. online data storage/data analysis tools
 - c. graphing tools