**We Solve It! Rubric**

**adapted from LEAP VALUE Problem Solving Rubric and LEAP VALUE Critical Thinking Rubric**

The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses.  The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can by shared nationally through a common dialog and understanding of student success.

**Definition**

 Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal.

**Framing Language**

 Problem-solving covers a wide range of activities that may vary significantly across disciplines. Activities that encompass problem-solving by students may involve problems that range from well-defined to ambiguous in a simulated or laboratory context, or in real-world settings. This rubric distills the common elements of most problem-solving contexts and is designed to function across all disciplines. It is broad-based enough to allow for individual differences among learners, yet is concise and descriptive in its scope to determine how well students have maximized their respective abilities to practice thinking through problems in order to reach solutions.

**Glossary**

*The definitions that follow were developed to clarify terms and concepts used in this rubric only.*

* Contextual Factors: Constraints (such as limits on cost), resources, attitudes (such as biases) and desired additional knowledge which affect how the problem can be best solved in the real world or simulated setting.
* “Off the shelf”solution: A simplistic option that is familiar from everyday experience but not tailored to the problem at hand (e.g. holding a bake sale to "save" an underfunded public library).
* Solution: An appropriate response to a challenge or a problem.
* Strategy: A plan of action or an approach designed to arrive at a solution. ( If the problem is a river that needs to be crossed, there could be a construction-oriented, cooperative (build a bridge with your community) approach and a personally oriented, physical (swim across alone) approach. An approach that partially applies would be a personal, physical approach for someone who doesn't know how to swim.
* Support: Specific rationale, evidence, etc. for solution or selection of solution.

**Columbus State University Adaptation**

Columbus State University (CSU) adapted the Problem Solving VALUE Rubric by adding two elements which specifically focus on an assessment of the student’s ability to construct an end product and revising two dimension to reflect the learning outcomes for DELIVERY and REFLECTION. One item was constructed by the institution to address the effectiveness of the end product. The second element specifically addresses creative, real-world problem-solving through the use of innovative thinking from the LEAP VALUE Creative Thinking Rubric. The revised instrument which we call the We Solve It! Rubric, combines process and end-product to provide the evaluator the ability to measure the student’s skill in the **processes** as well as the **end-product** – the student’s overall problem-solving ability.

**We Solve It! Rubric for Real-World Problem-Solving**

(Revised March 2019)

Problem solving includes both the process and end product. The process includes the student's ability to identify/discover problems; design solutions; evaluate outcomes and deliver solutions; and to demonstrate high levels of insight and awareness of what was learned and what could be improved. The product developed through the problem-solving process closes the loop and evaluates an end product – the student's ability to solve creative, real-world problems. *Evaluators are encouraged to assign a zero to any work sample that does not meet the minimal level performance.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Accomplished** | **Competent** | **Developing** | **Minimal** |
| **4** | 3 | **2** | 1 |
| **SLO 1. DISCOVER**: Demonstrate high levels of analytical skill in identifying and diagnosing challenging, ill-defined problems in everyday settings and in critically exploring and evaluating many possible solutions. | **Define Problem** | Demonstrates the ability to construct a clear problem statement with evidence of many relevant contextual factors as it relates to real world scenarios.  | Demonstrates the ability to construct a problem statement with evidence of many relevant contextual factors.  | Begins to demonstrate the ability to construct a problem statement with evidence of relevant contextual factors | Demonstrates a limited ability in identifying a problem statement. |
|  | **Identify Strategies** | Identifies multiple possible strategies to the problem that apply within a specific context. | Identifies multiple possible strategies to the problem, only some of which apply within a specific context. | Identifies only a single strategy to the problem that applies within a specific context. | Proposed strategy does not apply within a specific context. |
| **SLO 2. DESIGN**: Demonstrate high levels of logic and creativity in designing reasonable solutions to diagnosed real-world problems. | **Evaluate Potential Solutions** | Evaluates the pros and cons of each proposed solution, and makes a compelling case for why their selected solution was chosen over the others.  | Evaluates the pros and cons of each proposed solution, but does not adequately compare the merits of their selected solution against the others.  | Adequately evaluates the pros and cons of the solution they selected, but not the other possible solutions.  | Does not adequately evaluate the pros and cons of the solution they selected.  |
|  | **Propose Solutions** | Proposes a solution that indicates a deep comprehension of the problem. Solution is sensitive to all of the contextual factors included with the problem statement.  | Proposes a solution that indicates comprehension of the problem. Solution is sensitive to some of the contextual factors included with the problem statement.  | Proposes a solution that is “off the shelf” rather than individually designed to address the specific contextual factors of the problem. | Proposes a solution that is difficult to evaluate because it is vague or only indirectly addresses the problem statement. |
| **SLO 3**. **DELIVER**: Articulate highly sophisticated and persuasive presentations of proposed solutions to stakeholders of diagnosed real-world problems. | **Deliver Solution** | The description of the delivery was consistently strong in its organization and detail and appeared to involve a thoughtful and engaging presentation.Presents the solution in a manner that addresses thoroughly and deeply all of the contextual factors included with the problem statement. | The description of the delivery was largely acceptable in its organization and detail and appeared to be adequate in delivering an engaging presentation.Presents the solution in a manner that addresses some of the contextual factors included with the problem statement.  | The description of the delivery method was uneven or spotty in its organization and detail and appeared to be in a developing state as an engaging presentation.Presents the solution in a manner that addresses the problem statement but ignores relevant contextual factors included with the problem statement.  | The description of the delivery was lacking in organization and detail and appeared largely superficial, unsophisticated or unengaging.Presents the solution in a manner that does not directly address the problem statement. |
| **SLO 4.** **REFLECT**: Exhibit high levels of insight and awareness of what was learned from the completion of real-world problem-solving experiences and what should be done differently in the future to improve their DISCOVER, DESIGN, and DELIVER skill levels and performances. | **Evaluate Outcomes** | The reflection included detailed descriptions of multiple insights gained from the real-world problem-solving experience. The reflection clearly described what changes could be made during the discover, design, and deliver phases. These reflections were supported with thorough, specific considerations of need for further work. | The reflection clearly focused on one new insight gained from the real-world problem-solving experience.. The reflection clearly described what changes could be made during the discover, design, and deliver phases to improve results in the future.  | The reflection included modest or developing insights gained from the of real-world problem-solving. experience.The reflection included little, if any, consideration of need for further work during the discover, design, and/or deliver phases. | The reflection reported minimal or no insights gained from the real-world problem-solving experience.The reflection included no consideration of need for further work. |
| PROBLEM SOLVING PRODUCT |
| **SLO 5.** **OVERALL PROBLEM-SOLVING ABILITY**:Demonstrate an enhanced ability to creatively solve real-world problems. | **Effectively Solves Real-World Problem** | Constructs a final product which demonstrates complete understanding and identification of the problem, solves all aspects of the problem, and presents a compelling case that this solution is superior to alternative options. | Constructs a final product that demonstrates accurate understanding and identification of the problem, solves most aspects of the problem, and presents an adequate case that the solution is superior to alternative options. | Constructs a final product that demonstrates some understanding and identification of the problem, addresses some aspects of the problem, and presents a weak explanation of why the solution is superior to alternative options. | Final product is poorly constructed or incomplete; does not demonstrate understanding or accurate identification of the problem, presents an inadequate case that the solution is a reasonable response to the problem. |
| **Creatively Solves Real-World Problem using Innovative Thinking** | Extends a novel or unique idea, question, format, or product that can be applied in a real world setting.  | Extends a novel or unique idea, question, format, or product. | Experiments with creating a novel or unique idea, question, format, or product.  | Reformulates a collection of available ideas.  |

*Rubric adapted from LEAP VALUE RUBRIC’s Problem Solving and Critical Thinking, https://www.aacu.org/value-rubrics*

Reprinted with permission from [*Assessing Outcomes and Improving Achievement: Tips and tools for Using Rubrics*](https://www.aacu.org/publications-research/publications/assessing-outcomes-and-improving-achievement-tips-and-tools-using), edited by Terrel L. Rhodes. Copyright 2010 by the Association of American Colleges and Universities.