Name: _____   Date: _____

Task: Packing Compressed Air Rubric

Category	Level 1	Level 2	Level 3	Level 4
Knowledge/ Understanding	• demonstrates limited knowledge of the relationship between surface area and volume, and of the concept of optimization	• demonstrates some knowledge of the relationship between surface area and volume, and of the concept of optimization	• demonstrates considerable knowledge of the relationship between surface area and volume, and of the concept of optimization	• demonstrates thorough knowledge of the relationship between surface area and volume, and of the concept of optimization
Thinking	• uses planning and critical-thinking processes with limited effectiveness (e.g., considers a few cases, a few appropriate formulas, performs a few calculations, draws a few irrelevant conclusions)	• uses planning and critical-thinking processes with some effectiveness (e.g., considers some possible cases, selects some appropriate formulas, performs some calculations, draws some relevant conclusions)	• uses planning and critical-thinking processes with considerable effectiveness (e.g., considers most possible cases, selects formulas, performs calculations, draws conclusions, checking them for appropriateness)	• uses planning and critical-thinking processes with a high degree of effectiveness (e.g., considers the most appropriate cases, selects formulas, performs calculations, draws correct conclusions with some justification)
Communication	• expresses and organizes mathematical thinking with limited effectiveness • uses mathematical vocabulary, diagrams, and notation with limited effectiveness (e.g., expresses solutions with limited organization)	• expresses and organizes mathematical thinking with some effectiveness • uses mathematical vocabulary, diagrams, and notation with some effectiveness (e.g., expresses solutions in a somewhat organized manner)	• expresses and organizes mathematical thinking with considerable effectiveness • uses mathematical vocabulary, diagrams, and notation with considerable effectiveness (e.g., expresses solutions in an organized manner)	• expresses and organizes mathematical thinking with a high degree of effectiveness • uses mathematical vocabulary, diagrams, and notation with a high degree of effectiveness (e.g., expresses solutions in a clear and detailed manner)
Application	• applies knowledge of measurement and optimization formulas to this context with limited effectiveness (e.g., applies a few formulas without justification)	• applies knowledge of measurement and optimization formulas to this context with some effectiveness (e.g., applies some formulas correctly and provides minimal justification)	• applies knowledge of measurement and optimization formulas to this context with considerable effectiveness (e.g., applies formulas correctly and provides some mathematical justification)	• applies knowledge of measurement and optimization formulas to this context with a high degree of effectiveness (e.g., applies formulas correctly and provides appropriate mathematical support)