

STAGE IN TAXONOMY	One set of ideas	Another set of ideas	A third set of ideas
Remember	Remember the definition of a system, surroundings, and the three types of interactions - heat, mass, and work	Identifying a system/control volume given several examples of closed/open systems	
Understand	Identify and classify the interactions in the following cases: (a) A block of hot metal (the system) is cooling down, (b) A cup of hot coffee (the system) is cooling down, (c) A rigid object (the system) accelerates as a force acts upon it	identifying the flows of energy and matter through examples of control volumes	
Apply	Identify the interactions for one of the appliances in your home.	Applying the 1st law to a simple (/simplified) solid/liquid fuel rocket motor	Learn how to calculate the isentropic efficiency of a gas turbine.
Analyze	Can we consider mass interactions negligible in the case of the coffee cup?	Identifying design variables governing rocket motor performance and varying nozzle design to identify the thrust produced	Identify interactions between a system and its surroundings, for use in the 1st law of thermodynamics
Evaluate		considering two different options (design variables - for example fuel injection rate/nozzle area) for modifying the thrust of the engine and discussing pros and cons of each choice	
Create	Create a system that experiences all three interactions simultaneously with its surroundings. Attach conditions for the system to make it open ended...	open ended project to design a rocket motor that can provide enough thrust to place a given mass in a specified low earth orbit.	

Note: We do not seem to have reached a consensus on how to categorize certain student activities / learning outcomes. (Is identifying a system and its surroundings analysis, or is it simply recall?)