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| **Component** | **In progress** | **Proficient** | **Mastered** | **Incomplete** |
| **Set goals when *approaching* problem** | I identify the unknown(s). | I identify the *given* relevant information and facts. | I can represent all relevant givens and unknowns as symbols with correct units. | I do not engage in this practice. |
| **Monitor: When I first think about a problem, I …?** | Ask why the given information is relevant | Ask if any relevant given information is missing or contradictory. | Ask how givens and unknowns can be related. | I do not engage in this practice. |
| **Create a Plan** | I identify models, relationships and/or concepts that might apply. | I determine if any approximations or assumptions need to be made. | I create a plan that includes given information in a specific relationship (equation), concept or model. | I do not engage in this practice. |
| **Monitor: Thinking through my plans, I …?** | Ask if the plan is similar to those used in previous problems. | Ask if there are any missing givens or unknowns that I need to follow through on the plan. | Ask if there are alternative plans that are reasonable. | I do not engage in this practice. |
| **Execute** | Follow the plan until unknown(s) are attained | | | |
| **Monitor: When thinking through my execution, I…?** | Check to see if the plan has been completed. | Compare units to the approach and examine if they match each variable. | Consider if the solution is reasonable in relation to the relevant question. | I do not engage in this practice. |

**Problem Solving (ACE-M) Rubric**