JOYNER TECHNICAL WORKSHOP - PROBLEM SOLVING CHECKLIST

Worked on by: Name:_____ Date: _____

1. **Understanding the problem**

   ☐ WHAT THE OWNER DECLARES TO BE THE PROBLEM:

   ☐ WHAT IS THE EXPECTED FUNCTION OF THE ITEM?:

   ☐ WHAT IS NOT WORKING AS EXPECTED?:

- **POSSIBLE STRATEGIES FOR UNDERSTANDING (AND RESOLVING) SITUATIONS:**

Is this a known condition, with an identifiable set of solutions? If not, proceed to identify:

1. Draw a picture **2. Draw a diagram** **3. Look for a pattern** **4. Use a model** **5. Use direct reasoning (DEDUCTIVE, ANALYTIC THINKING) any physical evidence to analyze?** **6. Solve an equivalent problem** **7. Solve a simpler problem** **8. Identify sub-goals** **9. Guess and test** **10. Make a list**	**11. Use cases** **12. Work backward (INDUCTIVE, SYNTHETIC THINKING)** **13. Do a simulation** **14. Use a variable** **15. Look for a formula** **16. Solve an equation** **17. Use dimensional analysis** **18. Use indirect reasoning** **19. Use the properties of numbers** **20. Use coordinates** **21. Use symmetry**

2. Imagine and prepare an approach, strategy, plan or way for resolution Consider a resolution that solves the problem, **the best possible**
3. Carry out the plan. **Execute the planed actions** as imagined
4. Look back. Did the plan actions work? **IF YES, document to inform others**. **IF NOT, go back and re-imagine and/or re-do any and all previous steps as needed, until acceptable resolution (or, if appropriate, abandonment)**