



## Science Display & Demonstration

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This document presents the rules and judging criteria.

1. **The Originality** - The youth presenting the demonstration must have been actively involved in the science experiment demonstrated. However, it is acceptable for one youth to present a research project that involved a team effort. There is no restriction on presenting work that was prepared as a school project or other formal activity. If the original project was a group effort, the youth presenting the work must prepare his/her own display specifically for this event.
2. **Size** – The display must be capable of sitting (free-standing) on a 3 foot by 3 foot space on a tabletop.
3. **Display Contents** - The display must “tell the whole story” by itself and will count for 70 out of a total of 120 points toward the final competition score (see Scoring). It must contain the following parts:
  - a. **Title** - the title may state the independent and dependent variables. ( The effect of salt concentration on the boiling point of water) or may be worded to capture the observers’ interest (Does Salty Pasta Cook Faster?)
  - b. **Statement of Problem** – the essential research must be communicated through the problem statement. On a display board, a statement followed by the experimental hypothesis often achieves this. (Is the temperature at which a salt/water solution boils, higher than the temperature at which pure water boils? Hypothesis: The more salt added, the higher the temperature at which the mixture boils.)
  - c. **Procedure (materials/methods)** – The procedure (materials methods) should be communicated either as a list or in a narrative/paragraph form.
    - i. **Example 1:**
      - Step 1: Measure one cup of distilled water into a saucepan. (Control)
      - Step 2: Place the saucepan on the stove and bring the water to a boil.
      - Step 3: Once the water is rapidly boiling, measure and record the temperature to the nearest degree Fahrenheit.
      - Step 4: Discard the liquid and rinse the saucepan in tap water.
      - Step 5: Repeat steps 1 through 4 twice, for a total of three trials.
      - Step 6: Repeat steps 1 through 5 except for each repetition add the appropriate amount of salt to the saucepan along with the distilled water (1, 2, 3, 4, and 5 teaspoons of salt)
    - ii **Example 2:**
      1. **Materials required** for this experiment were distilled water, table salt, a saucepan, a measuring cup, a teaspoon measure, a thermometer capable of measuring the range of 200 to 250 Fahrenheit in one degree increments, and a stove.
      2. **Procedure:** One cup of distilled water was measured into a saucepan. For each trial a measured amount of table salt, varying from one to five teaspoons (in one-teaspoon increments) was added and the mixture was stirred and brought to a rapid boil on the stove. Once boiling, the

temperature was recorded to the nearest degree Fahrenheit. The boiling salt-water mixture was discarded and the saucepan rinsed with tap water. This procedure was repeated three times for each amount of salt.

3. **Sufficient graphs and data tables** must be presented to communicate the findings and to show if the data support or denies the experimental hypothesis. Brief sentences summarizing the data may accompany the graphs and tables.
4. **Conclusions:** The major research findings are summarized here. This may be done in list or paragraph form. Possible future research studies may be suggested. *Example:* The data clearly shows that the saltier the water, the higher the boiling point. Based on this finding it would be interesting to see if pasta will cook more rapidly in salted water than in unsalted water.
5. **Oral Presentation:** Each contestant will have 10 minutes (plus two for questions from judges in which to present their research and results. They may use their display or alternatively, prepare other visuals for the oral presentation.