

SCIENCE PROJECT CATEGORIES

A. Models and demonstrations:

Projects entered into this category should focus on helping to explain a specific scientific concept or principle in a new way. In addition to the presentation of the model or demonstration, projects should include a written rationale for why the model or demonstration is a particularly good way to explain the chosen concept or principle. This rationale must at the very least address why the model or demonstration is particularly effective in explaining the chosen concept or principle and why particular materials were chosen.

To clarify this category it is worth considering a “non-example.” A popular model that would not be an appropriate entry would be the popular model of a volcano eruption using vinegar and baking powder. While this model is fun and has some resemblance to an eruption it does not illustrate much about the actual mechanism involved when a real volcano erupts. Models will be judged on their effectiveness in illustrating what scientists understand about some natural phenomenon. Some good examples of models in science would be those illustrating how the heart pumps blood, how muscle contraction actually works, and the factors influencing the distribution of rainfall in Lebanon.

Specific judging criteria for this category:

1. Creativity of the model or demonstration: Is this a truly innovative way of explaining the chosen topic? Projects that repeat commonly known models and demonstrations will not be evaluated well with respect to this criterion.

2. The effectiveness of the model or demonstration for explaining the concept or principle: included here will be an evaluation of the rationale provided by the participant and the judges own evaluation of effectiveness

B. Research:

Student projects entered in this category should provide answers to novel questions raised by the student. Research projects can use either experimental or non-experimental designs. Projects must include a clear statement of the question asked, the method used to address the question (including a rationale for why this method is appropriate), presentation and analysis of results and the conclusions drawn.

As an example of an experimental project participants might investigate the effectiveness of a variety of brands of everyday products (e.g. how well different paper towels absorb liquids). Examples of non-experimental projects might be cataloguing the variety of plant species on the school grounds, tabulating and drawing general conclusions about the nutritional content of certain classes of foods, or researching the rationale for the selection and/or design of one of Lebanon’s nature reserves.

Specific judging criteria for this category:

1. Methodology:

a. Appropriate formulation of research question: Is the research question formulated precisely enough to be addressed? Is it a question that can be realistically addressed by the student given the resources and time available?

b. The methods of data collection are appropriate for the question asked.

c. Results are appropriately analyzed and presented in a way that helps address the question.

d. Conclusions are consistent with the results obtained.

2. Creativity: Intriguing questions that are rarely thought of would be evaluated highly.