Pill Bugs

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Description:
The 2020 Pill Bugs event will follow the rules for the standard Pill Bugs event listed in the official Elementary Science Olympiad Competitive Tournament Rules Manual from the National Science Olympiad, with the variation that all responses will be submitted online.

Number of Students: Up to 15

Insuring Student Work
Any members of the Elementary Science Olympiad team from the school may participate in this event. Participation is not limited to three students. The coach is responsible to ensure and validate that all work done is the work of the students on the team.

Materials: All necessary materials are provided by the school/team.

Clarification: Mealworms Permitted
Students may experiment with either pill bugs or mealworms. In order to facilitate obtaining specimens for observation, mealworms are added as an option. Mealworms are commonly available at bait and pet stores.

Organism Clarification
Pill Bugs, in this case refers to terrestrial isopods that may also be referred to as "sow bugs," or "roly polies." They are available from science supply houses, such as Ward's Science or Carolina Biological.

Mealworms, refers to the Tenebrio larvae and may also be known by a variety of names. They are available from science supply houses, such as Ward's Science or Carolina Biological. They are also available from pet stores, which may facilitate obtaining specimens for observation.

Safe and Humane Use of Animals in the Science Classroom
In keeping with common laboratory animal protocols, animals used in experimentation must be treated humanely. Coaches should be familiar with state and district guidelines concerning animals in the classroom. Links to the California Science Safety Handbook and the National Science Teachers Association position on animals in science education

are provided below. Coaches are expected to review and supervise student work with the pill bugs or mealworms. As part of the online submission of student work for this event, teachers may be required to certify that students have followed appropriate protocols.

NSTA: Safety in the Science Classroom
http://www.nsta.org/safety/#elem

NSTA: Responsible use of live animals
http://www.nsta.org/about/positions/animals.aspx

California Science Safety Handbook, 2014
http://www.cde.ca.gov/pd/ca/sc/documents/scisafebook2014.pdf

Online Submission Link
A link will be posted on the website https://www.socalscioly.org/?tab=tournaments&page=LA-AVC prior to the due date.

Online Submission
Students will submit evidence of their work online for scoring, including several mandatory deadlines in advance of the Science Olympiad tournament date. This is a significant variation from the rules described in the manual. Note that the due dates are well in advance of the date of the Science Olympiad tournament dates.

First Submission opens Oct 21st,2019
On this date, students can start to submit the name of their project, the question they have determined to investigate, a description of how they will house and care for the pill bugs or mealworms, and the procedure they plan to follow.

Starting on Nov 2nd, 2019
On or after this date, students will submit a summary of their observations, along with any changes to the procedure or protocols that may be required by their initial observations. A photo of the students and the experimental set-up may be required.

By Jan 30th, 2020
By this date, students will submit their data, observations and conclusions.

This is a self-paced activity, teams may start and complete their experiments anytime before January.

Scoring priorities include:
- Appropriate and reasonable experimental design protocols.
- Collection and communication of observations, including multiple observations when appropriate.
- Observations and data are clearly and carefully recorded.

- Ideas, explanations, conclusions, new questions, etc. are clearly communicated, reasonable, and based on observations made as part of the investigation.
- The teams have had the opportunity to repeat their experiment at least once.

Submission #1 – Starting October 21st, 2019

Team Number
School Name
Coaches Name
Student Name
Student Name
Student Name
Name of Project
What is the title of your project?
Question
What question you are going to investigate in your project?
Procedure
How will you investigate your question? Describe your experimental design, including controls and variables.
Organism Care
How will you care for your pill bugs or mealworms during the experiment?
Organism Description
Carefully observe the pill bugs or mealworms and describe their external anatomy.
Life Cycle
Briefly describe the life cycle of your pill bugs or mealworms.

Submission #2 – anytime

Team Number
School Name
Coaches Name
Student Name
Student Name
Student Name
Name of Project
What is the title of your project?
Procedure
Describe any changes you have made (if any) to your original experimental design, including controls and variables.
Observations
Describe the observations you have made while working on the experiment.
Photo
Please upload a photo of you and your experimental materials.

Submission #3 – by January 24th, 2020

Team Number
School Name
Coaches Name
Student Name
Student Name
Student Name
Name of Project

What is the title of your project?

Observations

- Describe any additional observations you have made while working on the experiment. You may submit a logbook via email at this address.

Data and Results

- Submit your data table or a picture of your data table and results.
- Full points for repeating your experiment.

Conclusions

Describe your conclusions and any new questions that you are curious to investigate.

- This is the final opportunity to share your observations, data, and conclusions. Remember to include specific observations and data that provide evidence for your conclusions. Responses need not be lengthy, but should be specific, and sufficient to communicate clearly.

Do not bring the actual pill bugs, mealworms, or their habitats and experimental materials to the Science Olympiad.