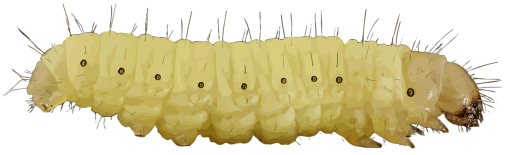
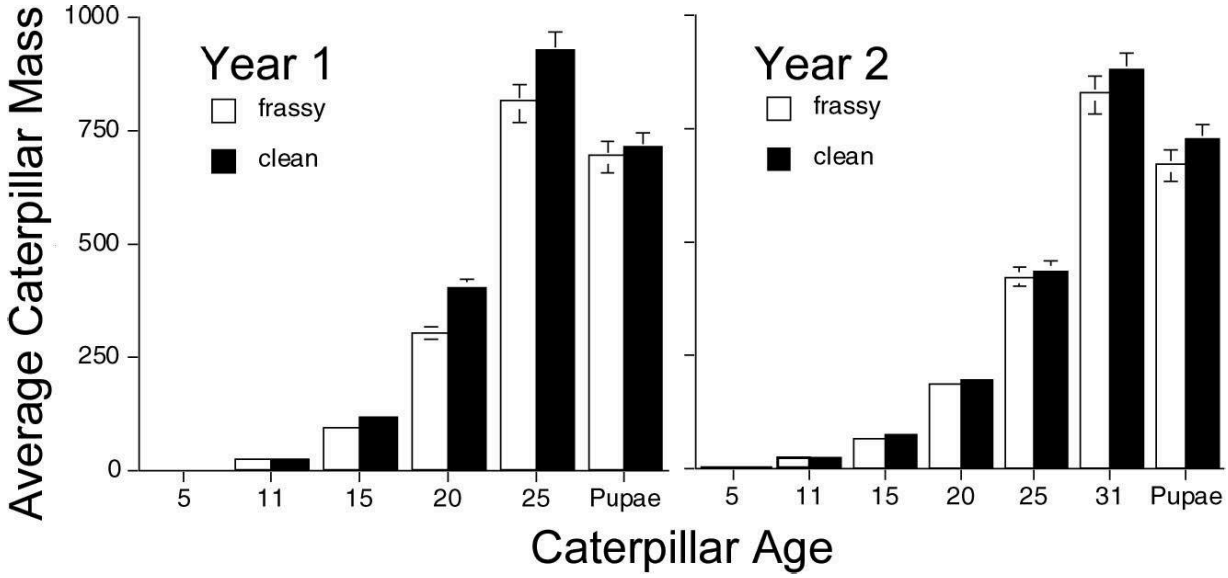
Name: _____ Period: _____

Shooting the Poop (CER) (Adapted from NSTA)



Question: Why do caterpillars fling their frass?

Experimental design: Caterpillars were raised in individual containers where they could build shelters. One had a "clean" treatment where frass (caterpillar poop) was removed daily from the container. The other had a "frassy" treatment which allowed frass to accumulate in the container throughout development. She measured the mass of 61 caterpillars in Year 1 (~30 in each treatment) and 50 caterpillars in Year 2 (25 in each treatment).



1. What CLAIM can be made from the collected data?

2. What is the independent variable?

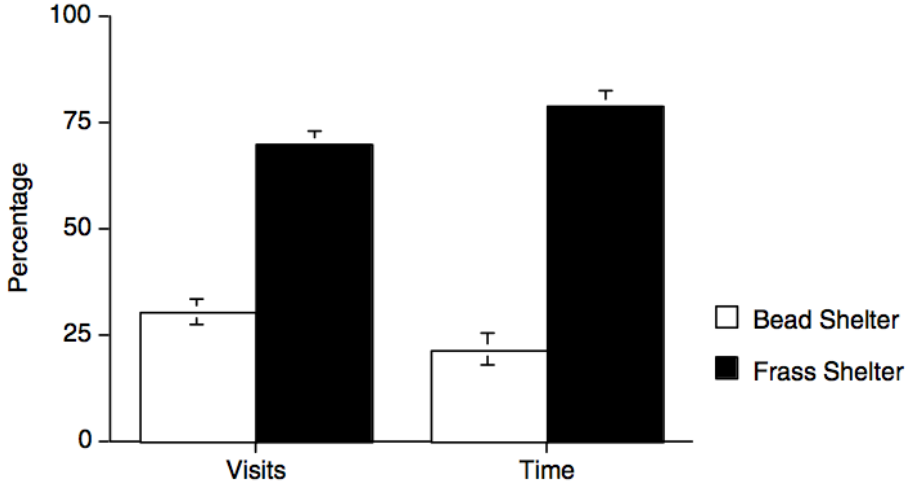
What is the dependent variable?

3. Summarize the EVIDENCE that supports the claim.

Data Set 2: Frass and Predators

A further experiment was conducted to test whether predators could be attracted by the smell of frass. Artificial shelters similar to those of the caterpillars were placed with either 6 frass pellets or 6 beads designed to look like frass. Predator wasps were introduced to the containers. Each wasp had to individually choose between a larva in a shelter with its frass and a larva in a shelter with pellets to visually imitate the frass (but not the smell).

The percentage of time spent by each wasp at each container was recorded.



4. What CLAIM can be made from the collected data?

5. What is the independent variable?

What is the dependent variable?

6. Summarize the EVIDENCE that supports the claim.

7. Consider both data sets. Answer the experimental question and use **REASONING** in the analysis with regard to the behavior of flinging frass.

8. Extension. Another hypothesis suggests that frass flinging occurs because waste reduces overall fitness and health of the larvae. Describe data that would need to be collected to confirm this hypothesis.