

Living Environment Midterm Review Sheet
Exam: Tuesday 1/22 and Wednesday 1/23

Experimental Design

1. A student wanted to determine if drinking water one hour before running the mile improved their mile time.
 - a. State the problem for this investigation.
 - b. State the hypothesis for this investigation.
 - c. What is the independent variable for this investigation?
 - d. What is the dependent variable for this investigation?
2. Design an experiment consisting of a control and three different experimental groups to test the prediction, "Garlic grows better as the salt concentration of the solution in which it is grown increases." In your answer, be sure to:



- Describe the control to be used in the experiment
 - Describe the difference between the three experimental groups
 - State one type of measurement that should be made to determine if the prediction is accurate
 - Describe one example of experimental results that would support the prediction
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3. Which statement describes the best procedure to determine if a vaccine for a disease in a certain bird species is effective?
 1. Vaccinate 100 birds and expose all 100 to the disease.
 2. Vaccinate 100 birds and expose only 50 of them to the disease.
 3. Vaccinate 50 birds, do not vaccinate 50 other birds, and expose all 100 to the disease.
 4. Vaccinate 50 birds, do not vaccinate 50 other birds, and expose only the vaccinated birds to the disease.
 4. A biologist reported success in breeding a tiger with a lion, producing healthy offspring. Other biologists will accept this report as fact only if
 1. research shows that other animals can be crossbred
 2. the offspring are given a scientific name
 3. the biologist included a control in the experiment
 4. other researchers can replicate the experiment