

Salinization Lab: Environmental Science AP

Purpose : The purpose of this lab experiment is to involve students in a real world investigation in which you design an experiment to explore the influence of various salt solutions on seed growth or germination rate.

Background: Farmers in the Central Valley of California, as well as farmers in many other areas around the globe, have become increasingly concerned about the build-up of salt(s) in the soil. Salinization, defined as the loss of soil fertility (by 10% or more), can dramatically reduce crop yields and potentially increase food prices.

Materials : NaCl, water, 10 petri dishes, graduated cylinders, beakers or flasks, 100 Seeds (green beans), paper towels or filter papers, forceps, stirring rod, hand lens, electronic balance, your mind.

Procedure: Design a controlled experiment which will quantitatively display the *relationship between salt concentration and seed growth*. Your group will decide which NaCl concentrations you will make, how many dishes you will use for each concentration, the volume of solution that you will place in each dish, etc. You need to include a hypothesis, your experimental design or procedure, including control and variables, data collection, analysis and results. Also include whether or not you accept or reject your hypothesis.

- All 10 petri dishes will contain 10 green beans.
- The concentrations are your choice, keeping sound experimental design in mind.
- The volume of NaCl solution placed in the petri dishes is your choice (again, keeping sound experimental design in mind.)

Monitoring and Recording: This lab will run for a week; observations are to be made daily; taking measurements, making sketches, and recording any other information that your group thinks will be helpful.

Graphing Data: You will produce one or more graphs illustrating the results of your experiment. .

*Please follow standard lab write-up instructions for this lab.