

Unit 1 Exam Review: The Nature of Science

This review is a guide to help you prepare for your exam. You should also review all notes, assignments and any other work completed in this unit. Simply memorizing the answers to the questions on this review will NOT guarantee success on this exam. You must thoroughly understand and be able to APPLY the information covered in this unit. ALL information covered in the unit is fair game for the exam, even if it was not specifically mentioned on this review.

The exam will be 30 multiple choice questions using a scantron answer sheet.

Answer the following questions:

1. What is Biology?
2. Name and describe the characteristics of life
3. Name and define the three types of investigations
4. Explain the elements of a good hypothesis
5. Name and describe the components of an experiment:

You will be asked to evaluate different experiments. The questions below are examples of the type of questions you will be asked on the exam.

Justin conducted an experiment to measure the effect of different pH solutions on the germination of seeds. He placed 10 radish seeds in the bottom of 10 Petri dishes that had been lined with filter paper. He added equal amounts of solution to each of the dishes then placed the lids on top and stored the dishes in the dark. On days 2, 4, and 6 he measured and recorded the length of the root on each seed and calculated an average root length. A summary of his results are shown in the data table below:

Average Root Length (mm)

| Solution in Dish | Day 2 | Day 4 | Day 6 |
|---------------------|-------|-------|-------|
| A. Distilled water | 1.0 | 4.0 | 5.0 |
| B. Solution pH 2.00 | 0.0 | 0.5 | 1.5 |
| C. Solution pH 5.00 | 2.0 | 5.0 | 8.0 |
| D. Solution pH 8.00 | 1.0 | 3.0 | 3.5 |

1. Write a hypothesis for this experiment.
2. Identify the control group, experimental group, independent variable, dependent variable and all constants in the experiment.
3. Write an appropriate title for a graph of the data for this experiment.