

Learning Target (LT) Design and conduct Scientific Investigations. 3210.Inq.2

Objectives

1. Identify the Independent and Dependent variables in a controlled experiment.

Notebook Entry

Assignment/Homework

Identify Controls and Variables

Scientific Method

- Ask a question
- Research the question
- Form a hypothesis
- Conduct an experiment (controlled)
- Record and analyzing results
- Accept or reject the hypothesis

Setting Up a Controlled Experiment

Controlled Experiments consist of a Control setup and an Experimental setup.

Both setups are identical except the experimental setup contains the factor or variable being tested.

The factor being tested is also known as the independent variable and the manipulated variable

Setting Up a Controlled Experiment

The variable that is observed and that changes in response to the manipulated variable is called the responding variable or dependent variable.

Redi's Experiment

Redi's Experiment on Spontaneous Generation

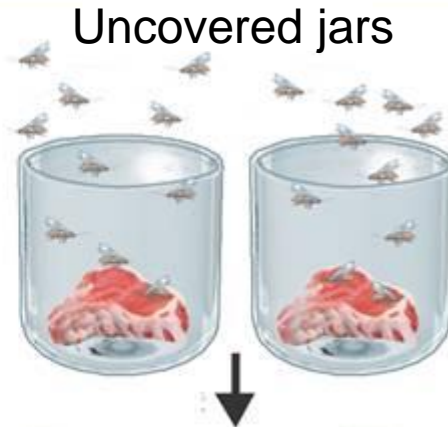
OBSERVATIONS: Flies land on meat that is left uncovered. Later, maggots appear on the meat.

HYPOTHESIS: Flies produce maggots.

PROCEDURE

Controlled Variables:

jars, type of meat,
location, temperature,
time



Redi's Experiment

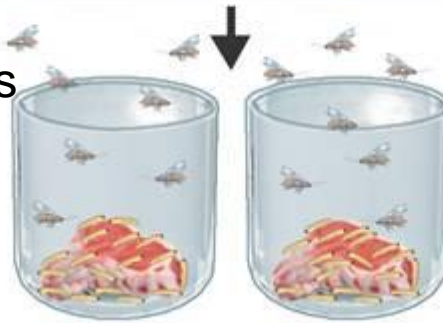
Redi's Experiment on Spontaneous Generation

Manipulated Variable:

Gauze covering that keeps flies away from meat

Responding Variable:

whether maggots appear



Maggots appear.

Several days pass.



No maggots appear.

Spallanzani's Test of Redi's Findings

Flask is open.

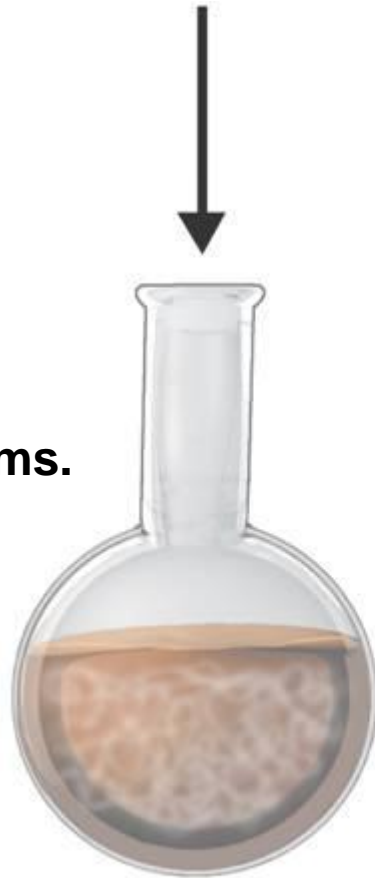


Flask is sealed.



Spallanzani's Test of Redi's Findings

Gravy is teeming with microorganisms.



Gravy is free of microorganisms.



Pasteur's Experiment



Broth is boiled



Broth is free of microorganisms for a year.



Curved neck is removed.



Broth is teeming with microorganisms.

1-2 Section QUIZ

1. In an experiment, the variable that is deliberately changed is called the
- a. control.
 - b. manipulated variable.
 - c. responding variable.
 - d. dependent variable.

1-2 Section QUIZ

2. Which of the following was the independent variable in Redi's experiment?
- a. the kind of meat used
 - b. the temperature the jars were kept at
 - c. the gauze covering on some jars
 - d. the kind of fly that visited the jars

1–2 Section QUIZ

2. Which of the following was the independent variable in Redi's experiment?
- a. the kind of meat used
 - b. the temperature the jars were kept at
 - c. the gauze covering on some jars
 - d. the kind of fly that visited the jars