

Based on P 35-37

Science Cornell Notes—8th Grade

Period 4

Name Julie Hohenemser Date 10/2/19 Subject: Scientific experimental design

ESSENTIAL QUESTION: What are the components and steps to design an effective scientific investigation?

Self-assessment of C-notes — Write a Yes on the line if you have completed the following: /10

- Complete header information including the essential questions. (/1 pt)
- Thorough job of note-taking, circling key words, underlining or highlighting main ideas. (/3 pts)
- Written questions in the left column that can be answered by the main ideas on the right. (/2 pts)
- Written a detailed summary that answers my essential question and left hand questions. (/4 pts)

SUMMARY — Write in complete sentence form, answering the essential question

1. There are several components and steps when designing a scientific investigation. 2. When writing a research question, avoid opinion questions and make sure answers can be measured. As you design your experiment you want to determine the experimental conditions as well as the control conditions that you will compare your results to. The independent variable is the thing you are changing and the dependent variable is the one you are measuring. Having a large enough sample size is important to providing enough evidence to support your claim. Keeping detailed and accurate data in an organized format will help you to provide enough evidence to support your claim.

QUESTIONS:

What is important to remember when asking a research question

NOTES: ①

Asking a research question

- possible to research (not impractical - have materials)
- should not test opinions
- have answers that can be measured

②

Designing the Investigation

a. Conditions (condition or group)

- control - typical condition (light, soil, water)
- experimental - what you are testing (dark, no water, no soil)

What is the difference between control and experimental conditions

Continue notes on back

QUESTIONS:

Compare and contrast the independent + dependent variables.

Why is a large enough sample size important to you being able to make a claim?

Why are detailed results important to a scientific investigation?

NOTES:

Variables

Independent variable - thing we change (only one at a time)

dependent variable - everything you measure in an experiment

Sample Size

How many "seeds" you plant/experiments you need enough seeds that the data is believable enough evidence to support your claim -

too big of a sample size - would provide too much data to consider - too little of a sample doesn't provide enough data.

Collecting Data

- Scientists record detailed data to support claims at the end of their experiment. organization is key.
- Sometimes we record other circumstances to help explain our data.