Sample Experiment Design

Topic: Effects of different brooder floor space on chicks 4-8 weeks old

Main Question: Does different brooder floor space affects chick weight?

Relevance: Importance of poultry industry in Texas (egg production)

Independent Variables (IV): Number of chicks per brooder floor space

Dependent Variable (DV): Weight gain by chick group (by brooder)

Data Collection layout: Each team will be provided with 12 chicks, they will be distributed into 2 brooders, both brooders will have the same floor space (28" X 24"), one brooder will contain 4 chicks and the other will contain 8 chicks. Chicks will be 4 weeks old at the beginning of the experiment, and the observation period will last 4 weeks. Chicks will be weighted (as brooder group) once a week.

Introduction Key Points
What are layer chickens? (common laying chicken breeds)
Characteristics (physical)
Recommended temperature, humidity environment for 4-8 weeks old chicks
Effects of confined chickens (floor space recommended for adult chickens)
Egg market (Texas production, USA production)

Materials and Methods (per team)
12 female chicks (Rhode Island Reds)
2 brooders (28" X 24")
Wood shavings
Waterers
Feeders
Grower Diet
Scale

Chicks have to be visited every day, waterers and feeders must be refill according to chicks needs. Chicks will be weighted (as a brooder unit) once a week (total of 4 times).

Date/Time	Brooder #	Temperature	Weight	Observations

EXPERIMENT DESIGN 2

Topic: Effect of different composts in monocots and dicots plants

Question: How do different types of compost affect seed germination and plant growth?

Suggested Vocabulary: Monocots, dicots, leaf, bud, stem, vascular tissue, lateral root, primary root, epidermis, cortex, endodermis, xylem, phloem, cambium, pith, cotyledon, seed coat, endosperm, plant macronutrients, plant micronutrients. Swine, poultry, compost.

Possible Independent Variable:
Team 1: Seed type (using swine manure)
Team 2: Seed type (using rabbit manure)
Team 3: Seed type (using poultry manure)
Team 4: Seed type (using cattle manure)
Team 5: Seed type (using swine manure)
Team 6: Seed type (using poultry manure)
Team 7: Swine and poultry manure
Team 8: Swine and rabbit manure
Team 9: Swine and cattle manure
Team 10: Rabbit and cattle manure
Team 11: Rabbit and poultry manure
Team 12: Poultry and cattle manure

Possible Dependent Variable:
Number of seeds that germinated
Plant growth in centimeters

Data collection layout:
Each team will have eight plants or seeds (4 monocots and 4 dicots).
Six teams will be using one type of manure each and the other six teams will use two types of manure.
Teams that are using only one type of manure will be comparing seed germination and plant growth comparing the two types of plants.
The teams that will be using two types of manure will be comparing the effect of the two manures (always comparing the same type of plant) then the same manure on the two types of seeds. This is a 4 X 4 analysis.

Introduction Key Points:
General plant structures
Plant classification (monocots & dicots) and characteristics
Importance of wheat and cotton in Texas
Importance of manure usage
Characteristics about cattle manure
Characteristics about rabbit manure
Characteristics about poultry manure
Characteristics about swine manure

Instructions:
Students will prepare the soil and manure mix for each plant and they will plant the two seeds types, eight totals (4 monocots and 4 dicots) one in each pot.

Material and Methods
Metal Greenhouse covered with plastic (12L, 8W, 7H)
Swine, cattle, rabbit, and poultry manure (20%)
Soil (80%)
Wheat and Cotton seeds
Plastic pots
Water