Sorting out the Scientific Method #3

with Dr. E. McSquare

5TH GRADE

PHYSICAL SCIENCE

Scientist Dr. E. McSquare is compiling his scientific findings into a single volume. He forgot to give titles to the sections of his reports and now they're all mixed up! Use the definition guide to help Dr. McSquare label his reports.

Definition Guide:

Q = Question: The question is the first part of the scientific process. What question do you want to answer?

H = Hypothesis: A hypothesis is a statement that can be proven true or false. It is often written in the form "If (a) then (b)."

E = Experiment: The experiment is an activity that is used to test if your hypothesis is true or false.

D = Data: Data are the results of the experiment.

C = Conclusion: The conclusion is a final statement that describes what you learned from the experiment and results.

H If plants reflect green light, then they must absorb red light (the opposite of green) and thus grow faster under red lights.

_____ **Plant Specimen - Light color: Growth**
Yellow Hibiscus - Green light: +9.4cm, **Red light:** +12.2cm, **Blue light:** 11.9cm
Golden Sage - Green light: +6.6cm, **Red light:** +8.1cm, **Blue light:** +7.1cm
Soybean Plant - Green light: +7.4cm, **Red light:** +10.1cm, **Blue light:** +10.0cm
Common Gardenia - Green light: +5.1cm, **Red light:** +6.9cm, **Blue light:** +6.9cm

_____ I will place 4 different plants under green lights and compare their growth over a month with identical plants under red and blue lights.

_____ Using clear containers with measurement marks, I will compare the volume of a glass of water at room temperature with a glass of frozen water.

_____ Which color lights cause plants to grow more effectively?

_____ **Container# - State of water: height**
Container 1 - Water: 14.0ml, ice: 14.8ml
Container 2 - Water: 20.0ml, ice: 20.8ml
Container 3 - Water: 24.0ml, ice: 24.9ml

_____ Does the volume of water change when it freezes?

_____ After consistent results, I found the that water increases in volume when it freezes.

_____ The results of this experiment showed that green light was the least effective color for growing our plants. Blue and red lights caused the greatest amount of growth.

_____ If the molecular structure of solids is more dense than liquids, then water will decrease in volume when it freezes.