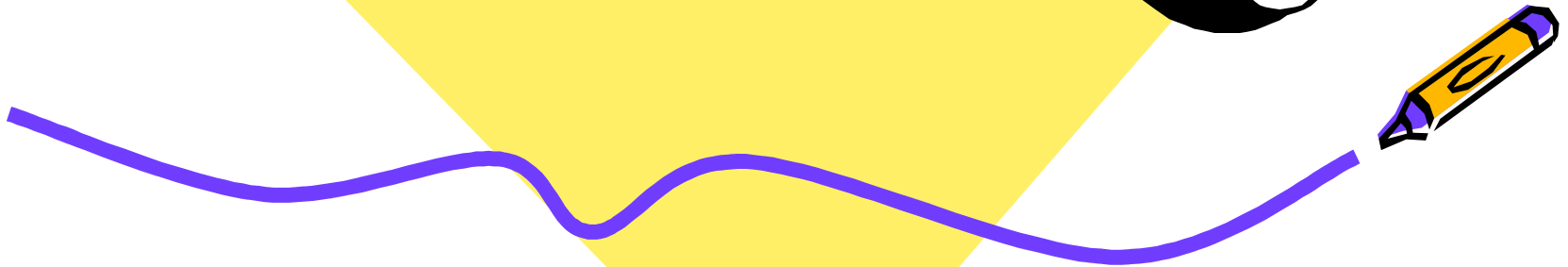
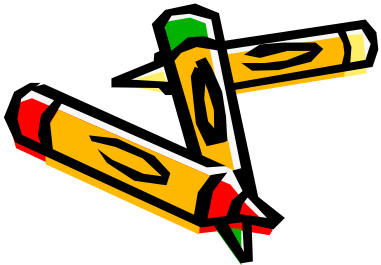


# How to Write a Testable Question



# What is a "Testable Question?"

A testable question is one that can be answered by designing and conducting an experiment.



# How do you Write a Testable Question?



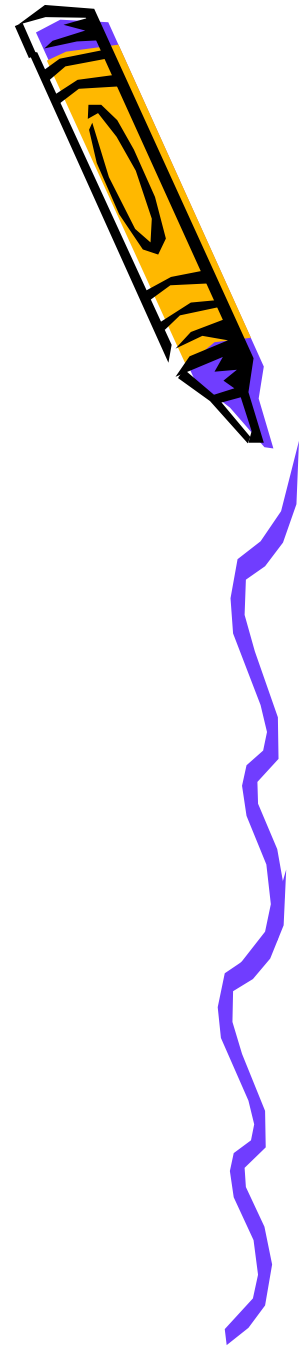
Testable questions always have the same format...

How does Manipulated Variable  
affect Responding variable ?

FYI... When determining whether a question is testable always identify the manipulated and responding variables first



# How to Turn a Non-Testable Question into a Testable Question



**Step 1: Read the question carefully.**

Which brand of shoe makes you run faster Nike or New Balance?

Put your heads together and discuss...

What's the manipulated variable?

What's the responding variable?



# Turning a Non-Testable Question into a Testable Question

**Step 2:** Determine the manipulated and the responding variable in the question.

**Question:** Which brand of shoe makes you run faster Nike or New Balance?

- **Manipulated variable** (What's being changed on purpose?): **brand of shoe**
- **Responding variable** (What's being measured?): **how fast you run**





Step 3: Plug the variables into the 'How does \_\_\_\_\_ affect \_\_\_\_\_?' format...

How does manipulated variable affect responding variable?

How does the **brand of running shoe** affect **how fast you run**?



# Practice Problem 1

Non-Testable question:

Does carbon dioxide in the atmosphere cause the atmosphere to warm?

- **Manipulated variable: Carbon dioxide**
- **Responding variable: Atmospheric temperature**



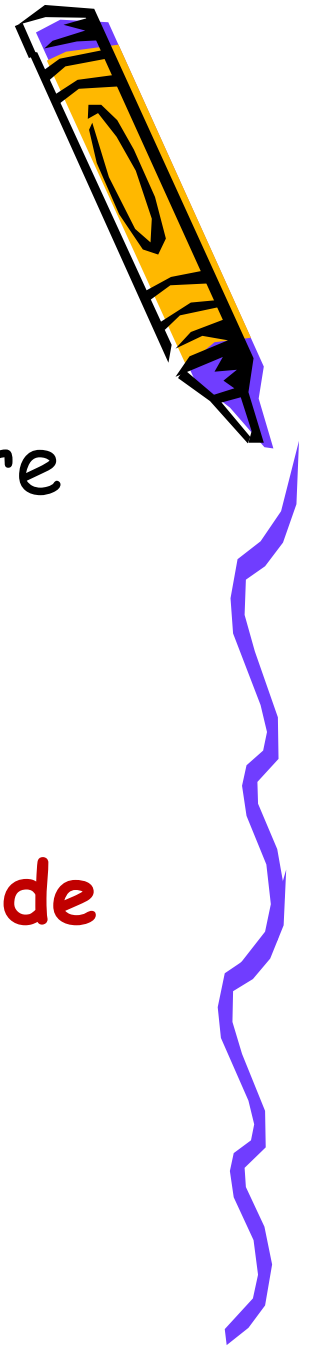
# Practice Problem 1

Non-Testable:

Does carbon dioxide in the atmosphere cause the atmosphere to warm?

Testable:

How does the amount of **carbon dioxide** affect **atmospheric temperatures**?





# Practice Problem 2



Non-Testable:

Is achievement in school higher when students are tested frequently?

Put your heads together discuss what the variables are...

- **Manipulated Variable:**
- **Responding Variable:**



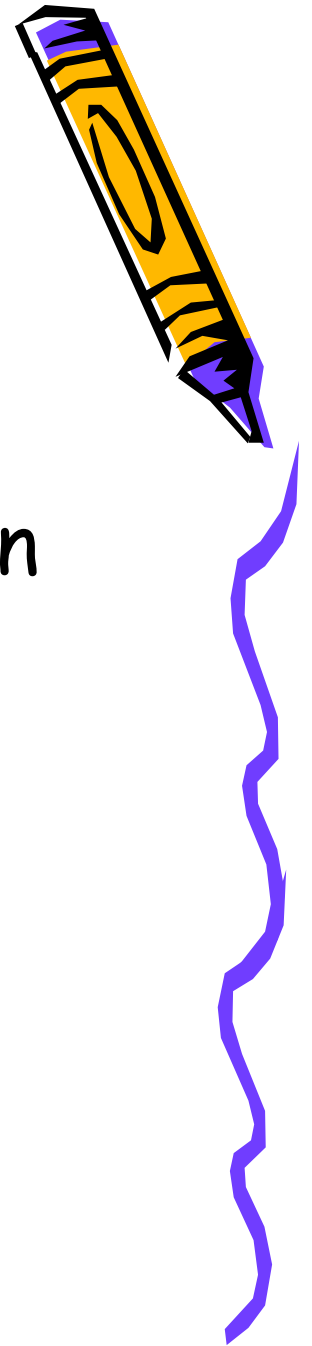
# Practice Problem 2

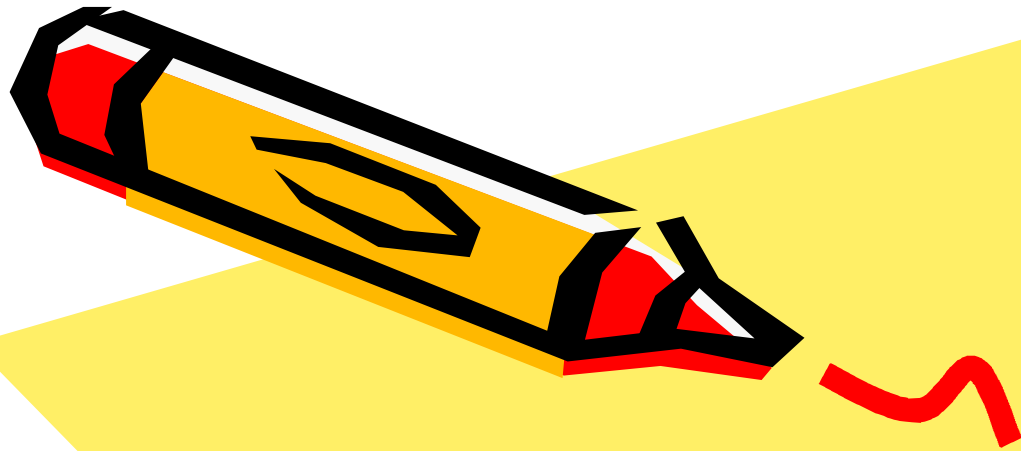
Non-Testable:

Is achievement in school higher when students are tested frequently?

Testable:

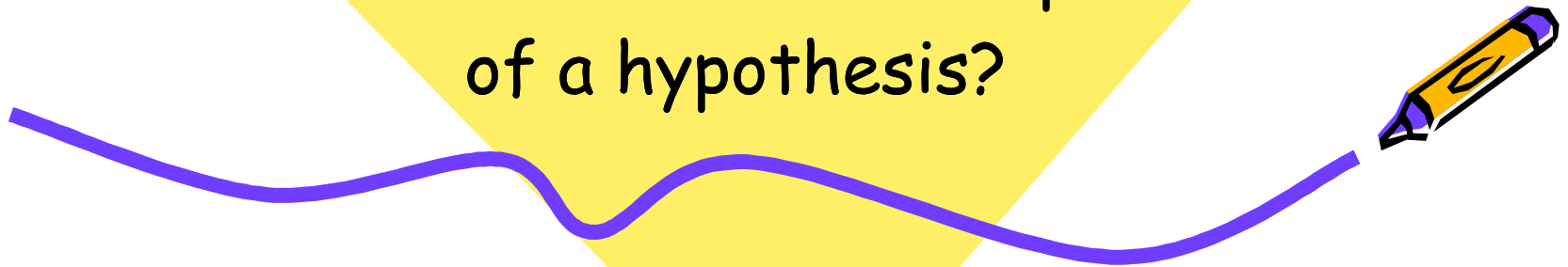
How does the **amount of testing** affect **student achievement**?





# Hypothesis Writing

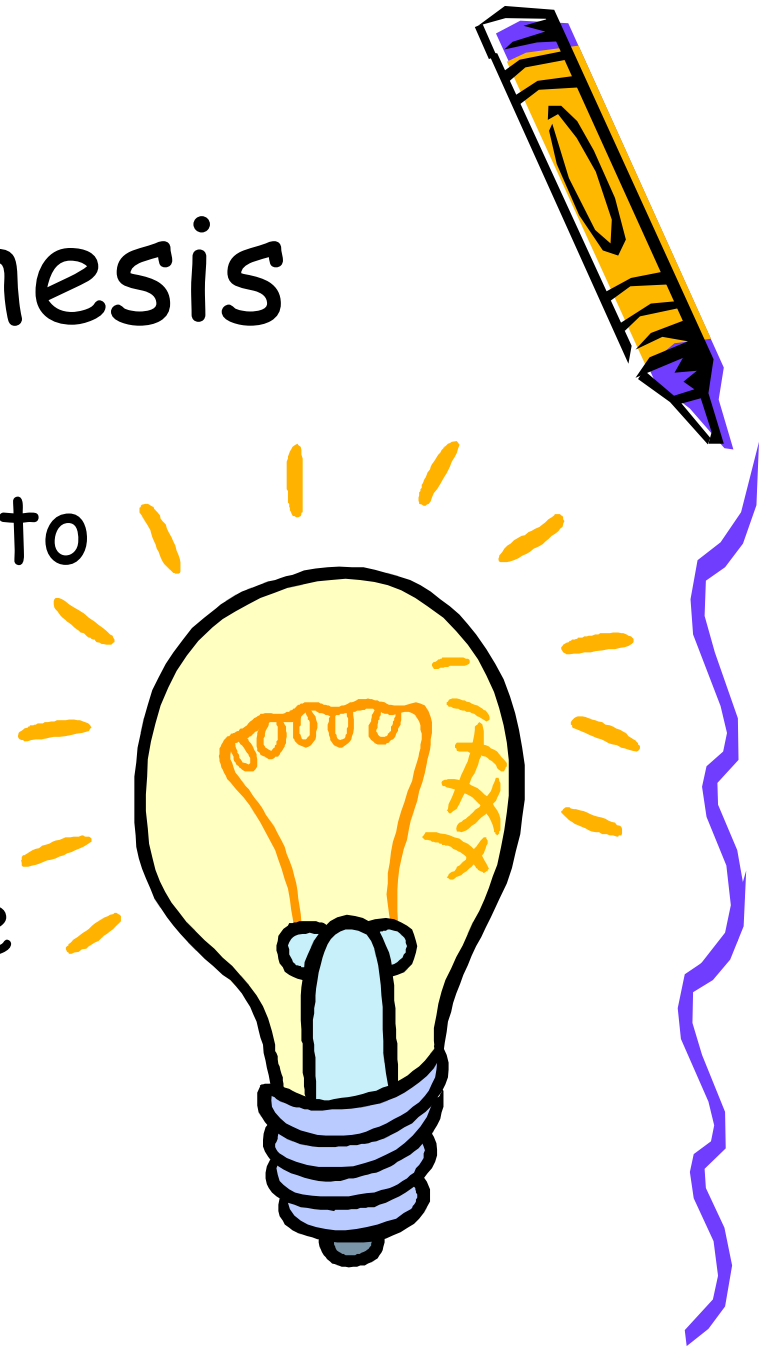
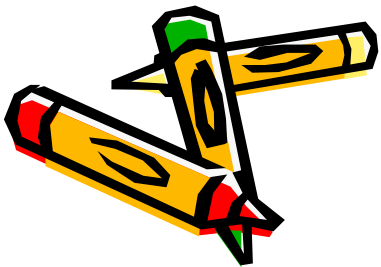
What are the written components  
of a hypothesis?



# Hypothesis

A suggested solution to the problem.

- If...then... because

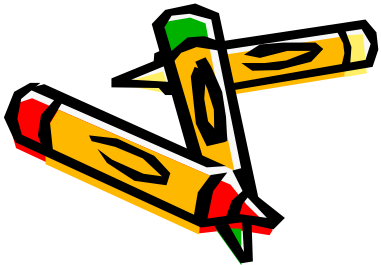


# What does it mean?

- If statement represents the action being taken.
- The manipulated variable
  - What's being changed 'on purpose'



If manipulated variable (increase or decrease of something),

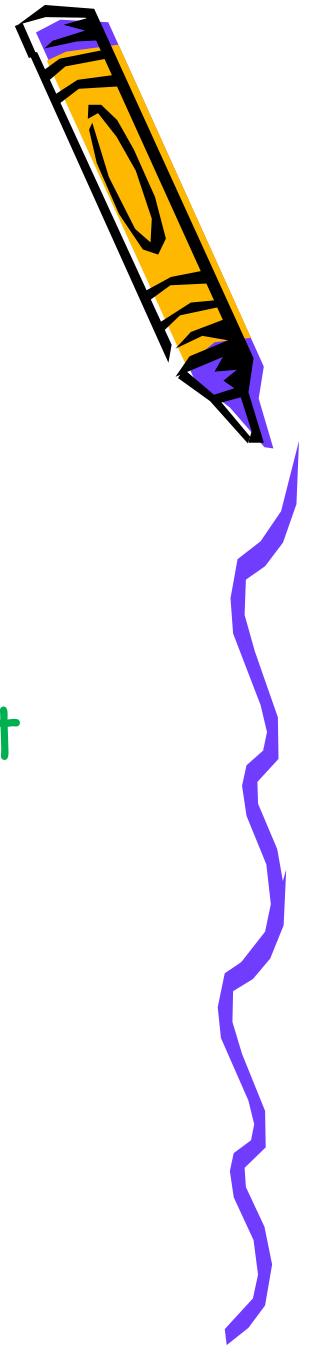
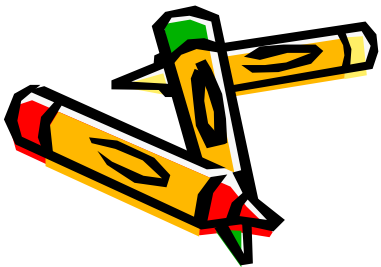


The then statement represents the outcome of the change

- It is the 'Responding' variable
- I think... \_\_\_\_\_ will happen

Example:

If a plant receives **more light**, the plant will grow more,



Because statement is a reasonable answer that is related to the topic

- This is your reason why you think the outcome will happen

If a plant receives **more light**, **the plant will grow more**, because plants use the energy from light to produce food.

