7ᵗʰ Grade + Experiments = DISASTER!

Ms. Ubbing's life science classes have all been working hard on their science experiments to help understand the different parts of the Scientific Method and experiments. One day, Neal and Bryan are testing the effect of an unknown chemical on the memory of their classmates. SUDDENLY, the large beaker with the unknown chemical is knocked over by Quenton, who was on his way to the pencil sharpener. The chemical spills everywhere in front of Ms. Ubbing's desk, and although Jason tries to save her, Ms. Ubbing collapses to the floor in a fainting spell. When she is finally revived, Ms. Ubbing can't remember anything about experimental design, hypotheses or variables! She can only remember that everyone needs to pick their papers up when they come in the classroom. Please help fill out this worksheet so that you can teach Ms. Ubbing how to come up with hypotheses, identify variables and figure out a conclusion from certain data. Please help her!!!!

Part 1: Review

In this worksheet, you will be practicing your science skills. The first problems help you with writing a hypothesis. Remember – a hypothesis is an _____ _____ . When writing a hypothesis, you need to make sure that it starts with _____ . After this, you put something about the variable that you control, which is the _____ variable. That is the first half of your hypothesis. The second half starts with _____ . After this, you write something about the variable that depends on the first variable – this is the _____ variable. It will change because you are changing the first variable. Presto! The perfect recipe for an awesome hypothesis. Also, remember – a constant is something that stays the _____ in an experiment. And, the _____ group is the group that we don't change in order to compare results from the group we are testing.

Part 2: Writing a hypothesis

You are given the independent variable and the dependent variable. Please use this information to write an hypothesis. Remember – you need to write it in an "If, Then" statement. The first one is provided to you.

1) Independent Variable: The number of recycling posters.
Dependent Variable: The total number of cans being recycled.

If

_____,

then _____ .

2) Independent Variable: Number of light bulbs on a front porch.
Dependent Variable: Number of bugs at night on the porch.

_____

_____ .

3) Independent Variable: Temperature of the refrigerator
Dependent Variable: Amount of rotten food

_____

_____ .

Part 3: Identifying Variables

You are given a hypothesis – you need to identify the independent and dependent variables in each question.

1)   If the amount of sugar added to water is increased, then the amount of hummingbirds attracted to the water will increase.
Independent Variable: _____

Dependent Variable: _____

2) If the depth of Lake Erie increases, then the temperature will decrease.

Independent Variable: _____

Dependent Variable: _____

3)   If the amount of snow increases on the roads, then the amount of school buses able to pick up students will decrease.
Independent Variable: _____

Dependent Variable : _____

Part 4: Using an experimental example to write a hypothesis and identify the variables

1) Kayla wanted to see if caffeine helped improve how her friends did on their science test. After making sure that they all studied the same amount, she gave Monica, Brittany, and Chelsea three Cokes a half hour before their test. She took Brandy, Jadia, and Shae and let

them take their science test with no caffeine at all. They all took the test at the same time and in the same room.

Hypothesis: _____

_____ .

Independent Variable: _____

Dependent Variable: _____

2) Deonte decided to test if wearing red increased his chances of getting a date for the football game. He wore all red clothing on Monday and Tuesday and then wore just jeans and a white T-shirt on Wednesday and Thursday. Each day, he asked out three different girls (at different times) with the same pickup line and the same place in the hallway.

Hypothesis: _____

_____ .

Independent Variable: _____

Dependent Variable: _____

Part 5: Understanding the results and reaching a conclusion

1) From the previous experiment, Kayla found that Monica, Brittany and Chelsea all flunked their science test. Brandy, Jadia and Shae all got an A on their science test.

What should Kayla's conclusion be? _____

_____

What girls were the control group in Kayla's experiment? *(circle the correct group)*

Monica, Brittany, Chelsea   or   Brandy, Jadia, Shae

What was one constant in Kayla's experiment? _____
A. What the girls wore
B. How many times the girls answered a question wrong

C. The amount that each girl studied

D. Where the girls sat in the room

What are TWO other constants from Kayla's experiment?

1) _____

2) _____

2) Deonte found that more girls said yes when he asked them to the football game when he was wearing all red clothing. He got 5 dates while wearing red and only one in a jeans and T-shirt.

What should Deonte's conclusion be? _____

_____

What days were his "control group" days? *(circle one)*

Monday/Tuesday   Wednesday/Thursday

What were the two constants in his experiment?

1) _____

2) _____

Looking at Deonte's experiment, what do you think are some other variables that could have affected his results? Meaning that red had nothing to do with Deonte getting more dates on Monday and Tuesday – something else could have affected Deonte's luck. What do you think could have happened other than Deonte in red?

_____
_____
_____