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Pd: \_\_\_\_\_

Date: \_\_\_\_\_

### Scientific Method Practice

**Directions:** In the following hypotheses, identify the independent and dependent variables

1. If you increase the number of cigarettes you smoke, then you will increase your risk for lung cancer.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
# of cigarettes	risk of lung cancer

2. If you increase the amount of blood in the water, then you will increase the number of sharks in the area.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
amount of blood in water	# of sharks

3. If you increase the amount of milk you drink, then you will increase the strength of your bones.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
amount of milk you drink	bone strength

4. If you increase the number of hours you spend in practice, then you will increase the number of free throw shots you will make.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
# of hours practice	# of free throws made

5. 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
amount of sugar	amount of hummingbirds

**Directions:** For each item below, specify the independent, dependent variables, and constants.

6. A study was done to find if different tire treads affect the braking distance of a car.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONSTANTS
type of tire tread	braking distance	same car same speed same force on brakes

7. The height of bean plants depends on the amount of water they receive.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONSTANTS
amount of water	plant height	same type of plant sun plant

8. The height of bean plants depends on the amount of water they receive.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONSTANTS



9. Lemon trees receiving the most water produced the most lemons.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONSTANTS
amount of water	# of lemons	amount of sun type of tree

**Directions:** For each experiment below, specify the independent variable, dependent variable, control group and any constants.

10. A student wanted to test how the mass of a paper airplane affected the distance it would fly. Paper clips were added before each test flight. As each paper clip was added, the plane was tested to determine how far it would fly.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
# of paper clips (mass)	flight distance
CONTROL	CONSTANT
plane w/o paper clips	size of paper clips style of airplane for plane flown type of paper

11. Two groups of students were tested to compare their speed working math problems. Each group was given the same problems. One group used calculators and the other group computed without calculators.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
use of calculator	speed working math problems
CONTROL	CONSTANT
group w/o calculator	same problems

12. A student is trying to find out which type of fertilizer is the best for getting a plant to grow as tall as possible. She is planning to keep all of the plants she is testing indoors, on the window sill of her classroom.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
type of fertilizer	height of plant
CONTROL	CONSTANT
plant w/o fertilizer	type of plant location sunlight amount of water

**Directions:** Determine if each statement is an observation (O) or inference (I).

13. The container is filled to the 350ml mark with water.     O
14. The sun rose at 6:54 this morning     O
15. The caterpillar did not eat the moth because it is not a carnivore.     I
16. When the power is turned on, the game lights up and plays a song.     O
17. When the Sun came out, it made the rain stop.     I
18. Dinosaurs died out when they could not adapt to the changing climate     I
19. A bird is sitting on its nest     O
20. A bird is on the ground because it is looking for food.     I