**HSPVA Biology** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Scientific Variables Quiz-Key:**

Questions 1-4: A scientist asks the question: does the amount of rain affect the number of mosquitoes that are present?

1. The **independent variable** for this question is:
2. **The amount of rain**
3. The number of mosquitoes
4. Temperature
5. The species of mosquito
6. The **dependent variable** for this question is:
   1. The amount of rain
   2. **The number of mosquitoes**
   3. Temperature
   4. The species of mosquito
7. An example for a good **hypothesis** for this question is:
   1. Does the amount of rain affect the number of mosquitoes that are present?
   2. Yes, the amount of rain does affect the number of mosquitoes that are present.
   3. Water is necessary for more mosquito eggs to be laid.
   4. **The more rain that falls the higher the mosquito population will be.**
8. The most important **constant variable** for this experiment is:
   1. **Temperature**
   2. Amount of rain
   3. Number of mosquitos that are present
   4. Color of the mosquitos

Questions 5-8: You investigate whether eating breakfast has an effect on the grade that students get on a math test.

1. The **dependent variable** for this experiment is:
   1. If a person ate breakfast or not
   2. **Grade received on a math test**
   3. Difficulty of the test
   4. Length of the test
2. The most important **constant variable** for this experiment is:
   1. **The difficulty of the test**
   2. Eating breakfast
   3. The room the test is taken in
   4. Grade the student gets on the test
3. An example for a good **hypothesis** for this question is:
   1. **Students who eat breakfast will receive a better score on the math test than those who do not.**
   2. Eating breakfast has an effect on the grade a student receives on a math test.
   3. Does eating breakfast improve test grades?
   4. Breakfast provides energy for the brain to do work.
4. The **independent variable** for this experiment is:
   1. **If a person ate breakfast or not**
   2. Grade received on a math test
   3. Difficulty of the test
   4. Length of the test
5. Identify the **dependent variable** for the following question: Does temperature affect the rate of photosynthesis in a saguaro cactus?
   1. Temperature
   2. **Rate of photosynthesis**
   3. Amount of light
   4. Species of cactus
6. The most important **constant variable** for this experiment is:
   1. The rate of photosynthesis
   2. **The amount of light that the saguaro cactus receives**
   3. The temperature
   4. How many times the temperature is measured each day
7. Identify the **independent variable** for the following question: If a seed is soaked in acid will it take longer to germinate (start to grow)?
   1. Type of seed
   2. Amount of time needed to germinate
   3. **Soaking a seed in acid or not**
   4. Amount of acid seed is soaked in
8. An example for a good **hypothesis** for this question is:
   1. **If a seed is soaked in acid then it will not germinate at all.**
   2. If a seed is soaked in acid will it take longer to germinate?
   3. Yes, acid will affect the germination rate of a seed.
   4. It will take longer to germinate if a seed is kept in the cold.
9. Identify an important constant variable for the following question: Does an increase in ocean temperature affect the biodiversity (the number of different species present) of a coral reef?
   1. The number of different species present
   2. **Number of predators present**
   3. The rate of photosynthesis
   4. Ocean temperature
10. The dependent variable for the question above is:
    1. **The number of different species present**
    2. The ocean temperature
    3. The number of corals present
    4. The salinity of the water
11. The independent variable for the question above it:
    1. The number of different species present
    2. **The ocean temperature**
    3. The number of corals present
    4. The salinity of the water