Name: _____ **Date:**

Identifying Controls and Variables Worksheet

In scientific experiments, it's crucial to understand the different components that make up a study. These include the control group, experimental group, independent variable (IV), and dependent variable (DV). The control group serves as a baseline for comparison, while the experimental group receives the treatment being tested. The independent variable is what the researcher changes or manipulates, and the dependent variable is what is measured as a result of that change.

Fill in the Blank: Fill in the blank with the correct words.

1. The _____ group does not receive the treatment being tested in an experiment.
2. The _____ variable is what the researcher manipulates in an experiment.
3. The group that receives the treatment being tested is called the _____ group.
4. The _____ variable is what is measured as a result of changes to the independent variable.
5. To ensure reliability, scientists often perform multiple _____ of an experiment.

Word bank: control, independent, experimental, dependent, replications

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Fill in the Blank: Use the word bank to complete each sentence.

1. The _____ group in an experiment doesn't receive the new treatment being tested.
2. In a study about TikTok usage and self esteem, the time spent on the app would be the _____ variable.
3. If you're testing a new sports drink, the athletes who drink the new drink form the _____ group.
4. When testing how different video games affect reaction time, the reaction time is the _____ variable.
5. To make sure their results are reliable, gamers often do multiple _____ of speedruns.

Word bank: control, independent, experimental, dependent, replications

Multiple Choice Questions: Choose the correct answer from the choices for each question.

1. What is the purpose of a control group in an experiment?
   a) To receive the treatment being tested
   b) To serve as a baseline for comparison
   c) To manipulate the independent variable
   d) To measure the dependent variable

2. In an experiment testing the effect of fertilizer on plant growth, what would be the independent variable?
   a) The amount of water given to the plants
   b) The height of the plants
   c) The amount of fertilizer used
   d) The type of soil used

3. In an experiment testing how different sports affect fitness levels, what would be the independent variable?
   a) The athletes' age
   b) The athletes' initial fitness level
   c) The type of sport played
   d) The improvement in fitness level

4. Which of the following is an example of a dependent variable?
   a) The brand of running shoes worn by participants
   b) The length of time participants exercise
   c) The heart rate of participants after exercise
   d) The age of the participants

5. Which of these is an example of a dependent variable in a gaming experiment?
   a) The brand of gaming console used
   b) The type of game being played
   c) The player's score at the end of the game
   d) The time of day the game is played

6. What is the main difference between the control group and the experimental group?
   a) The control group is larger than the experimental group
   b) The experimental group receives the treatment being tested
   c) The control group is always tested first
   d) The experimental group is always tested last

7. Why is it important to have multiple trials or replications in an experiment?
   a) To make the experiment last longer
   b) To use more materials
   c) To increase the reliability of the results
   d) To confuse the participants

Open Ended Questions: Answer the following questions in complete sentences:

1. Design a simple experiment to test whether listening to music while gaming affects a player's performance. Identify the control group, experimental group, independent variable, and dependent variable in your experiment.

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2. Imagine you're explaining to a friend why having a control group in an experiment is important. How would you explain it using an example they'd understand?

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3. Think about a "life hack" you've seen on social media. How could you design an experiment to test if it really works? What would be your independent and dependent variables?