2. For each of the following descriptions, answer the following questions using complete sentences. Also comment if the experiment is fine as described or flawed. If flawed, how can it be fixed?
   a) A research psychologist wishes to investigate the difference in maze test times for mice trained using different types of reinforcement. Thirty mice are available for the experiment. All of the mice are the same age and the same breed. For each mouse a fair 6-sided die is rolled. If the roll is a 1 or 4 the mouse is assigned to group 1 (no reinforcement). If the roll is a 2 or 5 the mouse is assigned to group 2 (positive reinforcement – food given for a correct choice). If the roll is a 3 or 6 the mouse is assigned to group 3 (negative reinforcement – mild electric shock given for an incorrect choice). After rolling the die 30 times there are 7 mice in group 1, 12 mice in group 2 and 11 mice in group 3. The design of the maze used to train the mice is the same for all mice. The maze is disinfected after each training and testing session so that no scent of the previous mice is left on the maze. After training, each mouse runs the maze and the time to complete the maze is recorded.
   b) A chemist wants to compare a new, and simpler, method for determining the concentration of a solution with a standard method. She prepares twenty different solutions. Each solution has a different concentration. Each solution is divided in half. One half is assigned to be analyzed using the standard method, the other half by the new method. The assignment is done by flipping a coin; heads = new method, tails = standard method, for each solution. All the analyses, standard and new, are done by the same technician. The technician finishes analyzing the 20 specimens using the new method in the morning. He takes a break for lunch and does the remaining 20 specimens using the standard method in the afternoon.
   c) One theory regarding memory states that verbal material is remembered as a function of the degree to which it was processed when it was initially presented. To test this theory an experiment is run with 100 college students selected at random from all those students enrolled in psychology courses at a large university. Students are assigned at random to one of five groups with 20 students in each group. Students in the Counting group read through a list of words and count the number of letters in each word. Students in the Rhyming group read a list of words and think of words that rhyme with each word on the list. Students in the Adjective group read a list of words and think of adjectives that modify the words, one adjective for each word. Students in the Imagery group read a list of words and form vivid images for each word. None of these four groups is told that they will later have to recall the words. Students in a fifth group, the Intentional group, are asked to memorize a list of words for later recall. After the students read through a list of words three times, employing the method given to their group, they are asked to write down all the words they can remember. The number of words correctly recalled is noted for each subject.