Experimental Design Practice Worksheet

Part 1:
Suppose that each of the following research scenarios led to the design of an experiment. Consider each case, and identify the independent variable, dependent variable, experimental group, and control group. Also take into consideration operational definitions that might be necessary and the control of extraneous variables. Finally, recognize the differences between each of the eight types of psychological subfields on this page and describe the basic research interests for each.

1. A physiological psychologist wants to know if a stimulating environment during childhood can lead to physical changes in the developing brain.
2. A social psychologist wants to know whether frustration leads to aggression.
3. A developmental psychologist wants to know if being touched, held, and physically comforted (contact comfort) as an infant has any impact on adult relationships.
4. A cognitive psychologist is interested in knowing if people remember a list of words better when they hear the list repeated five times or when they have an opportunity to view the list five times (auditory vs. visual).
5. An educational psychologist wants to understand whether General Psychology exam scores are higher for students in classes that meet three times per week (1 hour each meeting) or one time per week (3 hours).
6. An industrial/organizational psychologist wants to know if allowing employees to dress casually on Thursdays would increase annual sales.
7. A behavioral psychologist wonders whether electrifying the path of food will reduce a rat's willingness to obtain a reward.
8. A clinical psychologist is interested in whether the labels of "depression" and "generalized anxiety" actually assist or inhibit the progress and health of individuals

Part 2: Using your knowledge of experimental design and basic control techniques, solve the following problems by designing the appropriate experiment or study to answer the question posed in each scenario.

1. You have been hired as a consultant by your city council to study the effects of a new initiative to promote plastics recycling in your community. Your task is to design a two-group study in which you investigate whether the program is effective.
Hypothesis:
IV:
DV:
Experimental Group:
Control Group:
Potential Confounding Variables:
Control Techniques:
2. You are a new middle school PE teacher. You believe that you have developed a new method for teaching children how to increase their ability to make free throws in basketball. You decide to develop a two-group study to examine the effectiveness of your new method.  
Hypothesis:  
IV:  
DV:  
Experimental Group:  
Control Group:  
Potential Confounding Variables:  
Control Techniques:

3. Allison is interested in collecting data on how males and females differ with respect to their acceptance of peaceful solutions to a domestic problem after attending a "peace in the family workshop". Allison knows that she would like to use a pretest-posttest design in her study but doesn't know how to implement it. Help Allison design her study.  
Hypothesis:  
IV:  
DV:  
Experimental Group:  
Control Group:  
Potential Confounding Variables:  
Control Techniques:

4. Calvin wishes to collect data from two sets of subjects in a study on the effects of exercise on personal happiness. He plans on having on group of subjects run/walk the equivalent of 6 miles per week and have then lift weights three times a week. He plans to have the other group simply maintain their normal daily routines, which does not include any exercise whatsoever. Help Calvin design his study.  
Hypothesis:  
IV:  
DV:  
Experimental Group:  
Control Group:  
Potential Confounding Variables:  
Control Techniques:
5. You are a marketing specialist for a local paper products company. You are soon to be conducting a test which you will place subjects in a situation where they must choose between which two toilet tissues they prefer (the standard toilet paper produced by your major competitor and the new brand that your company is hoping to put on the market a year from now.) Your job is to conduct the preference test in as scientifically sound manner as possible employing a double-blind procedure.

Hypothesis:

IV:

DV:

Experimental Group:

Control Group:

Potential Confounding Variables:

Control Techniques: