1.15  
Iraq War poll. A poll is to be conducted in which 2,000 individuals are asked whether the United States was justified in invading Iraq in 2003. The 2,000 individuals are selected by random-digit telephone dialing and asked the question over the phone.  
a. What is the relevant population?

*The population is all individuals in the United States.*

b. What is the variable of interest? Is it quantitative or qualitative?

*The variable of interest is the opinion of people if the US was justified in invading Iraq in 2003.*

*This quantitative ordinal data.*

*Rationale:*

*Quantitative – Ordinal*

*[based on a 5-point Likert scale of 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree,  
4 = disagree, 5 = strongly disagree]*

c. What is the sample?

*The sample is the 2,000 randomly selected individuals from the population of all individuals in the United States. The selection was done by random-digit telephone dialing.*

d. What is the inference of interest to the pollster?

*The inference of interest is the generalization of the opinion of the 2,000 sampled U.S. individuals to the population of all U.S. individuals. Researchers wants to determine the percentage of the sample think the US was justified in invading Iraq in 2003 to infer (estimate) the percentage for the population (all individuals in the United State).*

e. What method of data collection is employed?

*The data collection method employed is survey (poll).*

f. How likely is the sample to be representative?

*Yes, because the sample was randomly selected, the representative sample requirement has been meet.*

1.18  
Extinct birds. Biologists at the University of California (Riverside) are studying patterns of extinction in the New Zealand bird population. (Evolutionary Ecology Research, July 2003.) At the time of the Maori colonization of New Zealand (prior to European contact), the following variables were measured for each bird species. Identify each variable as quantitative or qualitative.

a. Flight capability (Volant or flightless)

*It only has two possible outcomes.*

*Qualitative – Nominal (dichotomous variable are nominal)*

b. Habitat type (aquatic, ground terrestrial, or aerial terrestrial)

It only has three possible outcomes.

*Qualitative – Nominal*

*I do not believe the habitat type has a meaningful order.*

c. Nesting site (ground, cavity within ground, tree, cavity above ground)

*It only has four possible outcomes.*

*Qualitative – Nominal\**

d. Nest density (high or low)

*It only has two possible outcomes.*

*Qualitative – Nominal (dichotomous variable are nominal)*

*If we assume the low is before high then the data type is qualitative ordinal. This is assuming this is a meaningful order.*

e. Diet (fish, vertebrates, vegetables, or invertebrates)

*It only has four possible outcomes.*

*Qualitative – Nominal*

*No meaningful order.*

f. Body mass (grams)

*Quantitative - Ratio*

g. Egg length (millimeters)

*Quantitative - Ratio*

h. Extinct status (extinct, absent from island, present)  
*Qualitative – Nominal*

*No meaningful order.*

1.24  
Gallup poll of teenagers. A Gallup Youth Poll was conducted to determine the topics that teenagers most want to discuss with their parents. The findings show that 46% would like more discussion about the family’s financial situation, 37% would like to talk about school, and 30% would like to talk about religion. The survey was based on a national sampling of 505 teenagers, selected at random from all U.S. teenagers.  
a. Describe the sample.

*The sample is the random sample of 505 teenagers from the U.S.*

b. Describe the population from which the sample was selected.

*The population is all teenagers from the U.S.*

c. Is the sample representative of the population?

*Yes, because the sample was randomly selected at a national level, the representative sample requirement has been meet.*

d. What is the variable of interest?

*Topic(s) that U.S. teenagers most want to discuss with their parents.*

e. How is the inference expressed?

*The inference of interest is the generalization of the opinion of the 505 sampled U.S. teenagers to the population of all U.S. teenagers. Researchers wants to determine topics that teenager want to discuss with their parents to infer (estimate) the topics for the population (all teenagers in the United State).*

f. Newspaper accounts of most polls usually give a margin of error (i.e. plus or minus 3%) for the survey result. What is the purpose of the margin of error and what is its interpretation?  
*Margin of error is used to account for errors. This implies that actual preference is between a given percentage plus and minus the margin of error. The interval represents the measure of the reliability of the inference.*   
  
1.27   
Blood loss in burn patients. A group of University of South Florida surgery researchers believes that the drug aprotinin is effective in reducing the blood loss of burn patients who undergo skin replacement surgery. (USF Office of Research Annual Report, 1997-1998.) In a clinical trial of 14 burn patients, half were randomly assigned to receive the drug and half a placebo (no drug). A preliminary analysis of the patients’ blood loss revealed that the group with the drug had a significant reduction of bleeding.  
a. Identify the data collection method used for this study.

*The data collection method is designed of experiment. Researches control which treatment (drug or half a placebo/no drug) the burn patients*

b. Does the study involve descriptive or inferential statistics? Explain.

*The study involves inferential statistics because the study was conducted to make inferences about the data set.*

c. What is the population (or sample) of interest to the researchers?  
*The population is all burn patients. The sample is the 14 burn patients participating in the clinical trial.*  
  
1.32  
Poll on alien spacecraft. “Have you ever seen anything that you believe was a spacecraft from another planet?” This was the question put to 1,500 American adults in a national poll conducted by ABC News and The Washington Post. The pollsters used random-digit telephone dialing to contact adult Americans, until 1,500 responded. Ten percent (i.e., 150) of the respondents answered that they had, in fact, seen an alien spacecraft. (Chance, Summer 1997.) No information was provided on how many adults were called and, for one reason or another, did not answer the question.

a. Identify the data collection method.

*The data collection method is survey (poll).*

b. Identify the target population.

*The target population is all American adults. (It is not clear if population is all American adults in the United States.)*

c. Comment on the validity of the survey results

*The survey result does not appear to be valid. As stated, information on count of adults that were called was not recorded. It is not clear if the adults refused to answer or did not pick up the call.*