Name: _____   Date: _____

Identifying Biased Samples

Instructions:

    For each example given below, explain why the resulting sample might be biased.

1. A researcher sends out 500 questionnaires about pollution in Los Angeles to local residents by mail. She receives 340 responses.

       Population of interest: _____

       Why might the sample be biased? Explain. _____

       _____

       _____

2. A researcher is interested in learning the typical number people per household who own cell phones. He conducts a survey by randomly calling phones that have land-lines.

       Population of interest: _____

       Why might the sample be biased? Explain. _____

       _____

       _____

3. A researcher has concluded that dolphins are nice animals by surveying people who were assisted by one in a shark attack.

       Population of interest: _____

       Why might the sample be biased? Explain. _____

       _____

       _____

4. A radio station host wants to know what proportion of her listeners enjoy the "Daily Dilemma" segment. She asks listeners to call into the station and respond.

       Population of interest: _____

       Why might the sample be biased? Explain. _____

       _____

       _____

5. A researcher wants to know how many students at UCLA own pets. He stands outside the student health center and asks students before they enter the building.

       Population of interest: _____

       Why might the sample be biased? Explain. _____

       _____

       _____

Identifying Biased Samples

Sample Answer Key
(for teacher reference ONLY)

1. A researcher sends out 500 questionnaires about pollution in Los Angeles to local residents by mail. She receives 340 responses.

    Population of interest: *Los Angeles residents.*

    Why might the sample be biased? Explain. *We don't know how she selected the 500 residents to send the questionnaires to. Even if the researcher randomly selected the participants, not all of them mailed back their responses.*

2. A researcher is interested in learning the typical number people per household who own cell phones. He conducts a survey by randomly calling phones that have land-lines.

    Population of interest: *All households (possibly in the United States, but this is unclear).*

    Why might the sample be biased? Explain. *The researcher only calls land-lines, which is most likely not representative of people who own cell phones. In fact, many households don't have home phones anymore, so he is likely excluding a lot of people.*

3. A researcher has concluded that dolphins are nice animals by surveying people who were assisted by one in a shark attack.

    Population of interest: *All dolphins.*

    Why might the sample be biased? Explain. *The researcher is only surveying people who were attacked by sharks, and were subsequently saved by dolphins. The participants are likely to agree that dolphins are nice animals because they came to the person's aid.*

4. A radio station host wants to know what proportion of her listeners enjoy the "Daily Dilemma" segment. She asks listeners to call into the station and respond.

    Population of interest: *All people who listen to the host's radio station.*

    Why might the sample be biased? Explain. *The host will only be able to collect information about the people who call in. Typically, people with strong opinions are the most likely to respond – either they love the segment or they hate the segment.*

5. A researcher wants to know how many students at UCLA own pets. He stands outside the student health center and asks students before they enter the building.

    Population of interest: *All UCLA students.*

    Why might the sample be biased? Explain. *The researcher is only including students who visit the student health center during that particular day and time. It is unlikely that the entire UCLA student body would be represented by this subset of students.*