1.3. There are four populations, one for each fertilizing method. Each population consists of all yields of all crops to which the fertilizing method is applied.

1.4. The first population is the radiation levels inside all homes built on reclaimed lands. The second population is the radiation levels outside all homes built on reclaimed lands.

1.5. The two populations are the potential numbers of nematodes in soil around citrus trees three months after applications of each of the nematocides.

1.12. A typical set of sample measurements can be gotten by selecting $n=10$, for example, measurements from each of the populations described in Exercise 1.3. This could be done by selecting 10 crops for each method and recording the yield of the crops.

1.13. (a) To determine the study design we first specify the research question. The EPA wants to compare the average radiation levels inside and outside homes built on reclaimed lands for each type of home. There are three populations corresponding to the three types of homes. Each population is the collection of measurements, each of which consists of a pair of values (inside and outside radiation levels) taken on all homes of the given type built on reclaimed lands in Florida. Select a sample from each of the three populations.

The second step is to choose the sample size. The methods for doing this will be discussed in Chapter 7.

The third step is to decide how the samples will be taken, i.e. the sampling plan. Again, this will be discussed later in Chapter 7.

(b) This design differs from the design in Part (a) in Exercise 1.13 by the populations under consideration. The research question is how to compare the average radiation levels inside and outside homes built on reclaimed lands. There is only one population, i.e. the collection
of measurements taken on all homes built on reclaimed lands. Each measurement consists of the pair of values, radiation levels inside and outside the home. Select a sample from the population. The sample size and sampling plan will be discussed in later chapters.

1.14. The researcher could select a number of citrus trees in an orchard and randomly apply one nematocide to half of them and the other nematocide to the rest. The researcher could then come back in three months and count the number of nematodes around each of the trees.