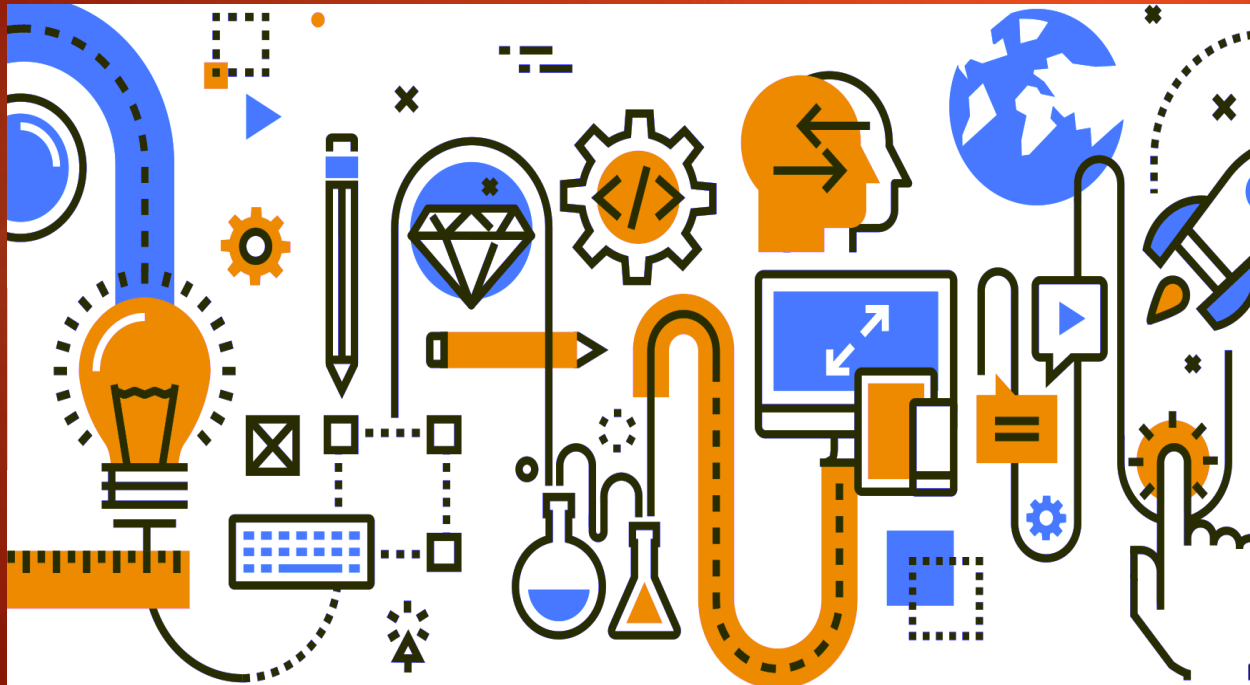# Research
Core Science
Sampling Methods

SCHOOL YEAR 2021-2022
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Sampling Methods Intro

▶ How do you determine the exact cases that make it into your sample from the population?

▶ There are 2 broad categories of sampling: probability samples and non-probability samples.

Probability and Random Samples

- A probability sample is one where each unit in the population has a known chance of being included in the sample.

- When each unit's chance of being in the sample is equal to every other unit's chance, this is called a random sample.

- You might take a simple random sample, where all the units are in one big group, and use a random number generator or table to pick individual units until you reach the desired sample size.

- Or you might take a stratified sample, where you divide the population into strata, or groups, based on a characteristic of interest, and then randomly sample from each group to determine which specific units go into the sample.

Drawing A Random and Strong Sample

- To draw a random sample, you first need a sampling frame—some kind of observable list or construction of the members or units of your population.

- You need to compile this list with care; obviously, if a unit gets left off the list, it has a 0% chance of being included in the sample, and the sample is therefore no longer completely random.

- One of the many issues with samples and populations is that sometimes it's impossible to generate a complete population list, so other techniques must be used to generate a strong sample.

- In cluster sampling, you divide your population into clusters and then randomly sample which clusters to use in your study. You might then sample again from within each of the selected clusters.
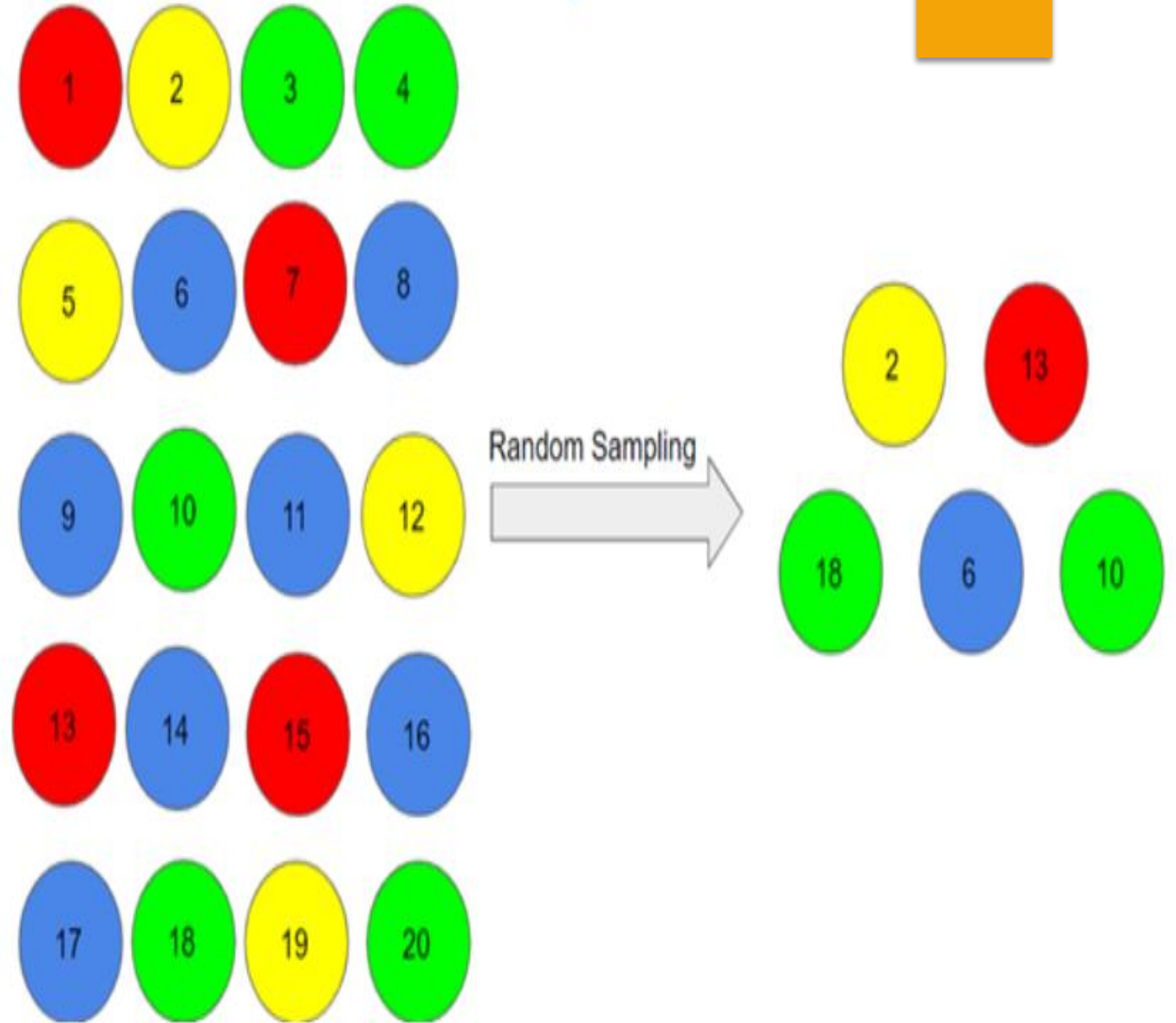
Creating A Population List & Deciding Your Sample Size

▶ Once you've used your sampling frame to create your population list, the next step is to decide your sample size.

▶ Then, you have a few options to determine which cases from the list end up in the sample. You can use computer software to randomly select that number of cases from your list.

▶ Or you can label each case with a number and use a random number generator or table to pick cases.

▶ Or you can conduct a systematic sample, where you pick every 10th or 15th or 100th case to go into the sample.

Population
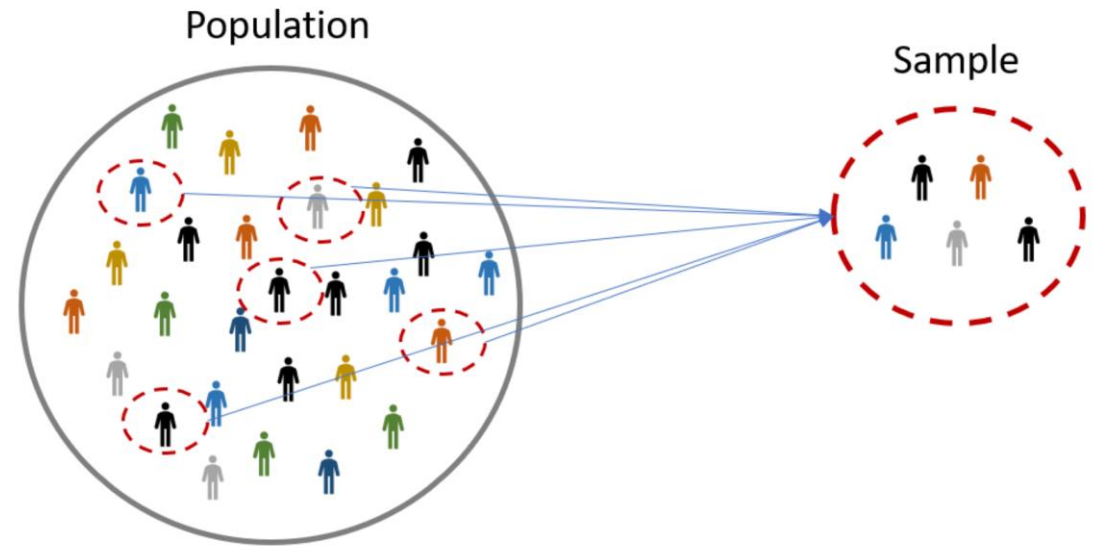
Sample

Random Samples

- Random samples aren't always the appropriate choice.

- In some kinds of studies, you know the specific people or groups you want to study—maybe due to a particular skill set or variable of interest.

- In such cases, researchers turn to non-probability samples, in which the chance of any one unit being included is not only not equal to that of other units, but instead isn't known at all.

- The following are examples of nonprobability sampling.

Convenience Sampling

▶ Convenience sampling is where you stop people on the street and asked them to participate in a survey—and whoever stops gets interviewed.

▶

▶ Those who choose to stop are in the sample, and those who don't are not.

▶ Although this is common, it is not a good way to sample, because the participants are self-selecting.

Population

Convenience Sampling
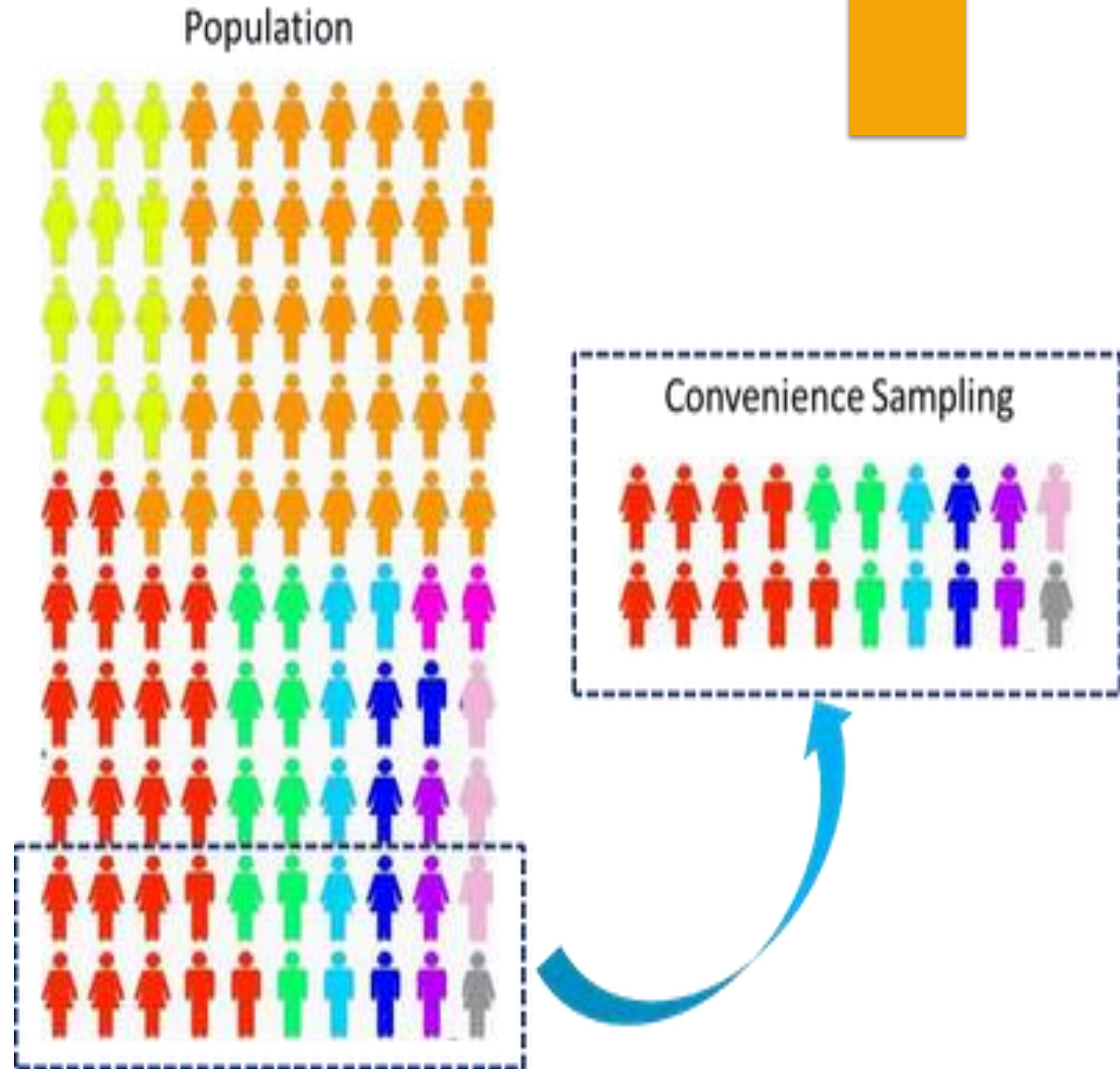
Quota Sampling

- A different kind of nonrandom sample.

- Like stratified samples, in a quota sample, you determine categories of interest and then accept cases into the sample until you fill that category—until you meet the quota.

- This is still a type of convenience sampling, though, and faces the same concerns.

- You'd probably be better off in most cases going with a stratified random sample.

Purposive Sampling

▶ Purposive sampling is more commonly used, especially in small-n, or qualitative, research.

▶ This is where the researcher chooses a sample with purpose, aiming at acquiring one that achieves certain characteristics.

▶ Depending on your project, that might give you more interesting results than selecting a random sample.


Purposive sampling
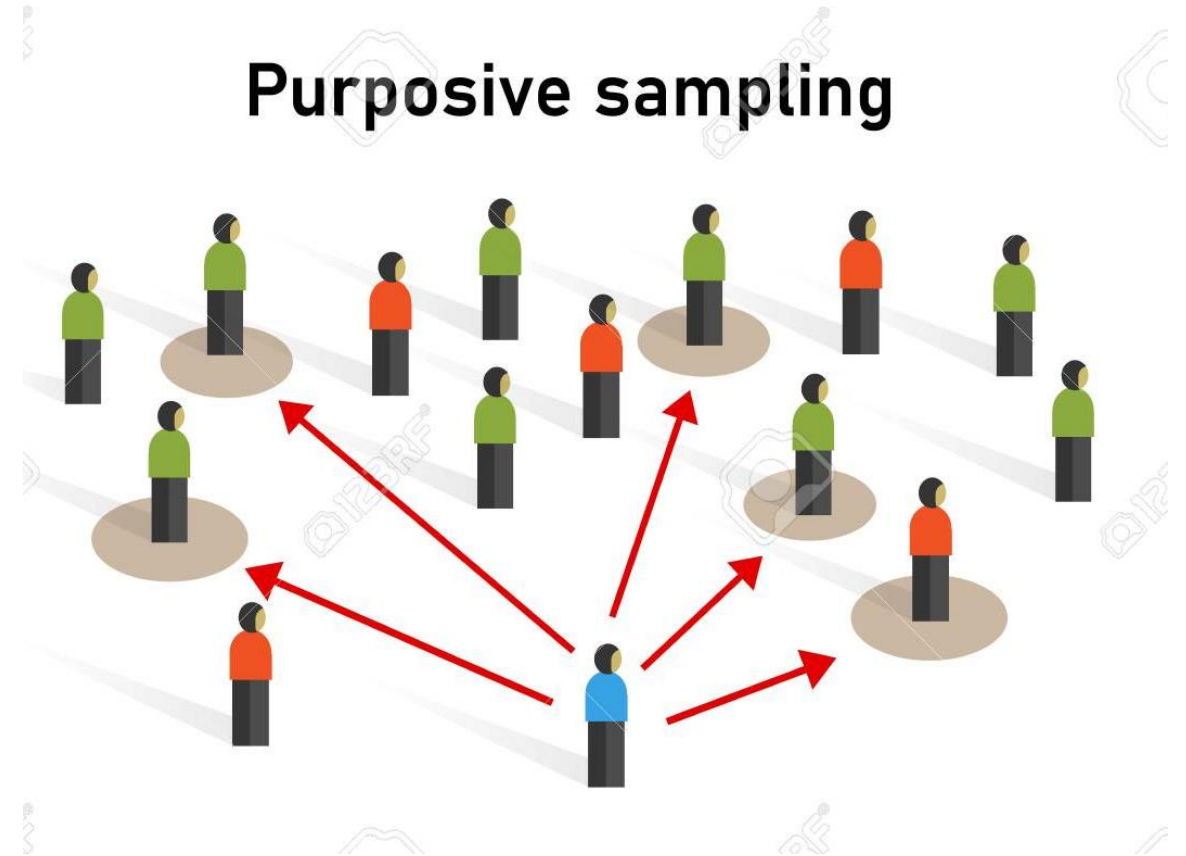
Snowball Sampling

▶ Snowball sampling is another sampling method.

▶ It is most commonly used to find interview subjects, especially if the group you want to interview is hard to find or mistrustful of researchers.

▶ In this method, you identify a small number of relevant people to include in your sample, interview them, and then ask them to give you some more names or introduce you to other relevant people.

▶ You do this until you get the sample size you want.

Snowball sampling
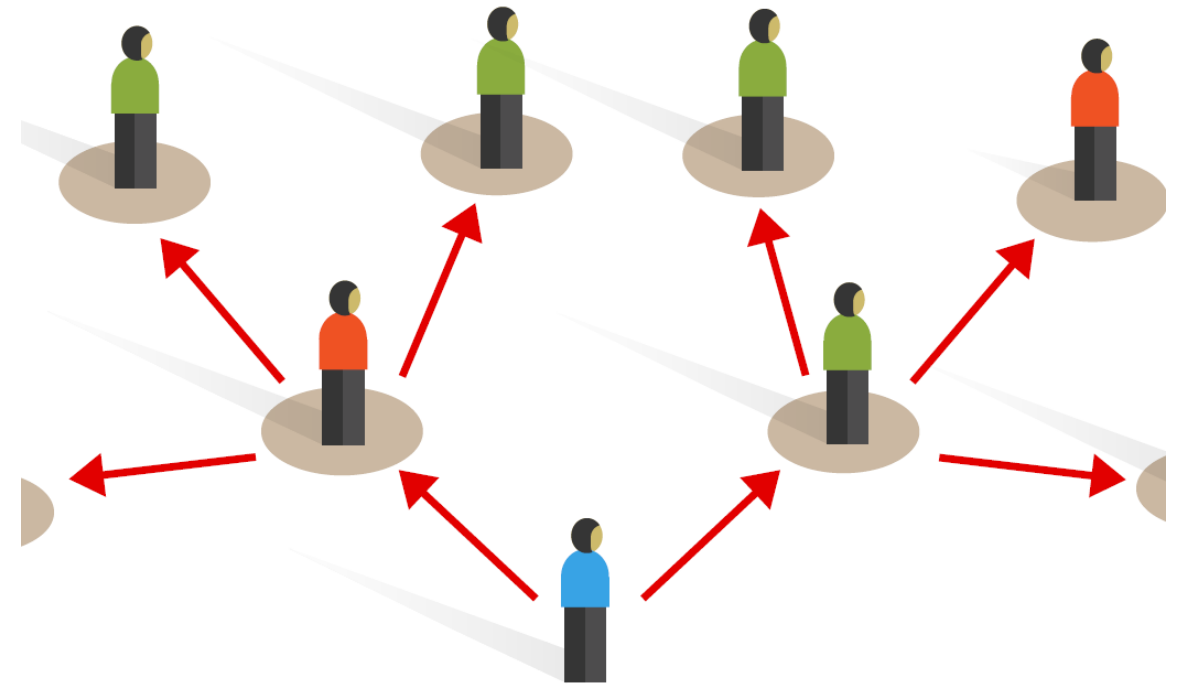
Other Sampling

▶ There are other ways to sample, but this covers the basics.

▶ The goal is to minimize bias in the sample so you can generalize your results to the population—the wider group you are actually interested in explaining.

▶ Identifying populations and selecting samples is tough, and depending on your project, you might not be able to do a perfect random sample. That's okay.

▶ Most researchers have to wrestle with incomplete data and imperfect methods. But you need to be open and honest—transparent—about the decisions you made and able to justify your choices.
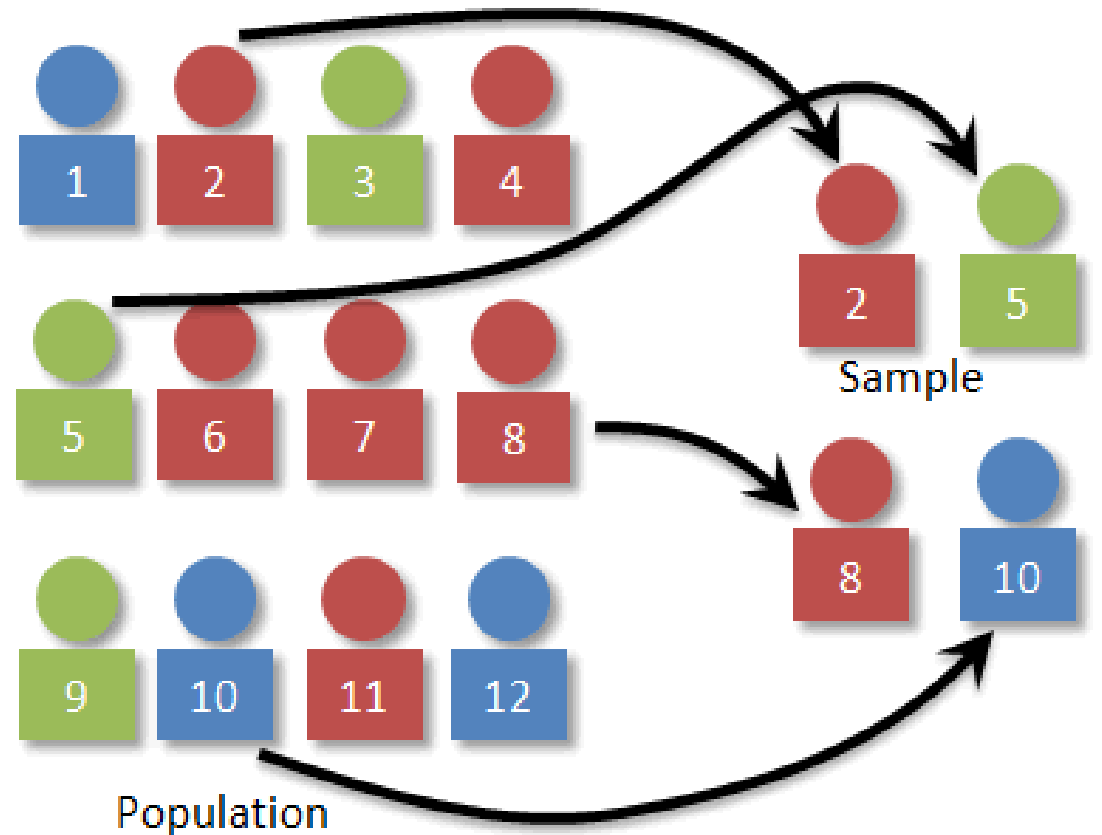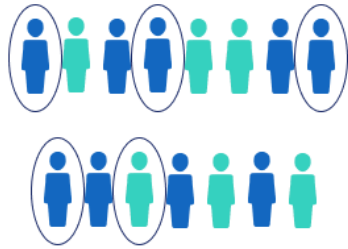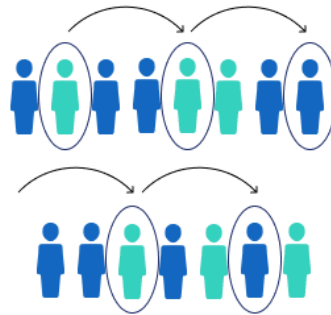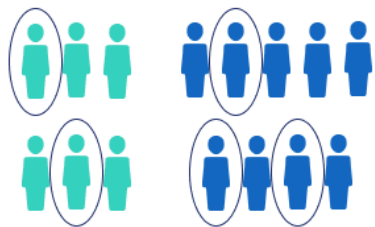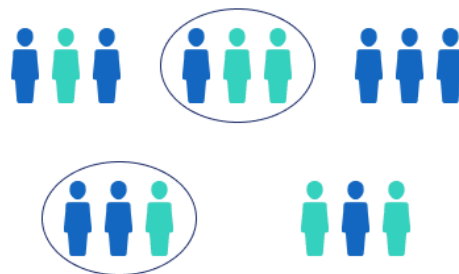
Thank You! Questions and Comments