9SP1.2 Select and defend the choice of using either a population or a sample of a population to answer a question.

Samples and Populations

When you gather information about a particular group of things, that group is called a **population**. A population can be a group of people, animals, or objects.

A population can be small, such as every boy in your class. When a population is small, you can survey each member of the population.

A population can also be large, such as all Grade 6 students in Canada. In this case, you cannot survey each member of the group. Instead, you can survey a sample of the group to get an idea about the whole group. The **sample population** represents the large population.

In order for a sample to be representative of a larger population, a sample needs to be:

- Sufficiently large
- Random (an equal chance for participation)
- Unbiased (does not sway the results)

If you want to learn who the favourite singer is of Grade 6 students across Canada, consider the following three things:

1. The results from 10 000 students representing 400 000 students will be more reliable than 400 students representing 400 000 students.

2. The results will be more reliable if students from each province and territory are part of the sample rather than just students from the two most populated provinces.

3. The Results will be more reliable if about an equal number of boys and girls are part of the sample rather than mostly girls or boys.

Example

The principal of a school conducted a survey to find out what colour the students would like for their new school uniforms. Since there are about 600 students in the school, it would take a loong time to ask each student. Instead, she asked 10 students from each of the 20 classes. These 200 students represented the 600 students.

The following chart shows the survey results from the sample population.

Uniform Colour	Number of Votes
Blue	23
Green	15
Red	24
Grey	32
Black	106

Over half of the 200 students who surveyed chose black. The principal can conclude that if all 600 students were surveyed, probably over 300 would choose black.