



Chapter Problem

Students' Council Elections

Most high schools in Ontario have a students' council comprised of students from each grade. These students are elected representatives, and a part of their function is to act as a liaison between the staff and the students. Often, these students are instrumental in fundraising and in coordinating events, such as school dances and sports.

A students' council executive could consist of a president, vice-president, secretary, treasurer, social convener, fundraising chair, and four grade representatives. Suppose ten students have been nominated to fill these positions. Five of the nominees are from grade 12, three are from grade 11, and the other two are a grade 9 and a grade 10 student.

1. In how many ways could the positions of president and vice-president be filled by these ten students if all ten are eligible for these positions? How many ways are there if only the grades 11 and 12 students are eligible?
2. The grade representatives must represent their current grade level. In how many ways could the grade representative positions be filled?

You could answer both of these questions by systematically listing all the possibilities and then counting them. In this chapter, you will learn easier and more powerful techniques that can also be applied to much more complex situations.