

INTEGRATING MATHEMATICS**● Using Comparisons to Understand Space Statistics**

The study of planets, suns, moons, and galaxies involves very large numbers. For example, the diameter of Earth is 12 756 km and the diameter of the sun is about 1 392 000 km. Because these numbers are not part of daily experience, it is difficult for most people to grasp their meaning.

One way to make large numbers more meaningful is to use comparisons. To compare the diameter of Earth with that of the sun, you could subtract and find that Earth's diameter is 1 379 244 km smaller than the sun's. That still doesn't help much. But if you divided Earth's diameter into the sun's diameter, you would find that the sun's diameter is almost 110 times as large as Earth's diameter.

For most people, this type of comparison has more meaning. It is not difficult to picture the difference between the mass of one object and a mass of slightly more than 100 times that object. For example, you can probably picture in your mind the size of one CD compared with a stack of 110 CDs.

Your Turn to Think

Calculate the relationship of the diameter of each of the following bodies to Earth (12 756 km), and write a comparison to describe each.

1. the moon (3476 km):
2. Mercury (4878 km):
3. Venus (12 102 km):
4. Mars (6787 km):
5. Jupiter (142 800 km):
6. Saturn (120 660 km):
7. Uranus (52 400 km):