(2) Addition and Subtraction of Compound Units (p. 22)

➢ Add and subtract lengths in kilometers and meters.

The strategies used here are similar to those used in adding and subtracting lengths in meters and centimeters. Caution the student to remember that there are 1000 m in a kilometer, but only 100 cm in a meter.

Discuss the following or other problems involving addition and subtraction of compound units in kilometers and meters with your student. Discuss the various strategies that can be used.

600 m + 850 m

600 m + 850 m = 1450 m = 1 km 450 m

600 m + 850 m = 1 km 450 m
400 m 450 m
1 km

Add the meters together.

Rename 1000 m as 1 km.

Or, make 1000 with the meters.

2 km 965 m + 112 km 85 m

2 km 965 m —(+ 112 m)→ 114 km 965 m —(+ 85 cm)→ 115 km 50 m

2 km 965 m + 112 km 85 m = 115 km 50 m
1050 m
1 km 50 m

2 km 965 m + 112 km 85 m = 115 km 50 m
35 m 50 m
1 km

Add the kilometers first, then the meters.
Write an intermediate step or look ahead to see that adding the meters will result in another kilometer.

Add the meters and rename 1000 m as 1 km.

Or, make 1000 with the meters.

3 km 375 m + 2 km 684 m

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 3375\ \text{m} \\ +\ 2684\ \text{m} \\ \hline 6059\ \text{m} \end{array} = 6\ \text{km}\ 59\ \text{m}$$

Or, rewrite as meters, add vertically, and rewrite again in kilometers and meters.

Unit 6 Fractions

Part 1 Fraction of a Whole

(1) Fractions of a Whole **3d>**(pp. 51-54) **US>**(pp. 64-67)

- Understand fractional notation.
- Recognize and represent fractions of a whole.
- Read and write fractions in words
- Find two fractions that make a whole.
- Understand the terms **numerator** and **denominator**.

In *Primary Mathematics 2B* the student learned to understand and write fractional notation and to find sums of fractions that make a whole. This section is primarily review. The terms **numerator** and **denominator** are introduced here.

The **denominator** gives the number of equal parts the whole is divided into.
The **numerator** gives the number of equal parts represented by the fraction.

The denominator also indicates the size of the part; the larger the denominator the smaller the size since the whole is divided up into more parts. In 4 centimeters, the number of parts is 4, and centimeters is the size of each part. In $\frac{4}{7}$, the number of parts is 4, and $\frac{1}{7}$ of the whole is the size of each part. $\frac{4}{7}$ means 4 one-sevenths of a whole.

In this level, the whole is one whole unit, e.g. one pie, one apple, one circle, one length of a bar. In Primary Mathematics 4, the student will learn that the whole can be a group, such as 16 people, so that $\frac{1}{2}$ of the whole is 8. A larger denominator still indicates a smaller size; $\frac{1}{4}$ of 16 is 4.

➤ Write a fraction, such as $\frac{1}{4}$, and ask your student to draw a picture showing what this fraction means. He may draw any shape, divide it up into four equal parts, and color one part. If necessary, remind him that this means one out of four equal parts. Ask him for the name of the fraction (one fourth). Tell him that the top number is called the numerator, and the bottom number is called the denominator. You can define them:
The **denominator** gives the number of equal parts the whole is divided into.
The **numerator** gives the number of equal parts represented by the fraction.
Ask him to write the fraction that would show you how many more fourths would make a whole ($\frac{3}{4}$). Ask him for the numerator and the denominator. Ask him

For most of the problems in this section, in which fractions are compared or ordered, the fractions are related, that is, the denominator of one is a simple multiple of the denominator of the other. In instances where they are not, as in learning tasks 10.(e) and 11.(e) in the text, allow less capable students to use fraction strips to compare them. Unrelated fractions, where one denominator is not a simple multiple of the other, will be dealt with more in *Primary Mathematics 5A*.

Optional:
For more capable students, you can teach the following:

Ask your student which is greater, $\frac{1}{3}$ or $\frac{2}{5}$.

Since one numerator is twice the other, we could compare them by finding an equivalent fraction of $\frac{1}{3}$ where the numerator is 2. $\frac{1}{3} = \frac{2}{6}$

$\frac{2}{5}$ is greater than $\frac{2}{6}$, so $\frac{2}{5}$ is greater than the fraction $\frac{1}{3}$.

We can also list equivalent fractions for each until we get some with the same denominator.

$\frac{2}{5}, \frac{4}{10}, \left(\frac{6}{15}\right)$

$\frac{1}{3}, \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \left(\frac{5}{15}\right)$ $\frac{6}{15}$ is greater than $\frac{5}{15}$, so $\frac{2}{5}$ is greater than $\frac{1}{3}$.

Have your student look at the lists to see if he can see a pattern.

$\frac{2}{5}, \frac{4}{10}, \frac{6}{15}$ The numerator increases by 2 while the denominator increases by 5

$\frac{1}{3}, \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}$ The numerator increases by 1 while the denominator increases by 3.

Ask him whether he thinks it is easier to start with the fraction with the greater or smaller denominator.

If he starts with the fraction with the greater denominator, he can list equivalent fractions until he gets one with a denominator that can be divided by the denominator of the other fraction. and then find an equivalent fraction with that denominator. $\frac{6}{15}$ has a denominator that can be divided by 3, determine the numerator for $\frac{1}{3} = \frac{\quad}{15}$. If he started with the fraction with the smaller denominator he would have to list more fractions until he found one with a denominator he can divide by 5.