



## Using Data; Addition and Subtraction of Fractions

The authors of *Everyday Mathematics* believe that students should work substantially with data. Unit 6 is designed to present and teach relevant data skills and concepts, allowing your child ample opportunities to practice organizing and analyzing the data that he or she collects.

The data that your child collects at first will usually be an unorganized set of numbers. After organizing the data using a variety of methods, he or she will study the **landmarks** of the data. The following terms are called landmarks because they show important features of the data.

- ◆ The **maximum** is the largest data value observed.
- ◆ The **minimum** is the smallest data value observed.
- ◆ The **range** is the difference between the maximum and the minimum.
- ◆ The **mode** is the most popular data value—the value observed most often.
- ◆ The **median** is the middle data value observed.
- ◆ The **mean**, commonly known as the average, is a central value for a set of data.

At the end of the unit, students will demonstrate their skills by conducting a survey of their peers, gathering and organizing the data, analyzing their results, and writing a summary report.

Your child will continue the American Tour by studying Native American measurements for length and distance, based on parts of the body. Students will convert these body measures to personal measures by measuring their fingers, hands, and arms in both metric and U.S. customary units. In addition, your child will learn how to read a variety of contour-type maps, such as climate, precipitation, and growing-seasons maps.

Finally, students will explore addition and subtraction of fractions by using paper slide rules, a clock face, and fraction sticks. They will learn to find common denominators and apply this skill to add and subtract fractions with unlike denominators.

**Please keep this Family Letter for reference as your child works through Unit 6.**



## Vocabulary

Important terms in Unit 6:

**angle of separation** In *Everyday Mathematics*, the angle measure between spread fingers. The figure shows the angle of separation between a person's thumb and first finger.



Angle of separation

**common denominator** Any number except zero that is a multiple of the denominators of two or more fractions. For example, the fractions  $\frac{1}{2}$  and  $\frac{2}{3}$  have common denominators 6, 12, 18, and so on.

**contour line** A curve on a map through places where a certain measurement (such as temperature or elevation) is the same. Often, contour lines separate regions that have been colored differently to show a range of conditions.

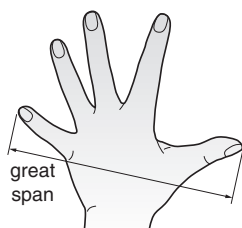
**cubit** An ancient unit of length, measured from the point of the elbow to the end of the middle finger. A cubit is about 18 inches.

**decennial** Occurring every 10 years.

**fair game** A game in which each player has the same chance of winning. If any player has an advantage or disadvantage, then the game is not fair.

**fathom** A unit used by people who work with boats and ships to measure depths underwater and lengths of cables. A fathom is now defined as 6 feet.

**great span** The distance from the tip of the thumb to the tip of the little finger (pinkie), when the hand is stretched as far as possible.



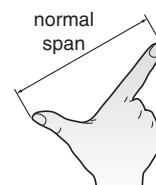
**landmark** A notable feature of a data set. Landmarks include the *median*, *mode*, *maximum*, *minimum*, and *range*.

**line plot** A sketch of data in which check marks, Xs, or other marks above a labeled line show the frequency of each value.

**map legend (map key)** A diagram that explains the symbols, markings, and colors on a map.

**mode** The value or values that occur most often in a set of data.

**normal span** The distance from the tip of the thumb to the tip of the first (index) finger of an outstretched hand. Also called *span*.



**population** In data collection, the group of people or objects that is the focus of the study.

**range** The difference between the *maximum* and *minimum* in a set of data.

**sample** A part of a population chosen to represent the whole population.

**simplest form** A fraction less than 1 is in simplest form if there is no number other than 1 that divides its numerator and denominator evenly. A mixed number is in simplest form if its fractional part is in simplest form.

**stem-and-leaf plot** A display of data in which digits with larger place values are “stems” and digits with smaller place values are “leaves.”

Data list: 24, 24, 25, 26, 27, 27, 28, 31, 31, 32, 32, 36, 36, 36, 41, 41, 43, 45, 48, 50, 52

Stem-and-leaf plot

Stems (10s)	Leaves (1s)
2	4 4 5 6 7 7 8
3	1 1 2 2 6 6 6
4	1 1 3 5 8
5	0 2

**survey** A study that collects data.

## Do-Anytime Activities

To work with your child on the concepts taught in this unit and in previous units, try these interesting and rewarding activities.

1. Have your child design and conduct an informal survey. Help him or her collect and organize the data, and then describe the data using data landmarks. Challenge your child to create different ways to present the data.
2. Encourage your child to develop his or her own set of personal measures for both metric and U.S. customary units.

### Building Skills through Games

In this unit, your child will work on his or her understanding of angles and the addition and subtraction of fractions by playing the following games. For detailed instructions, see the *Student Reference Book*.

**Divisibility Dash** See *Student Reference Book*, page 302. This is a game for two or three players. Game materials include 4 each of the number cards 0–9 as well as 2 each of the number cards 2, 3, 5, 6, 9, and 10. This game provides practice in recognizing multiples and using divisibility rules in a context that also develops speed.

**Frac-Tac-Toe** See *Student Reference Book*, pages 309–311. This is a game for two players. Game materials include 4 each of the number cards 0–10, pennies or counters of two colors, a calculator, and a gameboard. The gameboard is a 5-by-5 number grid that resembles a bingo card. Several versions of the gameboard are shown in the *Student Reference Book*. *Frac-Tac-Toe* helps students practice converting fractions to decimals and percents. In Unit 6, students practice fraction/decimal conversions.

**Fraction Capture** See *Math Journal*, page 198. This is a game for two players and requires 2 six-sided dice and a gameboard. Partners roll dice to form fractions and then attempt to capture squares on a *Fraction Capture* gameboard. This game provides practice in finding equivalent fractions and in adding fractions.

## As You Help Your Child with Homework

As your child brings assignments home, you might want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through this unit's Study Links.

### Study Link 6•1

3. a. 59    b. 24    c. 33  
d. 36    e. 39.5
5. 18.43                      6. 16

### Study Link 6•2

2. a. cm; ft                      b. ounces; gal; liters  
c. m; miles                    d. cm; ft; mm  
e. kg; lb; grams
3. 2,686    6. 141.63

### Study Link 6•3

1. 73; maximum    2. 19                      3. 53
4. Sample answer: Cross off the highest and lowest values—31 and 73. Continue by crossing off the highest and lowest values remaining, so that only one number, 53, remains.
5. 3,286                      8. 65,250

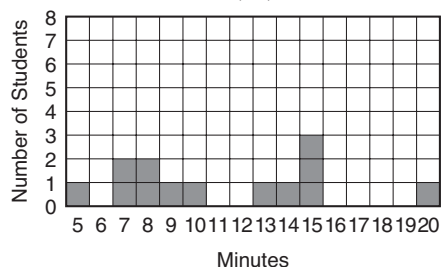
### Study Link 6•4

1. Tapes and CDs    2. Books and magazines  
3. Movie tickets    4. 5,593  
5. 16,539                    6. 582 R3                    7. 75,896

### Study Link 6•5

Sample answers given for Problems 1–3.

1. 5, 7, 7, 8, 8, 9, 10, 13, 14, 15, 15, 15, 20
2. Minutes Needed to Get Ready for Bed  
(title)



3. The number of minutes it takes to get ready for bed
5. 443                              7. 1,839

### Study Link 6•6

1. Sample answer: Ages of the oldest people we know  
Title: The Oldest People Our Class Knows  
Unit: Years
4. a. 32    b. 99    c. 66    d. 78.5  
5. 12,495                      7. 8,484

### Study Link 6•7

1. California; Arizona    2. Montana; Washington  
4. 2,086                      6. 81

### Study Link 6•8

1.  $\frac{10}{14}$ , or  $\frac{5}{7}$                       3.  $\frac{6}{15}$ , or  $\frac{2}{5}$   
5. 9,384                              7. 2,952

### Study Link 6•9

1.  $\frac{22}{15}$ , or  $1\frac{7}{15}$                       2.  $\frac{1}{18}$   
3.  $\frac{9}{4}$ , or  $2\frac{1}{4}$                       4. 4;  $7\frac{3}{4}$   
5.  $5\frac{5}{6}$

### Study Link 6•10

1.  $\frac{18}{22} - \frac{11}{22} = \frac{7}{22}$                       2.  $\frac{20}{36} - \frac{9}{36} = \frac{11}{36}$   
3.  $\frac{21}{30} + \frac{8}{30} = \frac{29}{30}$                       4.  $\frac{21}{30} - \frac{8}{30} = \frac{13}{30}$   
5.  $\frac{19}{18}$ , or  $1\frac{1}{18}$                       6.  $\frac{59}{42}$ , or  $1\frac{17}{42}$   
7.  $\frac{1}{6}$                                       8.  $\frac{3}{4}$   
9.  $\frac{2}{12}$ , or  $\frac{1}{6}$                       10.  $\frac{1}{2}$   
11.  $\frac{1}{3}$                                       12.  $\frac{23}{12}$ , or  $1\frac{11}{12}$   
13.  $\frac{23}{12}$ , or  $1\frac{11}{12}$                       14.  $\frac{19}{12}$ , or  $1\frac{7}{12}$