2. Your handspan is a convenient ruler for measuring lengths. Stretch out your fingers and use your metric ruler or metric measuring tape to measure the maximum distance from your little finger to your thumb in centimeters.

Span

a. Use your handspan to approximate the width and length of this page in centimeters. Record your results below and then check your approximations by measuring.

	WIDTH	LENGTH
Approximation	_____	_____
Measurement	_____	_____

b. Select some objects around you and estimate their lengths in centimeters. Check your estimates by measuring. Repeat this activity 10 times, and see how many distances you can predict to within 1 centimeter. Record the objects, your estimates of lengths, and your measurements. In the last column record the difference between your estimation and measurement as a positive number, and then compute the average difference.

OBJECT	ESTIMATION	MEASUREMENT (nearest cm)	DIFFERENCE
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Average of differences _____

3. A millimeter is the smallest unit on your metric ruler. Obtain the measurements of the objects in parts a through c to the nearest millimeter.

★ a. The length of a dollar bill

★ b. The diameter of a penny

c. The width of one of your fingernails. Do you have one with a width of 1 centimeter?

d. What fraction of a millimeter is the thickness of one page of this book? (*Hint:* Measure several pages at once.)

4. This table contains some body measurements that are useful for buying and making clothes. Estimate or use your handspan to approximate these measurements. Then use your metric measuring tape and your metric ruler to obtain these measurements to the nearest centimeter.

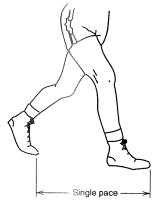|	ESTIMATE	MEASUREMENT
Waist	_____	_____
Height	_____	_____
Arm length	_____	_____
Foot length	_____	_____
Width of palm	_____	_____
Circumference of head	_____	_____

5. Use your metric measuring tape (Material Card 14) for the following.

a. Measure the distance from the middle of your chest to your fingertips with your arm outstretched. Is this distance greater than or less than 1 meter? This body distance was once used by merchants to measure cloth. It is the origin of the English measure called the yard.

b. Measure the distance from the floor up to your waist. How does this distance compare with a meter?

6. Your *pace* is the distance you cover in one normal step. To gather information about your pace, measure off a distance of 50 meters. Record the time in seconds and the number of paces it takes you to walk this distance.

Number of paces needed to walk 50 meters: _____
Time, in seconds, needed to walk 50 meters: _____

Single pace

Using this information, explain how to determine each of the following.

a. The length of a single pace, in centimeters

b. The number of paces it will take you to walk 1 kilometer

c. The time in minutes that it will take you to walk 1 kilometer