



## Standard Tables of Body Measurements for Children, Sizes 2 to 6x/7<sup>1</sup>

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### INTRODUCTION

These tables were developed from data published by the U.S. Department of Commerce. These data were based on original research conducted by the U.S. Department of Agriculture<sup>2</sup> in the 1930s. These tables take into consideration children's growth patterns reflected in the 1980 charts for the National Center for Health Statistics<sup>3</sup> and the 1977 Anthropometric Study of U.S. Infants and Children conducted by the University of Michigan.<sup>4</sup> All sudden shifts of proportion have been eliminated so as to reflect the gradual growth and development of the child. A limited sampling of children was measured and fitted with garments made as directed in these tables to verify the proposed body measurements.

### 1. Scope

1.1 These tables list body measurements of children, sizes 2 to 6x/7. Although these measurements are body measurements, they can be used as a baseline in designing apparel for children in this age range when taking into account such factors as fabric type, ease for body movement, styling, and fit.

1.2 The values stated in either acceptable metric units or other units shall be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 123 Terminology Relating to Textiles<sup>5</sup>

D 5219 Terminology Relating to Body Dimensions for Apparel Sizing<sup>6</sup>

#### 2.2 ISO Standard:

ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures<sup>7</sup>

### 3. Terminology

#### 3.1 Definitions:

3.1.1 For definitions relating to body dimensions, refer to Terminology D 5219.

3.1.2 For definitions of other textile terms, used in these tables, refer to Terminology D 123.

### 4. Significance and Use

4.1 The use of the body measurement information in Tables 1 and 2 will assist manufacturers in developing patterns and garments that are consistent with the current anthropometric characteristics of the population of interest. This practice should in turn reduce or minimize consumer confusion and dissatisfaction related to apparel sizing. (Also refer to ISO 3635 Size Designation Procedures.)

### 5. Apparatus

5.1 *Tape Measure*, dimensionally stable and approximately 15 mm (1/2 in.) wide and accurately graduated in mm (1/16 in.) increments.

5.2 *Scale*, standard, calibrated body weight type.

### 6. Procedure

#### 6.1 General:

6.1.1 For all vertical and most horizontal measurements, subject is to be standing erect without shoes and with feet approximately 15 cm (6 in.) apart.

6.1.2 Take measurements over regular undergarments normally worn.

<sup>1</sup> These tables are under the jurisdiction of ASTM Committee D13 on Textiles and are the direct responsibility of Subcommittee D13.55 on Body Measurement for Apparel Sizing.

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<sup>2</sup> O'Brien, R., et al, *Body Measurement to American Boys and Girls for Garment and Pattern Construction*, Miscellaneous Publication No. 366, U.S. Department of Agriculture, July 1941.

<sup>3</sup> Available from National Center for Health Statistics.

<sup>4</sup> Snyder, L., *Anthropometry of Infants, Children, and Youth to Age 18*, University of Michigan, May 1977.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 07.01.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 07.02.

<sup>7</sup> Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

**TABLE 1 Children's 2 to 6x/7 Body Measurements, SI Units**

Size	2	3	4	5	6	6X/7
Height, cm	83.8–90.2	91.4–97.8	99.1–105.4	106.7–113	114.3–118.1	119.4–123.2
Body Weight, kg	13.8–15.4	16–17.6	18.2–19.8	20.4–23.1	23.7–26.4	27–29.7
Girth Measurements, cm						
Chest Girth	50.8	53.3	55.9	58.4	61.0	62.9
Waist Girth	50.8	52.1	53.3	54.6	55.9	57.2
Hip Girth (Seat Girth)	53.3	56.0	58.4	61.0	63.5	65.4
Neck Base Girth	25.4	26.4	27.3	28.3	29.2	30.2
Armscye Circumference	21.6	23.2	24.8	26.4	27.9	29.2
Upper-Arm Girth	15.6	16.2	16.8	17.5	18.1	18.7
Elbow Girth	17.1	17.8	18.4	19.1	19.7	20.3
Wrist Girth	11.4	11.7	12.1	12.4	12.7	13.0
Thigh Girth	29.8	31.4	33.0	34.6	36.2	37.8
Knee Girth	21.3	22.2	23.2	24.1	25.1	25.7
Ankle Girth	14.0	14.9	15.9	16.8	17.8	18.7
Total Vertical Trunk Length	83.8	90.2	96.5	102.9	108.0	111.8
Total Crotch Length	39.7	42.5	45.4	48.3	51.1	52.7
Head Circumference	50.8	51.4	52.1	52.7	53.3	54.0
Vertical Measurements, cm						
Cervicale Height	71.8	78.7	85.7	92.7	98.4	101.6
Head and Neck Length	17.1	17.8	18.4	19.1	19.7	20.3
Center Back Waist Length	21.6	22.9	24.1	25.4	26.7	27.9
Center Front Waist Length	20.3	21.6	22.9	24.1	25.4	26.7
Scye Depth	11.4	12.1	12.7	13.3	14.0	14.6
Waist Height	50.8	56.5	62.2	67.9	71.1	74.3
Hip Height	41.0	45.4	50.2	54.9	57.8	60.6
Crotch Height	36.2	40.0	43.8	47.6	50.2	52.7
Knee Height	22.2	24.1	26.0	27.9	29.2	30.5
Ankle Height	4.8	5.1	5.4	5.7	6.0	6.0
Width and Length Measurements, cm						
Across-Shoulder Width	23.8	24.8	25.7	26.7	27.6	28.3
Back Width	22.5	23.5	24.4	25.4	26.4	27.0
Cross-Chest Width	21.3	22.2	23.2	24.1	25.1	25.7
Arm Length	29.5	32.4	35.2	38.1	41.0	43.8
Cervicale to Wrist	40.6	44.1	47.6	50.8	54.0	57.2
Foot Length	15.9	17.1	17.8	18.4	19.7	21.0
Foot Width	6.4	6.7	7.0	7.6	8.3	8.9

6.1.3 Take measurements from the same side of the body for consistency.

6.1.4 Refer to Terminology D 5219 for the location of all points to be measured.

## 6.2 Body Measurements:

6.2.1 *Height*—Measure from the top of the head to the soles of the feet.

6.2.2 *Body Weight*—Weigh the nude subject.

6.2.3 *Chest Girth*—Measure horizontally around the body under the arms and across the nipples including the lower portion of the shoulder blades.

6.2.4 *Waist Girth*—Measure horizontally around the body at waist height.

6.2.5 *Hip Girth (Seat Girth)*—Measure horizontally around the body at hip height.

6.2.6 *Neck Base Girth*—Measure around the neck, touching over the cervicale at the back and the top of the collar bone at the front.

6.2.7 *Armscye Circumference*—Measure the distance from the shoulder joint through the front-break point, the armpit, the back break point, and to the starting point, with the arm down.

6.2.8 *Upper-Arm Girth*—Measure the maximum circumference of the arm midway between the elbow and shoulder joint.

6.2.9 *Elbow Girth*—Measure the circumference of the elbow while the arm is bent at 1.57 rad or 90°.

6.2.10 *Wrist Girth*—Measure the wrist circumference over the inner and outer prominence at the lower end of the forearm.

6.2.11 *Thigh Girth*—Measure the maximum circumference

of the upper leg close to the crotch.

6.2.12 *Knee Girth*—Measure the knee circumference over the knee cap and parallel to the floor, with the leg straight.

6.2.13 *Ankle Girth*—Measure the circumference over the greatest prominence of the ankle.

6.2.14 *Total Vertical Trunk Length*—Measure the distance from the right shoulder line midway between the neck base and the shoulder joint, down the back through the crotch, and over the right chest to the starting point, taking care to avoid constriction at the crotch.

6.2.15 *Total Crotch Length*—Measure from the waist level at the center front through the crotch, to the waist level at the center back, taking care to avoid constriction at the crotch.

6.2.16 *Head Circumference*—Measure the maximum circumference of the head above the ears.

6.2.17 *Cervicale Height*—Measure from the cervicale following the contour of the spinal column to the level of the hips, then vertically to the soles of the feet.

6.2.18 *Head and Neck Length*—Measure the distance from the crown to the cervicale with the head erect and the neck unbent.

6.2.19 *Center Back Waist Length*—Measure along the spine from cervicale to waist.

6.2.20 *Center Front Waist Length*—Measure from the center front neck baseline to the center front waist level.

6.2.21 *Scye Depth*—Measure vertically from the cervicale to the upper edge of a tape passed horizontally under the armpits.

**TABLE 2 Children's 2 to 6x/7 Body Measurements, Inch-Pound Units**

Size Height, in. Body Weight, lb	2 33–35½ 25–28	3 36–38½ 29–32	4 39–41½ 33–36	5 42–44½ 37–42	6 45–46½ 43–48	6X/7 47–48½ 49–54
Girth Measurements, in.						
Chest Girth	20	21	22	23	24	24¾
Waist Girth	20	20½	21	21½	22	22½
Hip Girth (Seat Girth)	21	22	23	24	25	25¾
Neck Base Girth	10	10¾	10¾	11⅞	11½	11⅞
Armhole Circumference	8½	9⅞	9¾	10¾	11	11½
Upper-Arm Girth	6⅞	6¾	6⅞	6⅞	7⅞	7¾
Elbow Girth	6¾	7	7¼	7½	7¾	8
Wrist Girth	4½	4⅞	4¾	4⅞	5	5⅞
Thigh Girth	11¾	12¾	13	13⅞	14¼	14⅞
Knee Girth	8¾	8¾	9⅞	9½	9⅞	10⅞
Ankle Girth	5½	5⅞	6¼	6⅞	7	7¾
Total Vertical Trunk Length	33	35½	38	40½	42½	44
Total Crotch Length	15⅞	16¾	17⅞	19	20⅞	20¾
Head Circumference	20	20¼	20½	20¾	21	21¼
Vertical Measurements, in.						
Cervicale Height	28¼	31	33¾	36½	38¾	40
Head and Neck Length	6¾	7	7¼	7½	7¾	8
Center Back Waist Length	8½	9	9½	10	10½	11
Center Front Waist Length	8	8½	9	9½	10	10½
Scye Depth	4½	4¾	5	5¼	5½	5¾
Waist Height	20	22¼	24½	26¾	28	29¼
Hip Height	16⅞	17⅞	19¾	21⅞	22¾	23⅞
Crotch Height	14¼	15¾	17¼	18¾	19¾	20¾
Knee Height	8¾	9½	10¼	11	11½	12
Ankle Height	1⅞	2	2⅞	2¼	2¾	2¾
Width and Length Measurements, in.						
Across-Shoulder Width	9¾	9¾	10⅞	10½	10⅞	11⅞
Back Width	8⅞	9¼	9⅞	10	10¾	10⅞
Cross-Chest Width	8¾	8¾	9⅞	9½	9⅞	10⅞
Arm Length	11⅞	12¾	13⅞	15	16⅞	17¼
Cervicale to Wrist	16	17¾	18¾	20	21¼	22½
Foot Length	6¼	6¾	7	7¼	7¾	8¼
Foot Width	2½	2⅞	2¾	3	3¼	3½

6.2.22 *Waist Height*—Measure the distance from the waist to the floor.

6.2.23 *Hip Height*—Measure the distance at the side of the body from the hip to the floor.

6.2.24 *Crotch Height*—Measure the distance from the mid-point of the crotch to the floor.

6.2.25 *Knee Height*—Measure from the crease in the back of the knee to the floor.

6.2.26 *Ankle Height*—Measure from the center of the outer ankle bone to the floor.

6.2.27 *Across-Shoulder*—Measure across the back from the top of one shoulder joint to the top of the other shoulder joint, with arms down.

6.2.28 *Back Width*—Measure the distance across the back from back-break point to back-break over the shoulder blades.

6.2.29 *Cross-Chest Width*—Measure across the front of the chest from front-break point to front-back point.

6.2.30 *Arm Length*—Measure the top of the shoulder joint

along the outside of the arm over the elbow to the prominent wrist bone, with the arm bent at 1.57 rad (90°) and the hand placed on the hip,

6.2.31 *Cervicale to Wrist*—Measure from the cervicale over the top of the shoulder joint, along the outside of the arm over the elbow to the prominent wrist bone, with the arm bent at 1.57 rad (90°) and the hand placed on the hip,

6.2.32 *Foot Length*—Measure the distance from the most prominent part of the heel where it touched the floor to the end of the most prominent toe, with the subject standing barefoot,

6.2.33 *Foot Width*—Measure the distance from the one side of the foot to the other at the widest part at the bottom using a ruler, with the subject standing barefoot.

## 7. Keywords

7.1 apparel; body measurements; children; garment sizes; tables

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