



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

This standard is issued under the fixed designation D 5826; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### INTRODUCTION

These tables are 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 Textile Materials<sup>5</sup>

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

#### 2.2 ISO Standard:

ISO 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 Size Designation Procedures.)

### 5. Apparatus

5.1 *Tape Measure*, dimensionally stable and approximately 15-mm ( $\frac{1}{2}$ -in.) wide and accurately graduated in mm ( $\frac{1}{16}$ -in.) increments.

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

### 6. Procedure

#### 6.1 General:

6.1.1 For all vertical measures subject to be standing erect without shoes and with feet approximately 15-cm (6-in.) apart.

6.1.2 For all horizontal measurements subject to be held in a vertical position.

<sup>1</sup> These tables are under the jurisdiction of ASTM Committee D-13 on Textiles and are the direct responsibility of Subcommittee D13.55 on Body Measurement for Apparel Sizing.

Current edition approved Sept. 10, 1995. Published November 1995.

<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 West 42nd St., 13th Floor, New York, NY 10036.

**TABLE 1 Children's 2 to 6X/7 Body Measurements Without Clothing, SI Units<sup>A</sup>**

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
Weight, kg	13.8–15.4	16–17.6	18.2–19.8	20.4–23.1	23.7–26.4	27–29.7
Chest	50.8	53.3	56	58.4	61	62.9
Waist	50.8	52.1	53.3	54.6	55.9	57.2
Hip/Seat	53.3	56	58.4	61	63.5	65.4
Vertical Trunk Length (Without Diaper)	83.8	90.2	96.5	102.9	108	111.8
Head Circumference	50.8	51.4	52.1	52.7	53.3	54
Neck Base	25.4	26.4	27.3	28.3	29.2	30.2
Armscye	21.6	23.2	24.8	26.4	27.9	29.2
Upper Arm	15.6	16.2	16.8	17.5	18.1	18.7
Elbow	17.1	17.8	18.4	19.1	19.7	20.3
Wrist	11.4	11.7	12.1	12.4	12.7	13
Thigh	29.8	31.4	33	34.6	36.2	37.8
Knee	21.3	22.2	23.2	24.1	25.1	25.7
Ankle	14	14.9	15.9	16.8	17.8	18.7
Across Shoulder	23.8	24.8	25.7	26.7	27.6	28.3
Across Back	22.5	23.5	24.4	25.4	26.4	27
Across Chest	21.3	22.2	23.2	24.1	25.1	25.7
Total Crotch Length	39.7	42.5	45.4	48.3	51.1	52.7
Arm Length	29.5	32.4	35.2	38.1	41	43.8
Cervicale to Wrist	40.6	44.1	47.6	50.8	54	57.2
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
Cervicale to Back Waist	21.6	22.9	24.1	25.4	26.7	27.9
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	14.6
Waist Height	50.8	56.5	62.2	67.9	71.1	74.3
Hip Height	41	45.4	50.2	54.9	57.8	60.6
Crotch Height	36.2	40	43.8	47.6	50.2	52.7
Knee Height	22.2	24.1	26	27.9	29.2	30.5
Ankle Height	4.8	5.1	5.4	5.7	6	6
Foot Length	15.9	17.1	17.8	18.4	19.7	21
Foot Width	6.4	6.7	7	7.6	8.3	8.9

<sup>A</sup> All table data are in centimetres. These measurements are for the nude body. No allowance has been given for clothing or diapers. Add approximately 8 cm to the vertical trunk measurement to accommodate the diaper.

6.1.3 Measurements for the child body are taken over the nude body.

### 6.2 Body Measurements:

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

6.2.2 *Weight*—Take on a calibrated scale with a nude subject.

6.2.3 *Chest*—Measure horizontally around the body under the arms and across the nipples so as to include the lower portion of the shoulder blades.

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

6.2.5 *Hip/Seat*—Measure horizontally around the body at hip height.

6.2.6 *Vertical Trunk*—Measure from (1) a point on the shoulder, midway between the neck and the normal armhole line, to (2) the bottom of the crotch and back up to the shoulder, taking care to avoid constriction at the crotch.

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

6.2.8 *Neck Base*—Measure around the neck, touching the cervical at the back and the upper borders of the collar bone at the front, following the points that would be made by a fine-linked chain pressed over these points.

6.2.9 *Armscye*—With the arm down, measure the distance from the shoulder joint through the front break point, the armpit, the back break point, and the starting point.

6.2.10 *Upper Arm*—Measure the circumference of the arm midway between the elbow and shoulder joint.

6.2.11 *Elbow*—Measure the circumference of the elbow while the arm is straight.

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

6.2.13 *Thigh*—Measure the circumference of the upper part of the leg (close to the crotch).

6.2.14 *Knee*—Measure the circumference of the knee while the leg is straight.

6.2.15 *Ankle*—Measure the circumference of the ankle over the inner and outer bony prominence at the lower end of the lower leg.

6.2.16 *Across Shoulder*—Measure across the back from the top of one shoulder joint to the top of the other shoulder joint.

6.2.17 *Across Back*—Measure across the back from armscye to armscye at approximately the same level as the chest.

6.2.18 *Across Chest*—Measure across the front of the chest from armscye to armscye.

6.2.19 *Total Crotch Length*—Measure the distance from (1) the waist level at the center front through the crotch and to (2) the waist level at the center back.

6.2.20 *Arm Length*—With the arm bent 90° at the elbow, measure from (1) the top of the shoulder along the outside or posterior surface of the arm over the elbow, to (2) the prominent wrist bone at the back of the hand near the little finger.

6.2.21 *Cervicale to Wrist*—With the elbow bent, measure from the (1) cervicale by way of the top of the shoulder and along the outside surface of the arm around the elbow, to (2)

**TABLE 2 Children's 2 to 6X/7 Body Measurements Without Clothing, Inch-Pound Units<sup>A</sup>**

Size	2	3	4	5	6	6X/7
Height, in.	33–35½	36–38½	39–41½	42–44½	45–46½	47–48½
Weight, lb	25–28	29–32	33–36	37–42	43–48	49–54
Chest	20	21	22	23	24	24¾
Waist	20	20½	21	21½	22	22½
Hip/Seat	21	22	23	24	25	25¾
Vertical Trunk Length (Without Diaper)	33	35½	38	40½	42½	44
Head Circumference	20	20¼	20½	20¾	21	21¼
Neck Base	10	10¾	10¾	11¼	11½	11¾
Armscye	8½	9⅞	9¾	10¾	11	11½
Upper Arm	6⅞	6¾	6⅞	6⅞	7⅞	7¾
Elbow	6¾	7	7¼	7½	7¾	8
Wrist	4½	4⅞	4¾	4⅞	5	5⅞
Thigh	11¾	12¾	13	13¾	14¼	14¾
Knee	8¾	8¾	9⅞	9½	9¾	10⅞
Ankle	5½	5⅞	6¼	6¾	7	7¾
Across Shoulder	9¾	9¾	10⅞	10½	10¾	11⅞
Across Back	8⅞	9¼	9⅞	10	10¾	10¾
Across Chest	8¾	8¾	9⅞	9½	9¾	10⅞
Total Crotch Length	15¾	16¾	17¾	19	20⅞	20¾
Arm Length	11⅞	12¾	13¾	15	16⅞	17¼
Cervicale to Wrist	16	17¾	18¾	20	21¼	22½
Cervicale Height	28¼	31	33¾	36½	38¾	40
Head and Neck Height	6¾	7	7¼	7½	7¾	8
Cervicale to Back Waist	8½	9	9½	10	10½	11
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	17¾	19¾	21⅞	22¾	23¾
Crotch Height	14¼	15¾	17¼	18¾	19¾	20¾
Knee Height	8¾	9½	10¼	11	11½	12
Ankle Height	1⅞	2	2⅞	2¼	2¾	2¾
Foot Length	6¼	6¾	7	7¼	7¾	8¼
Foot Width	2½	2¾	2¾	3	3¼	3½

<sup>A</sup> All table data are in inches. These measurements are for the nude body. No allowance has been given for clothing or diapers.

the prominent wrist bone at the back of the hand near the little finger.

6.2.22 *Cervicale Height*—Measure the plumb line distance from the cervicale to the soles of the feet.

6.2.23 *Head and Neck Length*—With the head erect and the neck unbent, measure the plumb line distance from the crown to the cervicale.

6.2.24 *Cervicale to Backwaist*—Measure along the spine from the cervicale to waist.

6.2.25 *Front Waist Length*—Measure from the front of the neck base to the front of the waist.

6.2.26 *Scye Depth*—Measure along the spine from the cervical to a point level to an imaginary horizontal line connecting the mid-underarm points.

6.2.27 *Waist Height*—Measure the plumb line distance from the waist to the soles of the feet.

6.2.28 *Hip Height*—Measure the distance at the side of the body from the hip level to the soles of the feet.

6.2.29 *Crotch Height*—Measure the plumb line distance from the midpoint of the crotch to the soles of the feet.

6.2.30 *Knee Height*—Measure the plumb line height from the knee to the soles of the feet.

6.2.31 *Ankle Height*—Measure the distance at the side of the body from the outer ankle bone to the soles of the feet.

6.2.32 *Foot Length*—To be submitted.

6.2.33 *Foot Width*—To be submitted.

## 7. Keywords

7.1 apparel; body measurements; children; garment sizes

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