



Designation: D6458/D6458M – 19

Standard Tables of Body Measurements for Boys, Sizes 4 to 20 Slim and 2 to 20 Regular¹

This standard is issued under the fixed designation D6458/D6458M; 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 (ε) indicates an editorial change since the last revision or reapproval.

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 Agriculture² in the 1930s. This standard takes into consideration children's growth patterns reflected in the 1980 charts for the National Center for Health Statistics³ and the 1977 Anthropometric Study of U.S. Infants and Children conducted by the University of Michigan⁴ and 2000 CDC Growth Charts for the United States⁵ and CDC Advance Data No. 361, Dated 7/5/2005.⁶ All sudden shifts of proportion have been eliminated so as to reflect the gradual growth and development of the child. To verify the proposed body measurements, a three-dimensional Avatar was created in the size range by Alvanon Inc.⁷ for a visual reference and also attached in the documentation. Terminology D5219 data was removed and references to the standard were made to avoid duplicity and ease management of standard.

1. Scope

1.1 These tables list body measurements of boys sizes. Although these are body measurements, they can be used as a baseline in designing apparel for boys in this size range when considering such factors as fabric type, ease for body movement, styling, and fit.

1.2 The maximum age for the Boy's chart is 15 years old to the size 20.

1.3 The size table includes the range of toddler sizes; these values are for both girls and boys and will be included in the girl's standard as well.

¹ 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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² U.S. Department of Commerce, *Voluntary Product Standard: Body Measurement for the Sizing of Children's Apparel*, NIST Publication No. PS 54-172, Washington, D.C.

³ Available from National Center for Health Statistics (NCHS), a division of Centers for Disease Control & Prevention (CDC), 1600 Clifton Rd., Atlanta, GA 30333, <http://www.cdc.gov>.

⁴ Snyder, Lawrence, *Anthropometry of Infants, Children, and Youth to Age 18*, University of Michigan, May 1977.

⁵ 2000 CDC Growth Charts for the United States: Methods and Development, National Center for Health Statistics, *Vital Health Stat*, 11 (246), 2002.

⁶ CDC Advance Data from U.S. Department of Health and Human Services, *Vital and Health Statistics Number 361, 2005 Anthropometric Reference Data for Children and Adults: U.S. Population, 1999-2002*.

⁷ Alvanon, Inc. 145W 30th Street Suite 1000, New York, NY 10001.

1.4 These tables list body measurements for the complete range of Boys sizing. (Regular, Slim) Slim subjects are of same stature (height), with a slimmer body, and lower body weight than regular subjects as illustrated by the measurement charts.

1.5 The values stated in either inch-pound or SI units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:⁸

D123 Terminology Relating to Textiles

⁸ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.



D5219 Terminology Relating to Body Dimensions for Apparel Sizing

2.2 *ISO Standard*:⁹

ISO 3635 Size Designation of Clothes, Definitions, and Body Measurement Procedures

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions relating to body dimensions, refer to Terminology **D5219**.

3.1.2 For definitions of other textile terms used in this standard, refer to Terminology **D123**.

4. Significance and Use

4.1 The use of the body measurement information in **Tables 1-4** 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.)

⁹ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

4.2 Three-dimensional avatars depicting each of the children's sizes were created by Alvanon, Inc. and included in this standard to assist manufactures in visualizing the posture, shape, and proportions generated by the measurement charts in the accompanying tables. (See **Figs. 1-9**.)

5. Apparatus

5.1 *Tape Measure*, (dimensionally stable, double coated and approximately ½ in. [1.5 cm] wide and graduated accurately in centimeters or inches.

5.2 *Plastic Goniometer*, to measure the radian (degree) of shoulder slope.

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

5.4 *Metal Ruler*.

6. Procedure

6.1 For body dimensions, refer to Terminology **D5219**.

7. Keywords

7.1 apparel; body measurements; garment sizes; boys Regular, Slim; tables



TABLE 1 Boy's Sizes 2–20 Body Measurements, Inch-Pound Units

Size Number	2	3	4	5	6	7	8R	10R	12R	14R	16R	18R	20R
Body weight (mean), lb	29	31½	36	41	45	55	65	78	95	108	118	130	140
Body weight (range), lb	28-30	30-33	34-38	39-43	42-48	52-58	61-68	71-87	87-100	102-112	114-125	125-135	132-146
Girth Measurements, in.													
Head girth	20	20¼	20½	20¾	21	21¾	21½	21¾	22	22¼	22½	22¾	23
Neck base girth	10⅞	10¾	10¾	11⅞	11½	11½	12	12¾	12¾	13¼	13¾	14¼	14¾
Mid-neck girth	9¼	9¾	9¾	10	10¾	10¾	10¾	11½	11½	12	12½	13	13½
Shoulder girth	24¼	25⅞	26¾	27½	28½	29⅞	30½	31¾	33⅞	34¾	36⅞	37¾	39¼
Upper chest/bust girth	21¼	22	22¾	23¾	24¾	26⅞	27¼	28½	29¼	31¼	32⅞	34	35½
Chest/bust girth	20½	21	22	23	24	25½	26½	27½	28½	30½	32	33½	35
Under chest/bust girth	20¼	20¾	21½	22¾	23½	24¾	25¼	26¼	27	28¾	30¾	32	33¾
Waist girth	21	21½	22	22½	23	23½	24½	25½	26½	28	29½	31	32½
Preferred waist girth	21¼	21¾	22¾	22¾	23½	24½	25¼	26¼	27	29	30½	31¾	33
High-hip girth	21½	22¼	23½	23¾	24½	25¼	26½	27	27¾	29¾	31	32½	33¾
Hip/seat girth	21	22	23	24	25	26½	27¾	29	30½	32	33½	35	36½
Thigh girth	11¾	12¾	13	13¾	14¼	15½	16½	17	17¾	18½	19¼	20	20¾
Mid-thigh girth	10¼	10¾	11	11½	12	14½	15¼	16¼	16¾	17	18½	19	19¾
Knee girth	8½	8¾	9½	9½	9¾	10½	11½	11½	12	12¾	13¼	13¾	14½
Calf girth	8¼	8¾	8¾	9	9¾	10½	10¾	11	11½	12½	12¾	13¾	14
Ankle girth	5½	5¾	6¼	6¾	7	7¾	8	8¼	8¾	9	9¾	9¾	10½
Arm/eye girth	8½	9½	9¾	10¾	11	11¾	12¾	13	13¼	13¾	14¾	15¼	16¾
Upper-arm girth	6½	6¾	6¾	6¾	7½	7½	7¾	8¼	8¾	9¼	9¾	10¼	10¾
Elbow girth	6¼	6½	6¾	7	7¼	7½	7¾	8½	8½	8¾	9¼	9¾	10
Forearm girth	5¾	6½	6½	6¾	7	7	7¾	8½	8¾	8¾	9½	9½	9½
Wrist girth	4½	4¾	4¾	4¾	5	5¼	5½	5¾	6	6¼	6½	6¾	6¾
Hand girth	5¾	5¾	5¾	6½	6½	6¾	7¼	7½	8½	8¾	8¾	9¼	9¾
Trunk length (total vertical girth)	33¾	35¾	38¾	40¼	42¾	43¾	45¾	49¾	52¼	53¾	55¾	60	63¾
Vertical Measurements, in.													
Height	35	38	41	44	46½	49½	52	55½	58½	61½	64	66½	69
Head and neck length	6¾	7	7¼	7¾	7¾	7¾	8	8½	8¼	8½	8¾	9	9½
Scye depth	3¼	3¾	3¾	4¼	4½	4¾	4¾	5¼	5¾	5½	5¾	6	6¾
Cervicale height	28¼	31	33¾	36¼	38¾	41¾	44	47¾	50¼	53	55¼	57½	59¾
Cervicale to crotch height	14¼	15¾	16¾	17½	18½	18¾	19¾	21¾	22¾	23¼	24¼	26¾	28½
Cervicale to knee height	19¾	21½	23½	25½	26¾	28½	29¾	32	33½	35	36¾	38¾	40¾
Waist to hip/seat height	3¾	3¾	4¾	4¾	5¼	5	5½	6	6½	6¼	6¼	7	7½
Waist to knee height	11½	12¼	13¾	14¾	16	16¾	18	19¼	20½	21¾	22½	23¾	24
Waist height	19½	21½	23¾	26	28	30½	32¾	34¾	36¾	39¾	41½	42¼	43½
Front preferred waist height	18¼	20¼	22¼	23¾	24¼	28½	29½	31¾	33¾	36¼	38	38¾	39¾
Back preferred waist height	19½	21½	23¾	25½	27¼	29¾	31½	33¾	35¾	38¼	40½	41	42¼
High-hip height	17¾	19¾	21¾	23¾	25¾	29¾	31	33½	35¼	37¾	39½	40½	41¾
Hip/seat height	16½	17¾	19½	21¼	22¾	25¾	26¾	28¾	30¾	33½	34¾	35¼	36
Crotch height	14	15¾	17½	18¾	20¼	23¼	24¼	25½	27¾	29¾	31	31½	31¾
Rise height	5½	6	6¾	7¼	7¾	7½	8½	9½	9¾	9¾	10½	11½	11¾
Knee height	8½	9¾	10¼	11½	12	13¾	14¾	15¾	16¾	18	18¾	19½	19½
Ankle height	2	2½	2¼	2¾	2½	2¾	3½	3¼	3½	3½	3½	3½	3½
Width and Length Measurements, in.													
Center front waist length	8	8½	9	9¾	9¾	10½	10¾	11¾	12¾	12½	13	14	15
Center back waist length	8¾	9¾	10½	10¾	11½	11¾	12	13½	13¾	14	14½	15¾	16¾
Side waist length	4¾	5	5¾	5¾	5½	5¾	5¾	6½	7½	7¾	7½	8	8¾
Crotch length	14¾	15¾	17	18	19½	19½	20¾	22½	23¾	24¾	26	27¾	29½
Shoulder length	27½	3	3½	3¼	3¾	3½	3¾	3¾	4½	4¾	4¾	4¾	4¾
Shoulder slope	22°	22°	21.5°	21.5°	21.5°	19°	19°	19°	19°	19°	19°	19°	19°
Shoulder drop	1	1½	1½	1¼	1¼	1¼	1¾	1¾	1¾	1¾	1½	1¾	1¾
Across front shoulder width	9½	9¾	10¼	10¾	10¾	11¾	12¼	12¼	12¾	13¾	14½	14½	15
Across back shoulder width	9¼	9¾	10	10¾	10¾	11¼	12	12¼	12¾	13½	14½	14¾	15½
Upper front chest width	8½	8½	8¾	9¼	9½	9¾	10½	10¾	11½	11¾	12¼	12¾	13½
Upper back width	8¾	9½	9¾	9¾	10	11	11¾	11¾	12¼	13½	13¾	14½	14½
Front chest width	8¼	8½	9	9¾	9¾	10¾	10¾	11½	11¾	12¾	12¾	13¾	13¾
Back width	8¾	9	9	9¾	9¾	11	11¼	11¾	12½	13	13½	14	14½
Chest /bust point to chest/bust point	4½	4¾	5½	5	5½	5¾	5¾	5¾	6½	6¾	6¾	6¾	7
Neck to chest/bust point	5½	5¾	6½	6½	6¾	6¾	7¼	7¾	7¾	8	8¾	9	9¾
Chest/bust point to chest/bust point (halter)	15½	16	16¾	17½	18½	18¾	19¾	21½	21¾	22	22¾	24½	26½
Cervicale to wrist length	17½	18¾	19¾	20¾	21¾	22¼	23¾	25½	26¾	27¾	29½	30½	32
Shoulder and arm length	15¾	16¾	18	19	19¾	20¼	21½	22¾	24½	25¾	26¾	28¼	29¾
Arm length	12¾	13¾	14¾	15¾	16¾	16¾	17¾	19	20	21	22½	23½	24½
Underarm length	9¾	10	10¾	11½	12	11¾	12¾	13¾	14¾	15¾	16½	17½	17¾
Hand length	3¾	4	4¼	4½	5	5½	5½	5¾	6¾	7	7½	7¾	8
Hand width	3¼	3¾	3¼	3¾	3¾	3¾	4½	4½	4¾	4¾	5½	5¼	5¾
Foot length	5¼	5¾	6	6½	6¾	7¾	8¾	8¾	9½	9¾	9¾	10	10¾
Foot width	2¼	2¾	2½	2¾	2¾	2¾	3¼	3¾	3½	3¾	3¾	4	4¼



TABLE 2 Boy's Sizes 2–20 Body Measurements, [SI Units]

Size Number	2	3	4	5	6	7	8R	10R	12R	14R	16R	18R	20R
Body weight (mean), kg	13.15	14.29	16.33	18.60	20.41	24.95	29.48	35.38	43.09	48.99	53.52	58.97	63.50
Body weight (range), kg	12.70-13.61	13.61-14.97	15.42-17.24	17.69-19.50	19.05-21.77	23.59-26.31	27.67-30.84	32.21-39.46	38.56-43.09	44.91-49.90	49.44-54.43	53.52-59.42	58.06-64.41
Girth Measurements, cm													
Head girth	50.80	51.44	52.07	52.71	53.34	54.29	54.61	55.25	55.88	56.52	57.15	57.79	58.42
Neck base girth	25.72	26.35	27.31	28.26	29.21	29.21	30.48	31.43	32.39	33.66	34.93	36.20	37.47
Mid-neck girth	23.50	23.81	24.45	25.40	26.35	26.35	27.31	28.26	29.21	30.48	31.75	33.02	34.29
Shoulder girth	61.60	63.82	66.99	69.85	72.39	73.98	77.47	80.65	84.14	88.27	91.76	95.89	99.70
Upper chest/bust girth	53.98	55.88	57.79	60.33	62.87	66.36	69.22	71.44	74.30	79.38	82.87	86.36	90.17
Chest/bust girth	52.07	53.34	55.88	58.42	60.96	64.77	67.31	69.85	72.39	77.47	81.28	85.09	88.90
Under chest/bust girth	51.44	52.71	54.93	57.47	59.69	61.91	64.14	66.68	68.58	72.71	77.15	81.28	85.41
Waist girth	53.34	54.61	55.88	57.15	58.42	59.69	62.23	64.77	67.31	71.12	74.93	78.74	82.55
Preferred waist girth	53.98	55.56	56.83	58.10	59.69	62.23	64.14	66.68	68.58	72.71	77.15	80.33	83.82
High-Hip girth	54.61	56.52	58.74	60.01	62.23	64.14	66.36	68.58	70.80	73.66	76.52	80.33	83.82
Hip/seat girth	53.34	55.88	58.42	60.96	63.50	67.31	70.49	73.66	77.47	81.28	85.09	88.90	92.71
Thigh girth	29.85	31.43	33.02	34.61	36.20	39.37	41.91	43.18	45.09	46.99	48.90	50.80	52.71
Mid-thigh girth	26.04	27.31	27.94	29.21	30.48	36.83	38.74	41.28	42.23	43.18	46.04	48.26	50.48
Knee girth	21.59	22.23	23.18	24.13	25.08	26.67	28.26	29.21	30.48	32.07	33.66	35.24	36.83
Calf girth	20.96	21.27	21.91	22.86	23.81	25.72	26.99	27.94	29.21	30.80	32.39	33.97	35.56
Ankle girth	13.97	14.92	15.88	16.83	17.78	19.37	20.32	20.96	21.91	22.86	23.81	24.77	25.72
Armhole girth	21.59	23.18	24.77	26.35	27.94	29.85	32.07	33.02	33.66	34.93	36.51	38.74	41.59
Upper-arm girth	15.56	16.19	16.83	17.46	18.10	19.05	19.69	20.96	22.23	23.50	24.77	26.04	27.31
Elbow girth	15.88	16.51	17.15	17.78	18.42	19.05	19.69	20.64	21.59	22.54	23.50	24.45	25.40
Forearm girth	14.92	15.56	16.51	17.15	17.78	17.78	19.69	20.64	21.27	21.59	23.18	24.13	24.13
Wrist girth	11.43	11.75	12.07	12.38	12.70	13.34	13.97	14.61	15.24	15.88	16.51	16.83	17.15
Hand girth	14.92	14.92	14.92	15.56	15.56	17.15	18.42	19.05	20.64	21.27	21.91	23.50	23.81
Trunk length (total vertical girth)	85.73	91.12	97.47	102.24	107.63	110.17	115.89	126.37	132.72	136.53	141.61	152.40	161.93
Vertical Measurements, cm													
Height	88.90	96.52	104.14	111.76	118.11	125.73	132.08	140.97	148.59	156.21	162.56	169.91	175.26
Head and neck length	17.15	17.78	18.42	19.69	19.69	19.69	20.32	20.64	20.96	21.59	22.23	22.86	23.18
Scye depth	8.26	9.21	9.84	10.80	11.43	11.75	12.38	13.34	13.65	13.97	14.61	15.24	16.19
Cervical height	71.76	78.74	85.73	92.08	98.43	106.36	111.76	120.33	127.64	134.62	140.34	146.05	152.08
Cervical to crotch height	36.20	39.05	42.23	44.45	47.99	47.63	50.17	55.56	58.10	59.06	61.60	66.99	71.44
Cervical to knee height	50.17	54.93	60.01	63.82	67.95	71.44	75.25	81.28	85.09	88.90	93.03	97.47	102.55
Waist to hip/seat height	8.57	9.53	11.11	12.07	13.34	12.70	14.29	15.24	15.56	15.88	15.88	17.78	19.05
Waist to knee height	28.26	31.12	34.93	37.78	40.64	42.55	45.72	48.90	51.12	54.29	57.15	58.74	60.96
Waist height	49.53	54.93	60.64	66.04	71.12	77.47	82.23	87.95	93.35	100.01	104.46	107.32	110.49
Front preferred waist height	46.36	51.44	56.52	61.60	66.04	71.44	74.93	80.33	85.73	92.08	96.52	98.43	100.97
Back preferred waist height	48.58	53.66	59.37	64.77	69.22	75.57	80.01	85.41	90.81	97.16	101.92	104.14	107.32
High-hip height	45.40	50.17	55.25	60.01	64.45	74.61	78.74	84.14	89.54	95.89	100.33	102.87	105.73
Hip/seat height	40.96	45.40	49.53	53.98	57.79	65.41	67.95	72.71	77.79	84.14	88.27	89.54	91.44
Crotch height	35.56	39.69	43.50	47.63	51.44	59.06	61.60	64.77	69.53	75.57	78.74	79.06	80.65
Rise height	13.97	15.24	17.15	18.42	18.73	19.05	20.64	23.18	23.81	24.45	25.72	28.26	29.85
Knee height	21.59	23.81	26.04	28.26	30.48	34.93	36.51	39.05	42.55	45.72	47.31	48.58	49.53
Ankle height	5.08	5.40	5.72	6.03	6.35	7.30	7.94	8.26	8.89	8.89	8.89	8.89	8.89
Width and Length Measurements, cm													
Center front waist length	20.32	21.59	22.86	23.81	25.08	26.67	26.99	30.16	31.43	31.75	33.02	35.56	38.10
Center back waist length	22.54	24.45	25.72	26.99	28.26	29.53	30.48	33.34	34.93	35.56	36.83	39.69	42.55
Side waist length	12.07	12.70	13.65	13.65	13.97	14.61	14.61	16.51	18.10	18.73	19.05	20.32	21.27
Crotch length	37.47	39.69	43.18	45.72	48.58	49.53	52.39	57.15	60.33	62.87	66.04	70.49	74.93
Shoulder length	7.30	7.62	7.94	8.26	8.57	8.89	9.53	9.84	10.48	11.11	11.75	12.07	12.38
Shoulder slope	22°	22°	21.5°	21.5°	21.5°	19°	19°	19°	19°	19°	19°	19°	19°
Shoulder drop	2.54	2.86	2.86	3.18	3.18	3.18	3.49	3.49	3.49	3.49	3.81	4.13	4.13
Across front shoulder width	24.13	25.08	26.04	26.99	27.62	28.89	31.12	31.12	32.39	34.61	35.88	36.83	38.10
Across back shoulder width	23.50	24.45	25.40	26.35	27.31	28.58	30.48	31.12	32.39	34.29	35.88	37.15	38.42
Upper front chest width	20.64	21.59	22.54	23.50	24.13	25.08	26.67	26.99	28.26	30.16	31.12	32.39	33.34
Upper back width	22.54	23.18	23.81	24.77	25.40	27.94	29.53	29.85	31.12	33.34	34.61	35.88	36.83
Front chest width	20.96	21.59	22.86	23.81	24.45	26.35	26.99	28.26	29.85	32.39	32.39	33.97	34.93
Back width	22.23	22.86	22.86	23.81	24.45	27.94	28.58	29.53	30.80	33.02	34.29	35.56	36.83
Chest/bust point to chest/bust point	11.43	11.75	13.02	12.70	13.02	13.65	14.29	14.92	15.56	16.19	16.83	17.15	17.78
Neck to chest/bust point	13.97	14.92	15.56	16.51	17.46	17.46	18.42	20.00	20.00	20.32	21.27	22.86	24.45
Chest/bust point to chest/bust point (halter)	38.42	40.64	42.23	44.45	46.99	47.63	50.17	53.66	54.29	55.88	58.10	62.23	66.36
Cervical to wrist length	44.45	47.31	50.17	53.02	55.56	56.52	60.33	63.82	66.99	70.80	73.98	77.47	81.28
Shoulder and arm length	40.01	42.86	45.72	48.26	50.48	51.44	54.61	58.10	61.28	64.45	67.95	71.76	74.61
Arm length	32.70	35.24	37.78	40.01	42.23	42.55	45.09	48.26	50.80	53.34	56.20	56.69	62.23
Underarm length	23.81	25.40	27.62	29.21	30.48	30.16	32.39	35.24	37.15	40.01	41.91	43.50	45.09
Hand length	9.84	10.16	10.80	11.43	12.70	13.02	13.97	14.92	16.19	17.78	18.10	19.37	20.32
Hand width	8.26	8.57	8.26	8.57	8.57	9.53	10.48	10.80	11.75	12.38	13.02	13.34	13.65
Foot length	13.34	14.29	15.24	16.51	17.46	19.69	21.27	22.23	23.18	23.81	24.45	25.40	26.35
Foot width	5.72	6.03	6.35	6.67	6.67	7.30	8.26	8.57	8.89	9.21	9.53	10.16	10.80