



Are Children Today Taller than 150 years ago ?

Here is some data from 1837, collected to try to establish the age of children working in factories. It was suspected that under-age children were being employed and that the law was being broken by parents giving false ages to their children. The aim of collecting the data was to give an age for a child based on its height. The report which publishes this data says " If a child be 3ft 11 inches in height it may be assumed that it is nine years of age..."

- 1) Use the data to compare heights in 1837 to the heights of the pilot children from CensusAtSchool. Draw graphs and make conclusions.
- 2) Explain why the conclusions reached from the 1837 data would not be very accurate. What other data would be needed in order to make estimates of age from height ?

Age (years)	No. of boys	No. of girls	Average height of boys			Average height of girls		
			ft	ins	cm	ft	ins	cm
8 and under 8.5	327	267	3	9 ^{3/4}	115.9	3	8 ^{11/16}	111.9
8.5 and under 9	339	272	3	11	119.4	3	10 ^{3/8}	117.8
9 and under 9.5	527	438	3	11 ^{5/8}	121	3	11 ^{3/8}	120.3
9.5 and under 10	418	375	4	0 ^{1/8}	122.2	4	0	121.9
10 and under 10.5	574	506	4	1	124.5	4	1	124.5
10.5 and under 11	550	421	4	1 ^{7/8}	126.7	4	1 ^{5/8}	126
11 and under 11.5	664	577	4	2 ^{3/8}	128	4	2 ^{1/8}	127.3
11.5 and under 12	59	478	4	3 ^{1/16}	129.7	4	3 ^{1/4}	130.2
12 and under 12.5	767	712	4	3 ^{3/4}	131.4	4	3 ^{7/8}	131.8
12.5 and under 13	660	618	4	4 ^{1/4}	132.7	4	4 ^{3/4}	134
13 and under 13.5	1269	1260	4	5 ^{1/8}	134.9	4	5 ^{1/8}	134.9
13.5 and under 14	864	980	4	6 ^{3/8}	138.1	4	6 ^{1/2}	138.4
14 and under 15	117	140	4	8 ^{1/4}	142.9	4	9	144.8
15 and under 16	82	106	4	10 ^{1/2}	148.6	4	10 ^{3/4}	149.2
16 and under 17	43	90	5	0 ^{1/2}	153.7	4	11 ^{1/2}	151.1
17 and under 18	47	112	5	0	152.4	5	0	152.4

Source: *The Penny Magazine*, 15 July 1837

Growth Data Sheet

Year	Height(cm)	Date of Birth	Year	Height(cm)	Date of Birth	Year	Height(cm)	Date of Birth
8	170	06-Nov-86	3	126	18-Jun-92	4	122	12-Jun-91
8	160	26-Nov-86	3	125	02-Jan-92	4	138	25-Nov-90
8	155	02-Jan-87	3	123	29-Aug-92	4	135	20-Apr-91
9	160	27-Jun-86	5	134	10-Jul-90	5	155	02-Jan-90
9	162	31-Dec-85	4	105	20-Sep-90	5	136	12-Feb-90
9	163	09-Oct-85	3	125	26-Feb-92	5	148	08-Mar-90
9	175	05-Dec-85	6	142	19-Jul-89	5	136	26-Aug-90
9	160	17-Aug-86	4	129	31-Mar-91	11	162	11-Feb-84
9	170	06-Aug-86	4	125	18-Jul-91	11	160	11-Aug-84
10	184	03-Oct-84	3	135	04-Mar-92	9	160	16-Apr-86
10	180	10-Nov-84	3	140	15-Jan-92	9	175	17-May-86
10	183	22-Oct-84	3	135	20-Apr-92	9	173	04-Mar-86
11	167	01-Jul-84	3	122	10-Mar-92	9	172	08-Apr-86
11	187	06-Sep-83	3	133	03-Sep-91	9	170	27-Feb-86
11	185	25-Sep-83	3	130	30-Aug-92	9	170	18-Aug-86
8	164	02-Jun-87	10	171	27-Jan-85	9	156	14-Apr-86
8	172	07-Nov-86	10	184	19-Sep-84	9	169	12-Jul-86
8	172	19-Mar-87	10	163	09-Jul-85	9	178	03-Dec-85
8	173	22-Apr-87	10	179	25-Feb-85	9	168	08-Jun-86
8	161	11-Mar-87	10	198	25-Jan-85	9	162	21-May-86
8	159	08-Oct-86	10	176	28-Oct-84	9	180	27-Sep-85
8	177	16-Oct-86	6	140	16-Dec-88	7	158	05-Dec-87
8	161	14-Mar-87	5	131	14-Sep-89	7	152	05-Apr-88
8	160	15-Jan-87	5	141	28-Jun-90	8	165	24-Oct-86
7	137	15-Jun-88	5	130	06-Apr-90	8	170	23-Oct-86
7	142	05-Aug-88	5	140	19-Feb-90	8	170	02-Mar-87
7	139	20-Apr-88	5	137	10-Sep-89	10	173	07-Feb-85
7	145	15-May-88	5	135	21-Sep-89	10	179	26-Jul-85
7	146	18-Aug-88	5	141	04-Apr-90	10	157	24-Mar-85
7	155	01-Jul-87	5	144	10-Jan-90	10	166	02-Apr-85
11	180	02-Sep-84	6	153	05-Jun-89	6	146	03-Jul-89
11	175	21-Sep-83	6	144	10-Mar-89	6	140	03-Apr-89
7	145	06-Aug-88	6	149	19-Mar-89	6	140	15-Feb-89
7	150	15-Apr-88	6	160	20-Mar-89	6	145	07-Jan-89
7	147	18-Aug-88	6	146	27-Nov-88	6	150	18-Jan-89
7	160	24-May-88	6	145	05-Jun-89	4	127	19-May-91
7	152	01-Mar-88	6	140	25-Dec-88	4	130	07-Jan-91
4	138	15-Dec-90	4	134	13-May-91	4	134	14-Jun-91
4	131	20-Nov-90	5	136	27-Jul-90	4	133	07-Apr-91
6	129	18-Aug-89	6	146	11-Jun-89	7	154	04-Jun-88