

In-Shell Egg Heating Times in a 80°C Water Bath Using Circumference

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cm	Heating Time to Core Temperature							
	60°C	61°C	62°C	63°C	64°C	65°C	66°C	67°C
5.0	2:00	2:03	2:07	2:11	2:15	2:19	2:24	2:29
5.5	2:20	2:24	2:28	2:33	2:38	2:43	2:48	2:54
6.0	2:42	2:47	2:51	2:56	3:02	3:08	3:14	3:20
6.5	3:05	3:10	3:16	3:22	3:28	3:34	3:41	3:49
7.0	3:30	3:36	3:42	3:48	3:55	4:03	4:10	4:19
7.5	3:56	4:03	4:10	4:17	4:24	4:33	4:41	4:51
8.0	4:24	4:31	4:39	4:47	4:55	5:04	5:14	5:25
8.5	4:53	5:01	5:10	5:18	5:28	5:38	5:49	6:00
9.0	5:24	5:33	5:42	5:52	6:02	6:13	6:25	6:38
9.5	5:56	6:06	6:16	6:27	6:38	6:50	7:03	7:17
10.0	6:30	6:40	6:51	7:03	7:15	7:29	7:43	7:58
10.5	7:05	7:16	7:28	7:41	7:55	8:09	8:24	8:41
11.0	7:41	7:54	8:07	8:21	8:35	8:51	9:08	9:26
11.5	8:20	8:33	8:47	9:02	9:18	9:35	9:53	10:12
12.0	8:59	9:14	9:29	9:45	10:02	10:20	10:40	11:10
12.5	9:40	9:56	10:12	10:30	10:48	11:08	11:28	11:51
13.0	10:23	10:40	10:57	11:16	11:35	11:56	12:19	12:43
13.5	11:07	11:25	11:44	12:04	12:25	12:47	13:11	13:36
14.0	11:53	12:12	12:32	12:53	13:16	13:39	14:05	14:32
14.5	12:38	12:58	13:20	13:42	14:06	14:31	14:58	15:27
15.0	13:29	13:50	14:13	14:37	15:02	15:29	15:58	16:29
15.5	14:19	14:42	15:06	15:31	15:58	16:27	16:57	17:30
16.0	15:10	15:35	16:00	16:27	16:56	17:26	17:58	18:33
16.5	16:04	16:29	16:56	17:25	17:55	18:27	19:01	19:38
17.0	16:58	17:25	17:54	18:24	18:56	19:30	20:06	20:45
17.5	17:54	18:23	18:53	19:25	19:58	20:34	21:12	21:53
18.0	18:52	19:22	19:54	20:27	21:02	21:40	22:20	23:03
18.5	19:51	20:23	20:56	21:31	22:08	22:48	23:30	24:16
19.0	20:52	21:25	22:00	22:36	23:16	23:57	24:41	25:29
19.5	21:54	22:29	23:05	23:44	24:25	25:09	25:55	26:45
20.0	22:58	23:34	24:12	24:53	25:36	26:21	27:10	28:03
20.5	24:03	24:41	25:21	26:03	26:48	27:36	28:27	29:22
21.0	25:09	25:49	26:31	27:15	28:02	28:52	29:46	30:43
21.5	26:17	26:59	27:43	28:29	29:18	30:10	31:06	32:06
22.0	27:27	28:11	28:56	29:45	30:36	31:30	32:29	33:31
22.5	28:38	29:23	30:11	31:02	31:55	32:52	33:53	34:58
23.0	29:51	30:38	31:28	32:20	33:16	34:15	35:18	36:26
23.5	31:05	31:54	32:46	33:40	34:38	35:40	36:46	37:57
24.0	32:22	33:13	34:07	35:04	36:05	37:09	38:18	39:32
24.5	33:39	34:32	35:29	36:28	37:31	38:38	39:49	41:06
25.0	34:58	35:53	36:51	37:53	38:58	40:08	41:22	42:42

TABLE 1. Heating time to a desired core temperature in a 80°C water bath. The circumference is measured in centimeters around the skinnier part of the egg. I computed the times using a thermal diffusivity of $1.85 \times 10^{-7} \text{ m}^2/\text{s}$, a $\beta = 1.8$, and a surface heat transfer coefficient of $200 \text{ W/m}^2\text{-K}$.