Mass	Time Interval Between Points (in years)				
($M_\odot$)	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6
15	1.010 (7)	2.270 (5)	⟵ 7.55 (4) ⟶		
9	2.144 (7)	6.053 (5)	9.113 (4)	1.477 (5)	6.552(4)
5	6.547 (7)	2.173 (6)	1.372 (6)	7.532 (5)	4.857 (5)
3	2.212 (8)	1.042 (7)	1.033 (7)	4.505 (6)	4.238 (6)
2.25	4.802 (8)	1.647 (7)	3.696 (7)	1.310 (7)	3.829 (7)
1.5	1.553 (9)	8.10 (7)	3.490 (8)	1.049 (8)	≥2 (8)
1.25	2.803 (9)	1.824 (8)	1.045 (9)	1.463 (8)	≥4 (8)
1.0	7 (9)	2 (9)	1.20 (9)	1.57 (9)	≥1 (9)

Mass	Time Interval Between Points (in years)			
($M_\odot$)	6 – 7	7 – 8	8 – 9	9 – 10
15	7.17 (5)	6.20 (5)	1.9 (5)	3.5 (4)
9	4.90 (5)	9.50 (4)	3.28 (6)	1.55 (5)
5	6.05 (6)	1.02 (6)	9.00 (6)	9.30 (5)
3	2.51 (7)	4.08 (7)		6.00 (6)

Table 13.1 The Time Intervals Between Points in Fig. 13.1, Measured in Years (powers of 10 are given in parentheses). (Data from Iben, *Annu. Rev. Astron. Astrophys.*, *5*, 571, 1967.)

the theoretical ZAMS, with the present-day Sun located between points 1 and 2 on the 1 $M_\odot$ track.[4]

Standard solar models were discussed in some detail in Section 11.1, with Figs. 11.3 – 11.10 showing the internal structure of one such model. In particular, Fig. 11.3 illustrates the partial depletion of hydrogen in the core, together with the accompanying increase in the amount of helium. The internal structure of a 1 $M_\odot$ star is also shown in Fig. 13.2, approximately 4.3 billion years after reaching the ZAMS (the location of the model is between points 1 and 2 in Fig. 13.1). Along with radius, density, temperature, and luminosity, the figure illustrates the mass fractions of the species $^1_1$H, $^3_2$He, $^{12}_6$C, $^{14}_7$N, as functions of interior mass. As the star's evolution on the main sequence continues, eventually the hydrogen at its center will be completely depleted. Such a situation is illustrated in Fig. 13.3 for a 1 $M_\odot$ star 9.2 billion years after arriving on the ZAMS; this model corresponds to point 3 in Fig. 13.1.

[4]More recent calculations of evolutionary tracks include significant refinements in input physics, but the results of these early models remain essentially correct and serve to illustrate many of the important features of stellar evolution. For examples of newer results, the interested reader is directed to the extensive grid of models published in a series of papers by Schaerer et al. (e.g., *Astron. Astrophys. Suppl.*, *102*, 339, 1993).