What makes a good mentor? Naturejobs often revisits this complex query. On page 791 of this issue, Nature presents an in-depth guide for mentors and mentees based on testimonials from the mentees who nominated their mentors for a Nature-sponsored award last year. Although anecdotal, the observations and experiences provide ample lessons for fledgling scientists and the scholars who guide them.

The best mentors are lifelong, leaving their doors open, virtual or otherwise, throughout their careers. They’re generous with their time and they don’t just provide guidance for a project, they offer sage advice about potential career paths. They find fresh ways to present the same techniques and principles. They deftly find a project that suits the mentee, while also investigating why a student might lack passion for their work.

Great mentors have a sympathetic ear. They appreciate that problems can arise as students try to balance family life and research. They know how to inspire discouraged students. Mentors should be unselfish, surrendering their ideas, no strings attached, so that students feel like actual collaborators. Mentors should guide their students but allow them enough independence to devise their own theories. And they reward successes with celebrations — whether a lunch out, a barbecue or a graduation-day cocktail party. The best mentors teach how to evaluate published work, how to write and revise journal papers, and how to ask fellow scientists probing questions about their research. They embrace networking, introducing students to top scientists with an eye towards their career paths.

Taken together, these traits are quite a tall order. Is such a ‘super-mentor’ out there, a selfless soul who is an expert teacher, life coach and networker-extraordinaire all wrapped into one? It’s an élite group, no doubt. But if scientific results are only as good as the scientists who produce them, then becoming a super-mentor is as worthy an aspiration as, say, curing cancer, understanding an ecosystem or identifying the stuff that makes up the Universe.

Gene Russo, acting editor of Naturejobs