1: Introduction to Geology (Exercises)

The following are suggested answers to the exercises embedded in the various chapters of Physical Geology. The answers are in *italics*. (Answers to the chapter-end questions are provided in Appendix 2.)

Q1.1 Find a piece of granite

*Responses will vary, but your sample should look something like the one shown below. Granitic rocks are hard and strong and difficult to break. They are dominated by feldspar (this one has both white plagioclase and pink potassium feldspar), but almost all have some quartz (which looks glassy) and a few per cent of dark minerals, like the black amphibole in this one.*

![An example of a granitic rock](SE)
Q1.2 Plate motion during your lifetime

It depends where you live of course, but if you live anywhere in Canada and anywhere in the US east of the San Andreas fault, then you’re on the North America Plate, and that is moving towards the west at 2 to 2.5 cm/year. So if you’re around 20 years old, that plate has moved between 40 and 50 cm to the west in your lifetime.

Q1.3 Using geological time notation

2.75 ka is 2,750 years, 0.93 Ga is 930,000,000 years or 930 million years, 14.2 Ma is 14,200,000 years or 14.2 million years.

Q1.4 Take a trip through geological time

1) The oxygenation of the atmosphere started at around 2.5 Ga (2500 Ma). It was a catastrophe for many organisms because they could not survive the strong oxidizing effects of free oxygen. 2) We don’t really know the answer to this, but it’s not very long if you include insects, and there is evidence of insect damage to some of the earliest plants. 3) Plants on land allowed for animals on land, so without land plants, we wouldn’t be here.