

CHAPTER OVERVIEW

3: Units, Measurements, and Conversions

Chapter 3

Units, Measurement, and Conversions

A coffee maker's instructions tell you to fill the coffeepot with 4 cups of water and use 3 scoops of coffee. When you follow these instructions, you are *measuring*. When you visit a doctor's office, a nurse checks your temperature, height, weight, and perhaps blood pressure (Figure 3.1); the nurse is also measuring. Chemists measure the properties of matter using a variety of devices or measuring tools, many of which are similar to those used in everyday life. Rulers are used to measure length, balances (scales) are used to measure mass (weight), and graduated cylinders or pipettes are used to measure volume. Measurements made using these devices are expressed as quantities. A **quantity** is an amount of something and consists of a **number** and a **unit**. To understand chemistry, we need a clear understanding of the units chemists work with and the rules they follow for expressing numbers.



Figure 3.1: Measuring Blood Pressure. A nurse or a doctor measuring a patient's blood pressure is taking a measurement. (GNU Free Documentation License; Pia von Lützau via Wikipedia).

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