Glossary

accuracy the degree to which a measured value agrees with correct value for that measurement

approximation an estimated value based on prior experience and reasoning

classical physics physics that was developed from the Renaissance to the end of the 19th century

conversion factor a ratio expressing how many of one unit are equal to another unit

derived units units that can be calculated using algebraic combinations of the fundamental units

English units system of measurement used in the United States; includes units of measurement such as feet, gallons, and pounds

fundamental units units that can only be expressed relative to the procedure used to measure them

kilogram the SI unit for mass, abbreviated (kg)

law a description, using concise language or a mathematical formula, a generalized pattern in nature that is supported by scientific evidence and repeated experiments

meter the SI unit for length, abbreviated (m)

method of adding percents the percent uncertainty in a quantity calculated by multiplication or division is the sum of the percent uncertainties in the items used to make the calculation

metric system a system in which values can be calculated in factors of 10

model representation of something that is often too difficult (or impossible) to display directly

modern physics the study of relativity, quantum mechanics, or both

order of magnitude refers to the size of a quantity as it relates to a power of 10

percent uncertainty the ratio of the uncertainty of a measurement to the measured value, expressed as a percentage

physical quantity a characteristic or property of an object that can be measured or calculated from other measurements

physics the science concerned with describing the interactions of energy, matter, space, and time; it is especially interested in what fundamental mechanisms underlie every phenomenon

precision the degree to which repeated measurements agree with each other

quantum mechanics the study of objects smaller than can be seen with a microscope

relativity the study of objects moving at speeds greater than about 1% of the speed of light, or of objects being affected by a strong gravitational field

scientific method a method that typically begins with an observation and question that the scientist will research; next, the scientist typically performs some research about the topic and then devises a hypothesis; then, the scientist will test the hypothesis by performing an experiment; finally, the scientist analyzes the results of the experiment and draws a conclusion

second the SI unit for time, abbreviated (s)

SI units the international system of units that scientists in most countries have agreed to use; includes units such as meters, liters, and grams

significant figures express the precision of a measuring tool used to measure a value

theory an explanation for patterns in nature that is supported by scientific evidence and verified multiple times by various groups of researchers

uncertainty a quantitative measure of how much your measured values deviate from a standard or expected value

units a standard used for expressing and comparing measurements