

# PLATO Course ACT Science Reasoning

## Course Overview

The development of PLATO Course ACT Science Reasoning Preparation aligns Plato Courseware with the strands and topics assessed on the 2014 PLATO Course ACT Science Reasoning Test. Each unit aligns with one or more strands within the 2014 PLATO Course ACT Science Reasoning Test and the modules within each unit target the essential concepts of the Common Core State Standards as assessed on the PLATO Course ACT Test for Science Reasoning. This course focuses on the study of different writing strategies. In this course, you will find a variety of lessons and activities to improve your knowledge of these strategies.

## Course Goals

By the end of this course, you will:

- Learn to describe how sexual reproduction contributes to genetic diversity.
- Identify parts of a cell and their functions.
- Demonstrate knowledge of the biology, diversity, evolution, and importance of Kingdom Fungi.
- Study the organization of an animal body.
- Understand how energy flows through an ecosystem and be aware of major global ecological problems.
- Explore the models, types, and states of matter.
- Learn mole calculation, percent composition, and understand and measure matter.
- Find out about the composition and formation of earth.
- Study continental drift and plate tectonics, and how earth changes over time.
- Understand the water cycle and properties of water.
- Explore the different layers of atmosphere and comprehend how pollution may be changing the atmosphere.
- Analyze earth's weather and the effects of weather.
- Explore the solar system and gain a better understanding of astronomy.
- Learn strategies to improve and expand your science vocabulary.
- Read pie charts and line graphs.
- Learn and understand the information in science texts and visual aids.
- Study the relationship between bar graphs and words, and flowcharts and text.
- Identify the kinds of data in a data collection process.
- Understand how to use tables, pictographs, line graphs, bar graphs, pie charts, and histograms to make decisions.
- Learn to read complex histograms, complex tables, and complex line graphs.

- Learn how to construct line graphs, pie charts, bar graphs, and histograms.
- Study how to use the best graph or chart to display data.
- Interpret scatter diagrams and histograms.

## General Skills

To participate in this course, you should be able to do the following:

- Complete basic operations with word processing software, such as Microsoft Word or Google Docs.
- Complete basic operations with presentation software, such as Microsoft PowerPoint or Google Docs presentation.
- Perform online research using various search engines and library databases.
- Communicate through email.

*For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.*

## Course Materials

- notebook
- pencils or ink pens
- computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft PowerPoint or equivalent

## Course Structure

### Unit 1: Biology

#### Summary

Unit 1 focuses on how human curiosity is channeled by the scientific method into a purposeful inquiry about living things. In this unit, you will learn how sexual reproduction contributes to genetic diversity. Additionally, you will study parts of a cell and their functions. Through this unit, you will demonstrate knowledge of the biology, diversity, evolution, and importance of the kingdom Fungi. You will also learn to describe the organization of an animal body as represented by a mammal. Through the activities in this unit, you will describe how energy flows through an ecosystem. In the latter part of the unit, you will discuss the major global ecological problems that face humanity today.

### Unit 2: Chemistry and Physical Science

#### Summary

Unit 2 starts with describing the experimental basis for the atom and identifying the parts of the atom. You will then learn to identify the different types of matter. This unit also teaches you to calculate representative particles, mass, volume, and moles from the given data. Additionally, you will learn to calculate percent composition. Through the activities in this unit, you will learn about matter, their characteristics and the factors that affect matter. You will also understand the relationship between mass volume and density. Additionally, you will learn to measure matter using appropriate units. The latter part of the unit talks about energy, where you will define energy and learn about how it travels. Through the activities in this unit, you will learn about the many sources of energy and the ways in which energy can be saved.

### Unit 3: Earth Science

#### Summary

Unit 3 focuses on the composition of earth. In this unit, you will learn about the formation of the earth, planets, solar system, and the beginning of life on the earth. You will also learn about the phenomena of continental drift, plate tectonics, the evidence of plate tectonics, and how earth changes overtime. Additionally, you will learn about the water cycle and see how water moves around the oceans through tides, waves, and currents. Further, the unit explores the atmosphere, starting with the importance of the atmosphere. You will then learn about the different layers of the atmosphere, and how these layers allow enough sunlight to reach the earth's surface, so that living things can survive. You will also understand how the difference in temperature can create wind, and how pollution caused by humans maybe changing the atmosphere. The unit also explores the reasons

that Earth has weather, how weather works, and the effects of weather. Next, you will learn to read a weather map and predict the weather. In addition to this, you will learn about the solar system, the planets, and the other important objects in the solar system. You will also learn how scientists study the solar system. Finally, you will learn about the space. You will be able to classify stars and understand how they group together to form galaxies and the universe. Along with this, you will be able to understand astronomy better and its affects on your everyday life.

## Unit 4: Reading Science, Charting, and Graphing

### Summary

Unit 4 starts with focusing on how you can use rules to improve your science vocabulary. You will learn to read a pie chart and use it to represent words. You will also understand the relationship between line graphs and text, and between bar graphs and words. Through the activities in this unit, you will learn to use a reading strategy to understand the information presented in science texts, as well as combine information from science texts and visual aids. You will study how to find information from complex tables and also learn to identify the kinds of data in a data collection process. The unit will also teach you to find the most likely causes of a problem or an effect. You will study the parts of flowcharts, graphs and charts and the relationship between flowcharts and text. You will study different kinds of charts and population, sampling, and bias. Through this unit, you will learn to choose data collection tools to answer questions about quality. Through the lessons in the unit you will learn to use tables, pictographs, line graphs, bar graphs, pie charts, and histograms to make workplace and real-life decisions. You will learn to collect information from both text and a histogram, find information when more than one table is available, and analyze and interpret complex flowcharts. You will learn to construct line graphs, bar graphs, histograms, and use a data set to construct a pie chart. The lessons in the unit will also teach you to use the best graph or chart to display data and also teach you the four different kinds of charts that you can use as quality tools. In the latter part of the unit, you will study the interpretation of scatter diagrams. And finally, you will learn to interpret histograms so that they can be helpful in making decisions in the workplace.