



# Stanford Achievement Test 10

*Matched to*

## SkillsTutor and SkillsBank Science II

### Advanced 2

#### **Life**

Demonstrate an understanding of characteristics of organisms, life cycles of organisms and their environment, health, resources, and technological challenges.

#### **Make an inference by comparing characteristics of organisms.**

Biology: Lesson 1 – Cell Structures and Functions

#### **Use models and keys to scientifically identify organisms.**

Biology: Lesson 4 – Classification and Diversity

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

#### **Use models to identify cell types.**

Biology: Lesson 1 – Cell Structures and Functions

Biology: Lesson 9 – Microbes and Diseases

#### **Compare changes in plant parts using given information.**

Biology: Lesson 5 – Plant Life

#### **Determine the relevance of changes in mammal body functions.**

Biology: Lesson 6 – Animal Life

#### **Sequence events in cellular events.**

Biology: Lesson 2 – Cellular Processes

#### **Evaluate given adaptations for their functions in organisms.**

Biology: Lesson 4 – Classification and Diversity

#### **Identify commonalities among groups of organisms.**

Biology: Lesson 4 – Classification and Diversity

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 9 – Microbes and Diseases

#### **Physical**

Demonstrate an understanding of properties of objects and materials, position and motion of objects, light, heat, electricity, magnetism, and uses of physical concepts in technological designs.

#### **Classify substances in groups by common characteristics.**

Chemistry: Lesson 1 – Matter

Chemistry: Lesson 6 – Nonmetals

Chemistry: Lesson 7 – Metals

**Identify basic parts of chemical reactions.**

Chemistry: Lesson 9 – Reactions

**Recognize common compounds.**

Chemistry: Lesson 3 – Molecules and Compounds

**Analyze graphs of motion of objects.**

Physics: Lesson 1 – Motion

**Analyze patterns of change in substances.**

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

**Apply an understanding of heat flow.**

Chemistry: Lesson 8 – Energy

Physics: Lesson 5 – Thermal Energy

**Compare characteristics of light and sound.**

Physics: Lesson 6 – Waves I

Physics: Lesson 7 – Waves II

Physics: Lesson 8 – Optics

**Identify the basic function of a given electrical circuit.**

Physics: Lesson 9 – Electricity

**Identify the cause in the change of the behavior of light.**

Physics: Lesson 7 – Waves II

Physics: Lesson 8 – Optics

**Make a prediction about motion of simple machines.**

Physics: Lesson 1 – Motion

**Nature of Science**

Demonstrate an understanding of the processes used in scientific investigations, including the use of basic measurement tools, making observations, analyzing data, evaluating scientific experiments, and recognizing the limits and advantages of science in society.

**Identify constants in an experiment.**

Physics: Lesson 1 – Motion

Physics: Lesson 2 – Force

Physics: Lesson 4 – Work and Mechanical Energy

**Recognize logical hypotheses.**

Biology: Lesson 4 – Classification and Diversity

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 8 – Energy

**Identify basic properties of matter mathematically.**

Chemistry: Lesson 1 – Matter

Chemistry: Lesson 2 – Measurements in Chemistry

Chemistry: Lesson 3 – Molecules and Compounds

## **Process**

### **Constancy**

Use observations, data, and basic understanding to recognize and analyze patterns in the natural and technological worlds.

Biology: Lesson 4 – Classification and Diversity

Physics: Lesson 6 – Waves I

Physics: Lesson 7 – Waves II

### **Models**

Use and analyze evidence, science experiments, and models of the processes in the natural and technological worlds, including historical evidence and historically significant models.

Biology: Lesson 1 – Cell Structures and Functions

Biology: Lesson 2 – Cellular Processes

Biology: Lesson 3 – Genetics

Biology: Lesson 4 – Classification and Diversity

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

Biology: Lesson 9 – Microbes and Diseases

Chemistry: Lesson 1 – Matter

Chemistry: Lesson 3 – Molecules and Compounds

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

Chemistry: Lesson 6 – Nonmetals

Chemistry: Lesson 7 – Metals

Chemistry: Lesson 8 – Energy

Chemistry: Lesson 9 – Reactions

Physics: Lesson 1 – Motion

Physics: Lesson 2 – Force

Physics: Lesson 3 – Momentum

Physics: Lesson 4 – Work and Mechanical Energy

Physics: Lesson 5 – Thermal Energy

Physics: Lesson 6 – Waves I

Physics: Lesson 7 – Waves II

Physics: Lesson 8 – Optics

Physics: Lesson 9 – Electricity

### **Form and Function**

Use observations, data, and basic understanding to compare form and function of objects and organisms in the natural and technological worlds.

Biology: Lesson 1 – Cell Structures and Functions

Biology: Lesson 2 – Cellular Processes

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

Biology: Lesson 9 – Microbes and Diseases

Chemistry: Lesson 3 – Molecules and Compounds

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

Chemistry: Lesson 6 – Nonmetals

Chemistry: Lesson 7 – Metals

Chemistry: Lesson 8 – Energy

Chemistry: Lesson 9 – Reactions

Physics: Lesson 4 – Work and Mechanical Energy

Physics: Lesson 8 – Optics

Physics: Lesson 9 – Electricity

# TASK 1

## Life

Demonstrate an understanding of characteristics of organisms, life cycles of organisms and their environment, health, resources, and technological challenges.

### **Identify common characteristics of major groups of organisms.**

Biology: Lesson 4 – Classification and Diversity

Biology: Lesson 6 – Animal Life

Biology: Lesson 9 – Microbes and Diseases

### **Infer causes of human-induced changes in an ecosystem.**

Biology: Lesson 4 – Classification and Diversity

### **Infer the chromosome number of an organism from given information.**

Biology: Lesson 3 – Genetics

### **Interpret information about photosynthesis.**

Biology: Lesson 5 – Plant Life

### **Analyze information about causes of human diseases.**

Biology: Lesson 9 – Microbes and Diseases

### **Infer the type of cell process required for a given function.**

Biology: Lesson 2 – Cellular Processes

### **Use observations to infer the relationship between form and function of an organism.**

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

## Physical

Demonstrate an understanding of properties of objects and materials, position and motion of objects, light, heat, electricity, magnetism, and uses of physical concepts in technological designs.

### **Evaluate possible models for a given characteristic of matter.**

Chemistry: Lesson 1 – Matter

### **Interpret information from the periodic table.**

Chemistry: Lesson 1 – Matter

### **Analyze information of atomic structures.**

Chemistry: Lesson 1 – Matter

### **Infer the behavior of substances based on given constants.**

Chemistry: Lesson 3 – Molecules and Compounds

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

**Predict the cause of change in motion.**

Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum

**Apply an understanding of the role of gravity on geological events.**

Physics: Lesson 2 – Force

**Complete basic calculations of physical changes.**

Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy

**Identify basic parts of an atom.**

Chemistry: Lesson 1 – Matter

**Identify the basic structure of atoms.**

Chemistry: Lesson 1 – Matter

**Nature of Science**

Demonstrate an understanding of the processes used in scientific investigations, including the use of basic measurement tools, making observations, analyzing data, evaluating scientific experiments, and recognizing the limits and advantages of science in society.

**Analyze models of events in the environment.**

Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

**Interpret data of chemical changes.**

Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 9 – Reactions

## **Process**

### **Models**

Use and analyze evidence, science experiments, and models of the processes in the natural and technological worlds, including historical evidence and historically significant models.

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 3 – Genetics  
Biology: Lesson 4 – Classification and Diversity  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 1 – Matter  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

### **Constancy**

Use observations, data, and basic understanding to recognize and analyze patterns in the natural and technological worlds.

Biology: Lesson 4 – Classification and Diversity  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II

### **Form and Function**

Use observations, data, and basic understanding to compare form and function of objects and organisms in the natural and technological worlds.

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

## TASK 2

### Life

Demonstrate an understanding of characteristics of organisms, life cycles of organisms and their environment, health, resources, and technological challenges.

#### **Predict physical changes using models of cell structures.**

Biology: Lesson 1 – Cell Structures and Functions

#### **Apply an understanding of the complexity of the body systems of organisms.**

Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II

#### **Recognize abiotic factors that change dispersal of organisms.**

Biology: Lesson 4 – Classification and Diversity  
Biology: Lesson 5 – Plant Life

#### **Recognize the genetic relationship between generations.**

Biology: Lesson 3 – Genetics

#### **Apply an understanding of the genetic relationship between generations.**

Biology: Lesson 3 – Genetics

#### **Apply an understanding of the functions of body systems.**

Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II

#### **Recognize the relationship of forms and functions of organisms' structures.**

Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life

#### **Apply an understanding of cell organelles' form and function.**

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 9 – Microbes and Diseases

### Physical

Demonstrate an understanding of properties of objects and materials, position and motion of objects, light, heat, electricity, magnetism, and uses of physical concepts in technological designs.

#### **Use models to identify patterns of chemical bonding.**

Chemistry: Lesson 3 – Molecules and Compounds

#### **Apply an understanding of the effects of forces on objects.**

Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum

#### **Use models to identify patterns within chemical compounds.**

Chemistry: Lesson 3 – Molecules and Compounds

**Make an inference based on an understanding of molecular behavior.**

Chemistry: Lesson 3 – Molecules and Compounds

**Apply an understanding of the physical properties of matter.**

Chemistry: Lesson 1 – Matter

**Make an inference based on an understanding of energy and states of matter.**

Physics: Lesson 4 – Work and Mechanical Energy

Physics: Lesson 5 – Thermal Energy

Chemistry: Lesson 8 – Energy

Chemistry: Lesson 9 – Reactions

**Understand the physical properties of matter in different forms.**

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

**Apply an understanding of different forms of energy.**

Physics: Lesson 4 – Work and Mechanical Energy

Physics: Lesson 5 – Thermal Energy

Chemistry: Lesson 8 – Energy

Chemistry: Lesson 9 – Reactions

**Identify the effects of forces on objects.**

Physics: Lesson 2 – Force

Physics: Lesson 3 – Momentum

Physics: Lesson 4 – Work and Mechanical Energy

**Apply an understanding of wave motion.**

Physics: Lesson 6 – Waves I

Physics: Lesson 7 – Waves II

**Identify the building blocks of matter.**

Chemistry: Lesson 1 – Matter

## ***Process***

### **Models**

Use and analyze evidence, science experiments, and models of the processes in the natural and technological worlds, including historical evidence and historically significant models.

Biology: Lesson 1 – Cell Structures and Functions

Biology: Lesson 2 – Cellular Processes

Biology: Lesson 3 – Genetics

Biology: Lesson 4 – Classification and Diversity

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

Biology: Lesson 9 – Microbes and Diseases

Chemistry: Lesson 1 – Matter

Chemistry: Lesson 3 – Molecules and Compounds

Chemistry: Lesson 4 – States of Matter I

Chemistry: Lesson 5 – States of Matter II

Chemistry: Lesson 6 – Nonmetals

Chemistry: Lesson 7 – Metals

Chemistry: Lesson 8 – Energy

Chemistry: Lesson 9 – Reactions  
Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

## **Constancy**

Use observations, data, and basic understanding to recognize and analyze patterns in the natural and technological worlds.

Biology: Lesson 4 – Classification and Diversity  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II

## **Form and Function**

Use observations, data, and basic understanding to compare form and function of objects and organisms in the natural and technological worlds.

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

## TASK 3

### Life

Demonstrate an understanding of characteristics of organisms, life cycles of organisms and their environment, health, resources, and technological challenges.

#### **Identify the role of an organism in an ecosystem.**

Biology: Lesson 1 – Cell Structures and Functions

Biology: Lesson 9 – Microbes and Diseases

#### **Interpret information about body systems.**

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

#### **Make a prediction based on an understanding of constancy in DNA.**

Biology: Lesson 2 – Cellular Processes

Biology: Lesson 3 – Genetics

#### **Predict the results of a simple genetic cross.**

Biology: Lesson 3 – Genetics

#### **Apply an understanding of functions of body systems.**

Biology: Lesson 5 – Plant Life

Biology: Lesson 6 – Animal Life

Biology: Lesson 7 – Humans I

Biology: Lesson 8 – Humans II

#### **Apply an understanding of how species survive.**

Biology: Lesson 4 – Classification and Diversity

#### **Apply an understanding of organisms' changes to environmental pressures.**

Biology: Lesson 4 – Classification and Diversity

### Physical

Demonstrate an understanding of properties of objects and materials, position and motion of objects, light, heat, electricity, magnetism, and uses of physical concepts in technological designs.

#### **Evaluate a model of methods of transmission of sound.**

Physics: Lesson 6 – Waves I

#### **Identify chemical formulas.**

Chemistry: Lesson 3 – Molecules and Compounds

#### **Use models to identify electrical circuit types.**

Physics: Lesson 9 – Electricity

#### **Use the periodic table to determine electron configuration.**

Chemistry: Lesson 1 – Matter

Chemistry: Lesson 2 – Measurements in Chemistry

**Apply an understanding of characteristics of matter.**

Chemistry: Lesson 1 – Matter  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals

**Apply an understanding of the application of force by objects.**

Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy

**Apply an understanding of the electromagnetic spectrum.**

Physics: Lesson 7 – Waves II

**Interpret information about mixtures.**

Chemistry: Lesson 3 – Molecules and Compounds

**Determine the controlling factor in rates of chemical changes.**

Chemistry: Lesson 9 – Reactions

**Identify basic atomic particles.**

Chemistry: Lesson 1 – Matter  
Chemistry: Lesson 2 – Measurements in Chemistry

**Nature of Science**

Demonstrate an understanding of the processes used in scientific investigations, including the use of basic measurement tools, making observations, analyzing data, evaluating scientific experiments, and recognizing the limits and advantages of science in society.

**Connect a scientific discovery with the technology it led to.**

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 3 – Genetics  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 1 – Matter  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

## **Process**

### **Models**

Use and analyze evidence, science experiments, and models of the processes in the natural and technological worlds, including historical evidence and historically significant models.

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 3 – Genetics  
Biology: Lesson 4 – Classification and Diversity  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 1 – Matter  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 1 – Motion  
Physics: Lesson 2 – Force  
Physics: Lesson 3 – Momentum  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 5 – Thermal Energy  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity

### **Constancy**

Use observations, data, and basic understanding to recognize and analyze patterns in the natural and technological worlds.

Biology: Lesson 4 – Classification and Diversity  
Physics: Lesson 6 – Waves I  
Physics: Lesson 7 – Waves II

### **Form and Function**

Use observations, data, and basic understanding to compare form and function of objects and organisms in the natural and technological worlds.

Biology: Lesson 1 – Cell Structures and Functions  
Biology: Lesson 2 – Cellular Processes  
Biology: Lesson 5 – Plant Life  
Biology: Lesson 6 – Animal Life  
Biology: Lesson 7 – Humans I  
Biology: Lesson 8 – Humans II  
Biology: Lesson 9 – Microbes and Diseases  
Chemistry: Lesson 3 – Molecules and Compounds  
Chemistry: Lesson 4 – States of Matter I  
Chemistry: Lesson 5 – States of Matter II  
Chemistry: Lesson 6 – Nonmetals  
Chemistry: Lesson 7 – Metals  
Chemistry: Lesson 8 – Energy  
Chemistry: Lesson 9 – Reactions  
Physics: Lesson 4 – Work and Mechanical Energy  
Physics: Lesson 8 – Optics  
Physics: Lesson 9 – Electricity