

**Oak Meadow**

# **Earth Science**

**Assignment Summaries and  
Learning Assessments**





# Grade 7

# Earth Science

Assignment Summaries and  
Learning Assessments



**Oak Meadow**

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# Unit I: Scientific Habits

## Lesson 1

# Observation and Measurement

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Record detailed observations in an outdoor setting.
- List helpful observation tools and explain their purpose.
- Demonstrate how volume can change without altering mass.
- Explain the relationship between volume, mass, and density.
- Lab Investigation:
  - Option 1: Water Clock
  - Option 2: Comparing Volume and Mass
- Optional Activities:
  - Activity A: Human Clock
  - Activity B: Calculating Density
- Complete lesson 1 test.

### Learning Checklist

This learning checklist can be filled out by either you or the adult who is supervising your work. This checklist will help you keep track of how your skills are progressing and what you need to work on. You or your home teacher can also add notes about where you'd like help.

Here is what the different headings mean:

**Developing:** You still need to work on this skill.

**Consistent:** You use this skill correctly most of the time.

**Competent:** You show mastery of this skill.

Please remember that these skills continue to develop over time so you aren't expected to be able to do all of them yet. The main goal is to be aware of which skills you need to focus on.

SKILLS	Developing	Consistent	Competent	Notes
Describe observations in detail				
Record accurate measurements				
Summarize procedure and what it demonstrated				
Demonstrate and explain the relationship between mass, volume, and density				
Use scientific terminology in explanations				

# Lesson 2

## Scientific Method

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Apply the scientific method.
- Identify the difference between correlation and causation.
- Lab Investigation: Celery Experiment
- Complete lesson 2 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Follow the steps of the scientific method				
Identify variables in a controlled experiment				
Record accurate measurements				
Differentiate between correlation and causation				
Use scientific terminology in explanations				

## Lesson 3/4

# Scientific Inquiry: Observation and Measurement

### ASSIGNMENT SUMMARY

- Pose a question to guide a Scientific Inquiry.
- Conduct research and gather evidence to explore the question.
- Make a list of works cited.
- Design your project and discuss your ideas to refine the design.
- Create an original project based on research findings.
- Share the project with others.
- Reflect on project design and learning experience.

# Unit II: Space

## Lesson 5

### Perspective

#### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Draw a diagram showing Earth's spheres.
- Locate significant parallels and meridians on a globe.
- Draw a map projection with significant parallels and meridians.
- Estimate the latitude and longitude of various locations.
- Optional Activity: Explore NASA
- Complete lesson 5 test.

#### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify locations using latitude and longitude				
Locate significant parallels and meridians on a globe				
Differentiate between Earth's atmosphere, lithosphere, hydrosphere, magnetosphere, and biosphere.				



# Lesson 6

## Earth's Movement

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Explain the difference between an equinox and a solstice.
- Explain the difference between the two equinoxes.
- Draw a diagram showing Earth's position relative to the sun at different times of the year.
- Lab Investigation: Earth's Movement
- Optional Activity: Sundial
- Complete lesson 6 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Differentiate between Earth's rotations and revolutions				
Model how Earth's tilt and orbit create seasonal cycles				
Model how Earth's rotation creates sunrise and sunset				
Demonstrate how the seasons differ in the Northern and Southern Hemisphere				

# Lesson 7

## Earth's Moon

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Record changes in the moon over one week.
- Draw a diagram of the moon's phases.
- Model a solar and lunar eclipse.
- Explain how the moon influences Earth's tides.
- Lab Investigation: Moon Moves
- Optional Activities:
  - Activity A: Moon Story
  - Activity B: Moonscape
- Complete lesson 7 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Record changes in the moon's appearance				
Diagram the moon's position relative to Earth during its orbit				
Model the moon's position relative to Earth during its orbit				
Model the difference between a solar and lunar eclipse				
Explain the moon's influence on Earth's tides				

# Lesson 8

## Our Solar System

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Draw a diagram of the sun's layers.
- Draw, model, or make a comparison chart of the planets in the solar system.
- Make up a mnemonic for the order of the planets.
- Research an astronomer.
- Optional Activities:
  - Activity A: Life on Another Planet
  - Activity B: Planet Game
  - Activity C: Star Gazing
- Complete lesson 8 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify the planets in the solar system in order				
Identify the sun's classification				
Define an elliptical orbit				
Explain how gravity affects planetary orbits				

# Lesson 9

## Astronomy

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Write a one-page astronomy report.
- Create a star classification chart or a diagram of a star's life cycle.
- Lab Investigation: Sky Journal
- Optional Activities:
  - Activity A: Visit a Planetarium or Science Museum
  - Activity B: Star Party
- Complete lesson 9 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Find reliable sources and conduct research				
Cite sources				
Organize information in a logical way				
Collect data over four weeks				
Organize data into a table				
Identify patterns in data				

# Lesson 10/11

## Scientific Inquiry: Guiding Questions

### ASSIGNMENT SUMMARY

- Continue to collect data for your sky journal.
- Generate a list of questions related to space.
- Conduct research and gather evidence to explore the question.
- Make a list of works cited.
- Design your project and discuss your ideas to refine the design.
- Create an original project based on research findings.
- Share the project with others.
- Reflect on project design and learning experience.

# Unit III: Earth

## Lesson 12

### Earth's Structure

#### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Draw and describe the layers of Earth.
- Identify minerals used in everyday life.
- Observe and describe rocks, and try to classify them.
- Complete sky journal observations and conclusions.
- Lab Investigation: Sedimentation
- Lab Investigation: Rock Cycle
- Activity: Rock Recognition
- Complete lesson 12 test.

#### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Classify rocks according to observations				
Differentiate between the three types of rock				
Explain the rock cycle				
Identify patterns in data from long-term observations (sky journal)				
Record accurate measurements in lab investigation				
Use scientific terminology to explain observed phenomena				
Explain concepts demonstrated by lab investigation				

# Lesson 13

## Weathering and Fossilization

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Describe different types of fossilization.
- Identify similarities and differences between various types of geological dating methods.
- Research a fossil.
- Find examples of weathering.
- Optional Activities:
  - Activity A: Weathering Poem
  - Activity B: Mud Detective
  - Activity C: Fossil Impressions
  - Activity D: Natural History Museum
- Complete lesson 13 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify different types of fossilization				
Differentiate between carbon dating and radiometric dating				
Identify examples of physical and chemical weathering				
Place geological eras in chronological order				

# Lesson 14

## Erosion

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Look for signs of erosion.
- Show how glaciers are formed and shape the land.
- Write a one-page report on erosion.
- Complete one lab investigation:
  - Option 1 Lab Investigation: Erosion Observations
  - Option 2 Lab Investigation: Soil Observations
  - Option 3 Lab Investigation: River Observations
- Complete lesson 14 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Explain the layers of soil and soil cycle				
Identify evidence of different types of erosion				
Explain how glaciers influence landforms				
Locate relevant, reliable sources				
Organize information into paragraph of related ideas				
Use revising and editing skills to improve the quality of the rough draft				
Proofread final version of report				



# Lesson 15

## Plate Tectonics

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Research earthquake preparedness.
- Draw, describe, and demonstrate different seismic waves.
- Report on one earthquake-related phenomenon.
- Lab Investigation: Seismic Activity
- Optional Activities:
  - Activity A: Quaking Crossword
  - Activity B: Earthquakes in the News
  - Activity C: Creative Writing
- Complete lesson 15 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Demonstrate and explain differences in types of seismic waves				
Identify natural phenomena related to earthquakes				
Model different types of tectonic plate boundaries				
Explain theory of plate tectonics				
Identify elements of earthquake safety				
Differentiate between surface and body waves				
Explain relationship between convective flow and earthquakes				

# Lesson 16

## Mountains and Volcanoes

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Map the prominent mountain ranges of the U.S. or world.
- Draw a graph comparing the elevations of mountains.
- Model, draw, or research phenomena related to mountains or volcanoes.
- Optional Activity: Appalachian Trail
- Complete lesson 16 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Locate and identify prominent mountain ranges				
Create a bar graph with labels				
Describe how different mountains are formed				
Describe the process of a volcanic eruption				
Differentiate between different types of volcanoes				
Explain the warning signs of an imminent volcanic eruption				
Use scientific terminology in descriptions of phenomenon				

# Lesson 17/18

## Scientific Inquiry: Modeling Design and Procedure

### ASSIGNMENT SUMMARY

- Research a natural phenomenon and ways to model it.
- Design your own modeling project and discuss your ideas to refine the design.
- Create a model and record your procedure in detail.
- Share the project with others.
- Reflect on project design and learning experience.

# Unit IV: Meteorology

## Lesson 19

### Atmosphere

#### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Draw a diagram of Earth's atmospheric layers.
- Define prefixes that differentiate the layers.
- Explain the oxygen, carbon, or nitrogen cycle.
- Lab Investigation: Oxygen and Fire
- Optional Activity: Atmosphere Poem
- Complete lesson 19 test.

#### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Draw a diagram using accurate labels and visuals				
Explain difference between Earth's atmospheric layers				
Define prefixes for each atmospheric layer				
Describe oxygen cycle				
Describe carbon cycle				
Describe nitrogen cycle				

# Lesson 20

## Climate

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Research and write about glaciers.
- Optional Activities:
  - Activity A: Tree Rings
  - Activity B: Weather Stories
- Complete lesson 20 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Locate reliable sources for research				
Organize information into paragraphs based on topic				
Accurately explain scientific topic in detail				
Differentiate between weather and climate				
Identify natural factors that affect climate change				
Explain interrelatedness between climate and environment				
Describe climate changes through Earth's history				
Identify how humankind has influenced climate change				

# Lesson 21

## Water Cycle

### ASSIGNMENT SUMMARY

- Complete the reading selection.
- Choose an option for describing the water cycle.
- Lab Investigation: Transpiration
- Lab Investigation: Terrarium
- Complete lesson 21 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify examples of three states of water				
Explain how water changes between states				
Describe and illustrate the water cycle				
Model the water cycle				

# Lesson 22

## Clouds

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Make a field guide of cloud types.
- Explain relative humidity and dew point.
- Choose a cloud assignment.
- Lab Investigation: Dew Point
- Optional Activity: Raindrops
- Complete lesson 22 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Differentiate between cloud types				
Explain how precipitation forms				
Explain the difference between relative humidity and dew point				
Demonstrate dew point				

# Lesson 23

## Wind and Atmospheric Pressure

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Draw diagrams to illustrate concepts related to wind patterns.
- Use the science behind wind patterns in a creative assignment.
- Predict a result based on air pressure.
- Lab Investigation: Homemade Barometer
- Lab Investigation: Expanding Air
- Complete lesson 23 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Define air pressure				
Explain how temperature affects air pressure				
Relate air pressure to wind currents				
Identify causes of offshore and onshore breezes				
Identify causes of valley and mountain breezes				
Use knowledge of air pressure to predict weather				
Diagram concepts related to wind currents and air pressure				



# Lesson 24

## Meteorology

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Annotate and explain a weather map.
- Choose an assignment about meteorology.
- Lab Investigation: Wind Vane
- Lab Investigation: Weather Station
- Complete lesson 24 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Differentiate between cold fronts and warm fronts				
Interpret weather maps				
Collect weather data				
Use weather data to forecast the weather				
Identify patterns in data				
Explain the movement of a jet stream				

# Lesson 25

## Extreme Weather

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Choose an assignment related to extreme weather.
- Complete lesson 25 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Explain how lightning forms				
Define thunder				
Identify characteristics of a blizzard				
Differentiate between a hurricane, typhoon, and cyclone				
Explain the relationship between pollution and thermal inversion				

# Lesson 26/27

## Scientific Inquiry: Controlled Experiment

### ASSIGNMENT SUMMARY

- Design and conduct a controlled experiment.
- Repeat the experiment.
- Draw conclusions from your results.
- Reflect on project design and learning experience.

# Unit V: Environmental Science

## Lesson 28

### Earth's Resources

#### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Identify the costs associated with natural resources.
- Explain how the sun is connected to energy sources.
- List ten household items that run on electricity.
- Make a list of ways to conserve energy.
- Chart how energy gets from its source to the end user.
- Research and write about a renewable energy resource.
- Optional Activity: Conservation Challenge
- Complete lesson 28 test.

#### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Explain the sun's relationship to energy sources				
Identify ways to conserve energy				
Chart how energy moves from natural resource to end user				
Differentiate between renewable and nonrenewable energy sources				
Define and identify natural resources				

# Lesson 29

## Water Sources

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Identify the source of your tap water.
- Research an estuary, marsh, or swamp.
- Lab Investigation: Groundwater Filtration
- Complete lesson 29 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify local water sources				
Model how groundwater is filtered				
Identify where most fresh water is stored				
Differentiate between estuary and wetlands				

# Lesson 30

## Earth's Oceans

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Map the five oceans and the Gulf Stream current.
- Trace a local water source to its final drainage.
- Choose a marine research activity.
- Lab Investigation: Salinity and Density
- Optional Activity: Aquarium Scavenger Hunt
- Complete lesson 30 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify and map Earth's five oceans				
Draw the route of the Gulf Stream current				
Trace a local water source to its drainage				
Identify factors influencing ocean currents				
Label ocean topography				
Explain factors affecting the salinity of water				

# Lesson 31

## Human Population Growth

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Write a five-paragraph essay on the environmental impact of population growth.
- Choose an activity related to population growth.
- Optional Activity: Story of Population Growth
- Complete lesson 31 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify the environmental impact of human population growth				
Explain how exponential population growth works				
List human advancements that influenced population growth				
Show connections between population growth and availability/ scarcity of natural resources				
Define environmental sustainability				

# Lesson 32

## Human Impact on the Environment

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Identify ways to reduce your carbon footprint.
- Draw a diagram showing how pollution contributes to the greenhouse effect.
- Compare conventional and organic farming methods.
- Choose an activity related to pollution.
- Lab Investigation: Acid Rain
- Complete lesson 32 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Identify the relationship between pollution and global climate change				
Identify common sources of water, soil, and air pollution				
Compare conventional and organic farming methods				
List ways to reduce carbon footprint				
Explain cause and effects of acid rain				
Explain cause and effects of ozone depletion				



# Lesson 33

## The Living Earth

### ASSIGNMENT SUMMARY

- Complete the reading selections.
- Research a threatened or endangered species.
- Choose an activity related to the health of the planet.
- Lab Investigation: Biodiversity
- Optional Activity: Ecosystem Model
- Complete lesson 33 test.

### Learning Checklist

SKILLS	Developing	Consistent	Competent	Notes
Differentiate between species, genetic, and ecosystem biodiversity				
Recognize importance of biodiversity for overall health of the planet				
Identify major causes of habitat destruction				
Relate habitat destruction to species loss				
Explain the perspective of Earth as a single living organism				

# Lesson 34/35

## Scientific Inquiry: Scientific Argumentation

### ASSIGNMENT SUMMARY

- Choose a scientific claim to support with scientific evidence and reasoning.
- Construct a scientific argument.
- Share and defend your scientific argument.
- Reflect on project design and learning experience.

# Lesson 36

## Final Essay and Reflection

### ASSIGNMENT SUMMARY

- Write a course reflection.
- Complete an assignment of your choice.