

STUDENT ADVENTURE GUIDE

EARTH SCIENCE
E  **PLORED**
elementary



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Earth Science Explored Elementary: Student Adventure Guide

Journey Homeschool Academy

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HOME SWEET HOME

We study this planet we call home, the earth, because of how special it is. No other planet in the solar system is like it. Psalm 115:16 says, “The heavens are the LORD’s heavens, but the earth he has given to the children of man.” The earth is God’s gift to us to explore, to understand, and to rule wisely.

Recommended Reading

- ❁ *The Goldilocks Zone*, by Drew Sheneman
- ❁ *Just Right: Searching for the Goldilocks Planet*, by Curtis Manley
- ❁ *What’s So Special About Planet Earth?*, by Robert E. Wells
- ❁ *Your Place in the Universe*, by Jason Chin
- ❁ *Scientists Who Changed History*, by DK, p. 46: Copernicus
- ❁ *Scientists: Inspiring Tales of the World’s Brightest Scientific Minds*, by Isabel Thomas; p. 116-117: Copernicus

ACTIVITY Where Is the Habitable Zone?

The habitable zone is the distance from a star at which liquid water could exist on a planet. But where is this zone around our star, the sun? This activity will demonstrate where this zone lies.

SUPPLY LIST

- 🌟 Basketball
- 🌟 Playdough
- 🌟 Two board game tokens
- 🌟 Ruler
- 🌟 Tape measure

INSTRUCTIONS

1. Using the playdough, create three small balls. Two balls should be a little less than $\frac{1}{8}$ inch in diameter. (One will represent Venus; the other will represent Earth.) One ball should be a little less than $\frac{1}{16}$ inch in diameter. (This will represent Mars.)
2. Place the three small playdough planets next to the basketball, which represents the sun. Note how much smaller they are compared to the ball.
3. Place the basketball down at the end of a large yard or long sidewalk.
4. Measure 62 feet away from the basketball. Place playdough Venus there.
5. Walk $19\frac{1}{2}$ feet further from Venus. Place the first game token there.
6. Walk $4\frac{1}{2}$ feet further from the token. Place playdough Earth there.
7. Walk $31\frac{1}{2}$ feet further from Earth. Place the second game token there.
8. Walk $12\frac{1}{2}$ feet further from the token. Place playdough Mars there.

QUESTIONS

The habitable zone starts about 88 million miles from the sun, and it ends about 127 million miles from the sun. Where the habitable zone starts and stops is represented by the two game tokens. Where is playdough Earth compared to the tokens?

Where are Venus and Mars compared to the game tokens?

QUESTION:

What is the distance from a star at which liquid water could exist on a planet?

ANSWER:

The habitable zone

LESSON 1

QUESTION:

What is the system of the sun and everything orbiting around it because of gravity called?

ANSWER:

The solar system

LESSON 1

PSALM 104:1-5 (ESV)

- 1 Bless the Lord, O my soul! O Lord my God, you are very great!
You are clothed with splendor and majesty,
- 2 covering yourself with light as with a garment, stretching out the
heavens like a tent.
- 3 He lays the beams of his chambers on the waters; he makes the
clouds his chariot; he rides on the wings of the wind;
- 4 he makes his messengers winds, his ministers a flaming fire.
- 5 He set the earth on its foundations, so that it should never be
moved.

LESSON 1

PSALM 104:6-9

- 6 You covered it with the deep as with a garment; the waters stood
above the mountains.
- 7 At your rebuke they fled; at the sound of your thunder they took
to flight.
- 8 The mountains rose, the valleys sank down to the place that you
appointed for them.
- 9 You set a boundary that they may not pass, so that they might not
again cover the earth.

LESSON 1

PSALM 104:10-13

- 10 You make springs gush forth in the valleys; they flow between the hills;
- 11 they give drink to every beast of the field; the wild donkeys quench their thirst.
- 12 Beside them the birds of the heavens dwell; they sing among the branches.
- 13 From your lofty abode you water the mountains; the earth is satisfied with the fruit of your work.

LESSON 1

PSALM 104:14-17

- 14 You cause the grass to grow for the livestock and plants for man to cultivate, that he may bring forth food from the earth
- 15 and wine to gladden the heart of man, oil to make his face shine and bread to strengthen man's heart.
- 16 The trees of the Lord are watered abundantly, the cedars of Lebanon that he planted.
- 17 In them the birds build their nests; the stork has her home in the fir trees.

LESSON 1

PSALM 104:18-22

18 The high mountains are for the wild goats; the rocks are a refuge for the rock badgers.

19 He made the moon to mark the seasons; the sun knows its time for setting.

20 You make darkness, and it is night, when all the beasts of the forest creep about.

21 The young lions roar for their prey, seeking their food from God.

22 When the sun rises, they steal away and lie down in their dens.

LESSON 1

PSALM 104:24-27

23 Man goes out to his work and to his labor until the evening.

24 O Lord, how manifold are your works! In wisdom have you made them all; the earth is full of your creatures.

25 Here is the sea, great and wide, which teems with creatures innumerable, living things both small and great.

26 There go the ships, and Leviathan, which you formed to play in it.

27 These all look to you, to give them their food in due season.

LESSON 1

PSALM 104:28-31

28 When you give it to them, they gather it up; when you open your hand, they are filled with good things.

29 When you hide your face, they are dismayed; when you take away their breath, they die and return to their dust.

30 When you send forth your Spirit, they are created, and you renew the face of the ground.

31 May the glory of the Lord endure forever; may the Lord rejoice in his works,

LESSON 1

PSALM 104:32-35

32 who looks on the earth and it trembles, who touches the mountains and they smoke!

33 I will sing to the Lord as long as I live; I will sing praise to my God while I have being.

34 May my meditation be pleasing to him, for I rejoice in the Lord.

35 Let sinners be consumed from the earth, and let the wicked be no more! Bless the Lord, O my soul! Praise the Lord!

LESSON 1

LESSON 1: ISAAC NEWTON

Gravity explains the motions of the planets.

but it cannot explain who sets the planets in motion.

HOME SWEET HOME

Lesson 1 Quiz

- 1. What is the shape of Planet Earth?**
 - A) Sphere
 - B) Cube
 - C) Triangular
 - D) None of the above

- 2. The earth is the center of the universe, and it has a giant star, the sun, which travels around it.**
 - A) True
 - B) False

- 3. What is the force that attracts an object to another object called?**
 - A) Gravity
 - B) Atmosphere
 - C) Object force
 - D) Attraction

- 4. The habitable zone is:**
 - A) the parts of a planet that has water
 - B) the planets in our solar system that have different types of rock features
 - C) the distance from a star where liquid water can exist on a planet
 - D) the region of a planet where people build their homes

5. **The system the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune are part of is called the:**
- A) Milky Way system
 - B) regional system
 - C) planet system
 - D) solar system
6. **Earth is home to millions of different types of living things.**
- A) True
 - B) False
7. **Earth is the only planet in the solar system with:**
- A) volcanoes
 - B) liquid water
 - C) rocks
 - D) an atmosphere



THE SPHERES OF THE EARTH

When you study earth science, you're studying each of the four spheres of the earth—each one distinct yet all interacting with one another. Join us on our adventure as we uncover the mysteries of the geosphere, hydrosphere, atmosphere, and biosphere!

Recommended Reading

- 🌍 *The Earth and Sky*, by Gallimard Jeunesse and Jean-Pierre Verdet
- 🌍 *The Four Spheres of Earth*, by Paul Larson

ACTIVITY Exploring the Spheres of the Earth

The geosphere, hydrosphere, atmosphere, and biosphere are unique spheres of the earth that are constantly interacting with one another. In this activity, you'll spend some time exploring each sphere and considering how each one affects and interacts with the others.

DEFINE THE TERMS

The geosphere is made up of _____

The atmosphere is made up of _____

The hydrosphere is made up of _____

The biosphere is made up of _____

INSTRUCTIONS

Color the geosphere, atmosphere, hydrosphere, and biosphere different colors, and fill in the key below to show what color you used for each of the spheres.



PICTURE KEY:

- Geosphere
- Atmosphere
- Hydrosphere
- Biosphere

QUESTIONS TO CONSIDER

You are a living creature, so you're part of the biosphere. You need things from each of the other spheres to survive. Give an example or two of what you need to survive and which sphere it's related to.

Can you think of any ways that plants, part of the biosphere, interact with other spheres?

When rain falls from the clouds, what spheres are involved?

QUESTION:

What is the ground, including all the rocks, soil, and minerals in the earth, called?

ANSWER:

The geosphere



QUESTION:

What is all the water on the earth called?

ANSWER:

The hydrosphere



QUESTION:

What is all the air that surrounds the earth called?

ANSWER:

The atmosphere



QUESTION:

What are the parts of the earth that contain living things called?

ANSWER:

The biosphere



LESSON 2: PSALM 115:16

The heavens are the Lord's heavens; but the

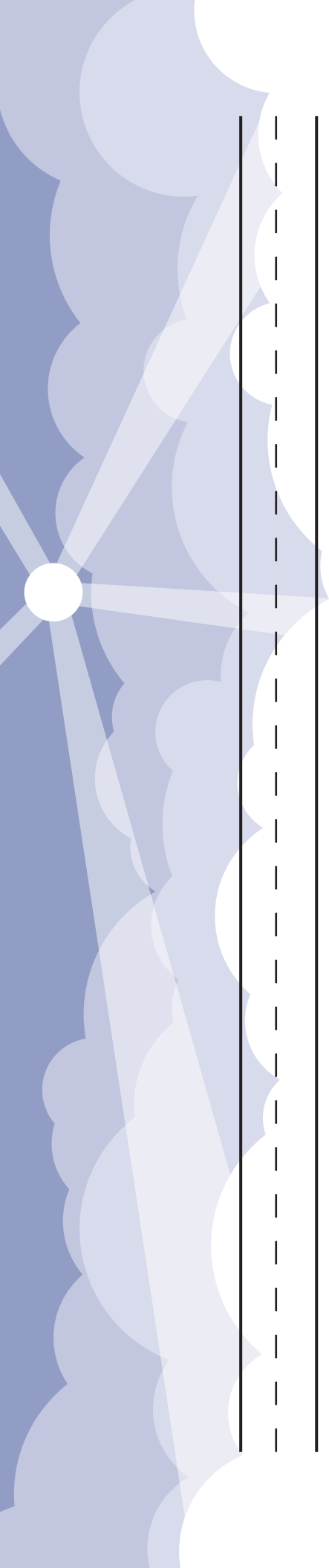
earth He has given to the children of man.

Handwriting practice lines consisting of 10 sets of three horizontal lines (top, middle dashed, bottom) for tracing and independent writing.

LESSON 2: PSALM 115:16

The heavens are the Lord's
heavens, but the earth He has given
to the children of man.

Handwriting practice lines consisting of 10 sets of three horizontal lines (top, middle dashed, bottom) for tracing and independent writing.



A series of 12 vertical lines for handwriting practice. Each line consists of a solid left boundary, a dashed midline, and a solid right boundary, creating a consistent guide for letter height and placement.

THE SPHERES OF THE EARTH

Lesson 2 Quiz

1. Which sphere is made up of all of the earth's water?

- A) Geosphere
- B) Hydrosphere
- C) Biosphere
- D) Atmosphere

2. Which sphere contains all the air that is around the earth?

- A) Geosphere
- B) Hydrosphere
- C) Biosphere
- D) Atmosphere

3. The earth is one big, solid sphere.

- A) True
- B) False

4. Which sphere contains the earth's ground, including the soil, minerals, and rocks?

- A) Geosphere
- B) Hydrosphere
- C) Biosphere
- D) Atmosphere

5. Which sphere contains all the living things on Earth?

- A) Geosphere
- B) Hydrosphere
- C) Biosphere
- D) Atmosphere

6. Where is most of the water on Earth located?

- A) Ponds
- B) Rivers
- C) Lakes
- D) Oceans

7. The atmosphere is made up of:

- A) solids
- B) liquids
- C) gases

8. Bio means:

- A) Earth
- B) life
- C) water
- D) wind

9. The geosphere is:

- A) in outer space
- B) under our feet
- C) over our heads
- D) in the ocean