Planet Earth

Unit title page  (Student’s Book pg. 1)

Ask students to look at the photograph and think about how they would describe our planet. Give them time to read the unit summary paragraph, and check to make sure they understand the areas the unit will cover. Discuss the meanings of the words physical, universe, and unique.

Previewing the unit  (Student’s Book pg. 2)

Chapter 1: The Physical Earth

Sample answers

1. Earth is the only planet that has life, water, and air. Earth is our home.
2. Earth provides us with food, water, air, light, building materials, and comfortable weather.

Chapter 2: The Dynamic Earth

Sample answers

1. Earth moves as it travels around the sun.
2. Earth turns on its axis (it makes one turn every 24 hours).
3. Earthquakes can make the ground shake.
   The movement of tectonic plates causes parts of Earth to move.
4. Some landforms are hills, valleys, plains, cliffs, islands, canyons, rivers, and plateaus.
5. These features of Earth’s surface were formed by the movements of wind, water, ice, glaciers, volcanoes, earthquakes, and tectonic plates.
The Physical Earth

1 OUR SOLAR SYSTEM

Preparing to read (Student’s Book pg. 4)

THINKING ABOUT THE TOPIC BEFORE YOU READ

Students are not expected to know the answers to these items. It is simply a way to get them to start thinking about the issues addressed in the text.

Sample answers

1 During the day, we see the sun, airplanes, clouds, birds, rain, and snow.
2 At night, we see the moon, stars, planets, airplane lights, and meteors (shooting stars).
3 Answers will vary.

PREVIEWING ART IN THE TEXT

1 Answers

1 There are eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.
2 Earth is the third planet from the sun.

2 Answers

1 The planets are sitting and eating at two tables.
2 Pluto is talking.
3 Pluto is too small to be a planet, so it is in a different group. The cartoonist shows this by putting Pluto at the “children’s table.”
Now read

Refer to pages xi–xii of this Teacher’s Manual for suggestions about ways in which students can read the text.

After you read (Student’s Book pg. 7)

Task 1 ASKING AND ANSWERING QUESTIONS ABOUT A TEXT

1 | Answers
   1 There are eight planets in our solar system.
   2 *Orbit* means “circle.”
   3 The sun is a star.
   4 *Sample questions*
      • What is the center of our solar system? (the sun)
      • In addition to planets and the sun, what other objects are in our solar system? (moons)

2,3 | Answers will vary.

Task 2 BUILDING VOCABULARY: WORDS FROM LATIN AND GREEK

1 | Answers
   *terr-*: terrestrial
   *sol-*: solar
   *astro-*: astronomers, astronomy, astronomical

2 | Answers

<table>
<thead>
<tr>
<th>Word part from Latin or Greek</th>
<th>Meaning</th>
<th>English example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>terr-</em></td>
<td>earth, land</td>
<td>terrestrial</td>
<td>relating to Earth</td>
</tr>
<tr>
<td><em>sol-</em></td>
<td>sun</td>
<td>solar</td>
<td>relating to the sun</td>
</tr>
<tr>
<td><em>astro-</em></td>
<td>star</td>
<td>astronomer</td>
<td>a scientist who studies stars and planets</td>
</tr>
</tbody>
</table>

Task 3 BUILDING VOCABULARY: CLUES THAT SIGNAL DEFINITIONS

1 | Answers
   1 orbit, or circle
   2 star, that is, a giant ball of hot gases
   3 terrestrial, or Earth-like
   4 astronomers (scientists who study the stars and planets)

2 | Answers
   1 star
   2 Astronomers
   3 terrestrial
   4 orbit
3 | Sample sentences
1 A telescope (an instrument that makes faraway objects look larger) is an important tool for an astronomer.
2 Earth is part of a solar system, that is, a star and the planets that move around it.
3 Mercury (the planet closest to the sun) is a terrestrial planet.
   Pluto, or the plutoid discovered in 1930, is much smaller than Jupiter.
4 Jupiter is a gas giant planet, that is, a planet made of gases, not solid rock.

Task 4 LANGUAGE FOCUS: PARTS OF SPEECH
1 | Answers
Our home in the universe is planet Earth. It is one of eight planets that orbit, or circle, the sun. The sun is a star, that is, a giant ball of hot gases. It is the center of our solar system. There are billions of other stars in the sky, but the sun is the star closest to Earth. Our solar system also includes moons, which orbit planets. The moon we see in the night sky orbits Earth.

2 | Answers

<table>
<thead>
<tr>
<th>n.</th>
<th>v.</th>
<th>adj.</th>
<th>n.</th>
<th>n.</th>
<th>v.</th>
<th>adj.</th>
<th>n.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mars is an interesting planet. In some ways, it is similar to Earth. It has weather and seasons. It also has canyons and mountains. However, Mars is a very different planet from Earth. It is much smaller than Earth, and it is much colder. In addition, scientists have (not) found any life on Mars.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

3 | Answers
verb 1 noun 4
adjective 2 verb 5
noun 3

4 | Sample answers
1 has 4 moon
2 terrestrial 5 believe / think
3 rings

Task 5 LANGUAGE FOCUS: COMPARATIVE ADJECTIVES
1 | Answers
seven: larger, bigger, smaller, farther, colder, darker, more irregular

2 | Answers
1 darker 5 smaller
2 hotter 6 bigger
3 more solid 7 stronger
4 icier 8 rockier

Unit 1 Planet Earth
Chapter 1
The Physical Earth

3 | Answers
   1 farther . . . than
   2 colder than
   3 hotter than
   4 closer . . . than
   5 rockier than
   6 larger than

4 | Sample sentences
   1 Jupiter is bigger than Pluto.
   2 Pluto is colder than Jupiter.
   3 Jupiter has a more regular orbit than Pluto.
   4 Jupiter is closer to Earth than Pluto.

2 | EARTH’S FOUR SYSTEMS

Preparing to read (Student’s Book pg. 12)

PREVIEWING KEY PARTS OF A TEXT

2 | Answers
   1 Earth has four systems.
   2 lithosphere, hydrosphere, atmosphere, biosphere

3 | Name of the system | Key feature(s)
   | lithosphere        | Earth’s crust and the top layer of the mantle
   | hydrosphere        | water
   | atmosphere         | air
   | biosphere          | living things

Now read
Refer to pages xi–xii of this Teacher’s Manual for suggestions about ways in which students can read the text.

After you read (Student’s Book pg. 15)

Task 1 HIGHLIGHTING

1 | Sample highlights
• lithosphere: Earth’s crust and the top layer of the mantle
• hydrosphere: all the water on Earth
• atmosphere: the air surrounding Earth
• biosphere: all the living things on Earth
2 | **Sample highlights**
   • We humans are part of the biosphere, but we live on the lithosphere.
   • We depend on the atmosphere for air to breathe and the hydrosphere for water to drink.
   • Driving a car contributes to air pollution in the atmosphere . . . . Air pollution causes Earth to grow warmer. Warmer temperatures cause important changes in the hydrosphere . . . . These changes affect the humans, animals, and plants of the biosphere.

**Task 2** BUILDING VOCABULARY: WORDS FROM LATIN AND GREEK

1 | **Answers**
   c 1
da 2
d 3

2 | **Answers**
   1 circle
   2 rocks
   3 water
   4 gases
   5 living things

3 | **Answers**
   • lithology, atmospherology
   • -logy means “the study of something”

**Task 3** BUILDING VOCABULARY: LEARNING VERBS WITH THEIR PREPOSITIONS

1 | **Answers**
   1 from
   2 from
   3 with
   4 on
   5 to

2 | **Answers**
   1 Scientists use the Internet to connect with other scientists all over the world.
   2 Sunscreen and sunglasses protect people from the sun’s dangerous rays.
   3 The temperature on Pluto ranges from –238°C to –228°C.
   4 Polar bears depend on a cold environment.
   5 Drinking clean water and breathing clean air contribute to good health.

3 | **Sample answers**
   1 I depend on my family.
   2 The summer temperature where I live ranges from 27°C to 35°C.
   3 I want to contribute to peace in the world.
Task 4 USING A PIE CHART TO ORGANIZE STATISTICS

Sample answers

- Approximately 3 percent of water on Earth is freshwater.
- Approximately 97 percent of water on Earth is salt water.

Answers will vary.

3 ROCKS ON OUR PLANET

Preparing to read (Student’s Book pg. 18)

THINKING ABOUT THE TOPIC BEFORE YOU READ

Students are not expected to know the answers to these items. It is simply a way to get them to start thinking about the issues addressed in the text.

1 Answers

- Photos: a Stonehenge in England  b the Great Pyramids in Egypt  c Machu Picchu in Peru
- They are all made of rock.

Sample answers

- the Taj Mahal in India, the Parthenon in Greece, the Great Wall in China, El Tajín in Mexico
- People use rocks for building, tools, sculpture, and landscaping in gardens.
- Answers will vary.

Now read

Refer to pages xi–xii of this Teacher’s Manual for suggestions about ways in which students can read the text.

After you read (Student’s Book pg. 21)

Task 1 TEST TAKING: ANSWERING MULTIPLE CHOICE QUESTIONS

Answers

- d 4 c
- a 5 b
- d 6 b
**Task 2  LABELING DIAGRAMS**

1 | **Answers**

![Diagram with lava, magma, and igneous rock labels](image)

2 | **Answers**

![Diagram showing the rock cycle](image)

**Task 3  LANGUAGE FOCUS: SUBJECTS**

2 | **Answers**

The atmosphere is the air surrounding Earth. It is made up of gases. The primary gas is nitrogen. The gases in the atmosphere create air for us to breathe. They also protect Earth from the sun's ultraviolet radiation.

3 | **Answers**

Narendra Luther has something very unusual in his house. It is a giant, two-billion-year-old stone. This rock is just one of many in the city of Hyderabad, India. The people in the city have given names to some of the rocks. Some rocks have become temples or billboards, but other rocks have been destroyed to make room for new development.
Corrected paragraph

Narendra Luther has something very unusual in his house. It is a giant, two-billion-year-old stone. This rock is just one of many in the city of Hyderabad, India. The people in the city have given names to some of the rocks. Some rocks have become temples or billboards, but other rocks have been destroyed to make room for new development.

Task 4 LANGUAGE FOCUS: VERBS

1 | Answers

Earth is a terrestrial planet, that is, a planet with a rocky surface. It is covered with rocks of all ages. The oldest rocks in Earth's crust are more than three billion years old. The youngest ones are just a few minutes old. All rocks are made of minerals, or inorganic (nonliving) matter.

2 | Sample sentences

1. Rocks on Earth are made of minerals.
2. Rocks are all over our planet.
3. Rocks can change form over time.
4. Rocks form in three main ways.

Chapter 1 WRITING ASSIGNMENT (Student’s Book pg. 25)

Sample sentences

- Earth is one of eight planets in our solar system.
- It orbits the sun, and it has one moon.
- It is larger than Pluto and smaller than Jupiter.
- Earth is a special place.
- It is the only planet in our solar system with life.
- Earth has four interconnected systems: the lithosphere, the hydrosphere, the atmosphere, and the biosphere.
- Earth has more water than land.
- There are many different types of living things on Earth.
- Earth is a rocky planet.
- The three types of rocks on Earth are igneous, sedimentary, and metamorphic.
- The rocks on Earth change form over time.
Chapter 2

The Dynamic Earth

1 PLATE TECTONICS

Preparing to read (Student’s Book pg. 26)

BUILDING VOCABULARY: PREVIEWING KEY WORDS

2 Answers
1. e
2. d
3. a

Now read

Refer to pages xi–xii of this Teacher’s Manual for suggestions about ways in which students can read the text.

After you read (Student’s Book pg. 29)

Task 1 USING HEADINGS TO REMEMBER MAIN IDEAS

2 Answers
1. b
2. c
3. a
4. d