

**CAREER
PATHS**

Virginia Evans
Jenny Dooley
Kenneth Rodgers

ENVIRONMENTAL ENGINEERING



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Tel.: (0044) 1635 817 363

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e-mail: inquiries@expresspublishing.co.uk

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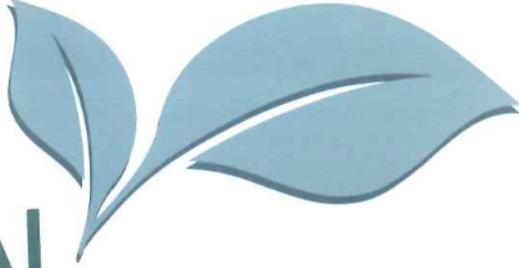
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ENVIRONMENTAL ENGINEERING

Book

1

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www.careerpaths-esp.com

To activate the app use the S/N below.

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Jenny Dooley
Kenneth Rodgers



Express Publishing

Scope and Sequence

| Unit | Topic | Reading context | Vocabulary | Function |
|------|----------------------------|---------------------|--|-----------------------------|
| 1 | The Environmental Engineer | Article | advise, apply, conservation, environment, environmental engineer, evaluate, impact, monitor, pollution, prevent, resources | Asking about interests |
| 2 | The Earth | Course description | atmosphere, biosphere, core, crust, geosphere, hydrosphere, lithosphere, mantle, stratosphere, troposphere | Describing order |
| 3 | Ecosystems | Letter | abiotic, biotic, community, component, ecosystem, genetic diversity, habitat, organism, population, species | Describing positive changes |
| 4 | Biomes and Aquatic Systems | Webpage | aquatic life zone, biome, coastal zone, coral reef, desert, grassland, inter-tidal zone, ocean, open sea, rainforest, saltwater, savanna, tundra | Expressing excitement |
| 5 | Weather | Blog | cloud cover, humidity, meteorology, moisture, precipitation, pressure, short-term, temperature, weather, wind speed | Asking for repetition |
| 6 | Climate | Textbook | average, climate, current, elevation, Equator, latitude, pattern, pole, prevailing wind, range, rotation, terrain | Talking about averages |
| 7 | Basic Units of Life | Textbook | cell, chromosome, DNA, eukaryotic, gene, genetic information, multicellular, nucleus, prokaryotic, unicellular | Making a comparison |
| 8 | Measurements 1 | Chart | acre, Celsius, Fahrenheit, gallon, hectare, imperial, kilogram, kilometer, liter, meter, metric, mile, pound, yard | Making a request |
| 9 | Basic Numbers and Math | Chart | add, divide by, equal, hundred, less, minus, multiply by, over, plus, subtract, times | Giving a reminder |
| 10 | Measurements 2 | Employee guide | amount, area, base unit, concentration, cubic meter, derived unit, Kelvin, mole, SI, square meter, thermodynamic temperature, volume | Asking for clarification |
| 11 | Tables and Graphs | Email | bar graph, column, legend, line graph, pie chart, row, scatter diagram, table, x-axis, y-axis | Correcting an error |
| 12 | Describing Change | Article | decline, decrease, expand, fluctuate, increase, plummet, rise, shrink, skyrocket, stabilize | Describing changes |
| 13 | Presentations | Letter | body language, cue card, eye contact, handout, presentation, project, review, signpost, summarize, visual aid | Giving a compliment |
| 14 | Properties of Matter | Textbook | atom, atomic number, compound, electron, element, ion, mass number, matter, molecule, neutron, proton | Correcting yourself |
| 15 | Energy | Information excerpt | conserve, electromagnetic radiation, energy, energy efficiency, energy quality, heat, kinetic energy, potential energy, transfer, work | Giving a summary |

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1

The Environmental Engineer



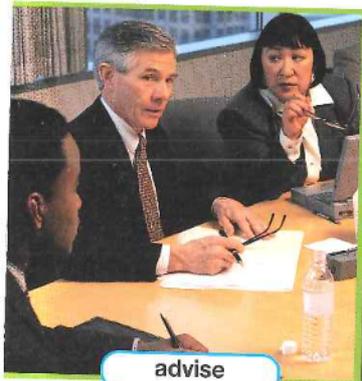
monitor

Is Environmental Engineering Right for You?

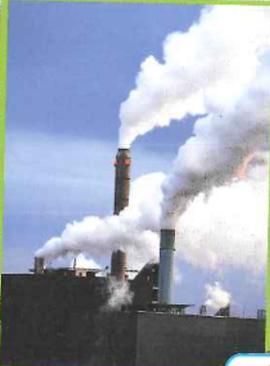
Many people want to help the **environment**. **Environmental engineers** make it their career. They **apply** engineering skills to environmental problems. Here are some common duties of environmental engineers:

- **Evaluate** the **impact** of proposed projects. The goal is to **prevent** or minimize any harm to the environment.
- **Monitor** air and water **pollution** levels. They may **advise** authorities about how to reduce them.
- Design systems to increase **conservation** of **resources**. A typical project might be a waste water system.

Environmental engineers work with various organizations. Working together, they try to protect our environment. If this sounds interesting, consider learning more!



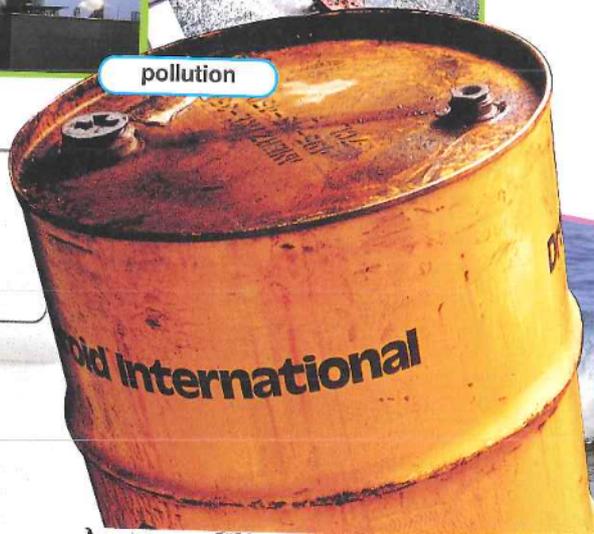
advise



pollution



conservation



resources

Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some problems that the environment is facing?
- 2 What kinds of skills does a person need to be an environmental engineer?

Reading

2 Read the article. Then, choose the correct answers.

- 1 What is the purpose of the article?
 - A to recruit environmental engineers
 - B to list a job opening for an environmental engineer
 - C to describe what an environmental engineer does
 - D to describe how to become an environmental engineer
- 2 Which of the following is NOT listed as a duty of an environmental engineer in the article?
 - A monitoring air pollution levels
 - B evaluating soil conditions
 - C designing waste water systems
 - D assessing future projects
- 3 What is the main goal when evaluating potential projects?
 - A to reduce air pollution
 - B to improve water quality
 - C to safely deal with solid waste
 - D to prevent harm to the environment

Vocabulary

3 Match the words (1-8) with the definitions (A-H).

- | | | |
|-------------|------------------|-------------------|
| 1 __ apply | 4 __ evaluate | 7 __ pollution |
| 2 __ advise | 5 __ resources | 8 __ conservation |
| 3 __ impact | 6 __ environment | |

- A the act of trying to save resources
 B to give an expert opinion
 C the area in which a person or thing lives
 D to look at something closely and critically
 E a large change
 F things that people use for fuel, food, or shelter
 G damage caused to water, air, and land by harmful substances
 H to use something for a particular purpose

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 environmental engineer / pollution

- A The _____ came up with a new water cleaning system.
 B Cars can cause a lot of _____ in the air.

2 monitor / prevent

- A If we are careful we can _____ environmental degradation.
 B It is our duty to _____ our water consumption.

5 Listen and read the article again. What are some duties of an environmental engineer?

Listening

6 Listen to a conversation between an interviewer and an interviewee. Mark the following statements as true (T) or false (F).

- 1 __ The man will study environmental engineering this year.
 2 __ The man has experience in wastewater management.
 3 __ The man has not worked in soil remediation.

7 Listen again and complete the conversation.

Interviewer: I'm glad to hear that. What kind of 1 _____ do you have?

Interviewee: I have a degree in environmental engineering. I also have 2 _____ of experience in my current position.

Interviewer: What exactly 3 _____?

Interviewee: Mainly wastewater and solid 4 _____.

Interviewer: I see. Do you have any experience with 5 _____?

Interviewee: 6 _____, yes.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

*What brought you to environmental engineering?
 What kind of experience do you have?
 Do you have any experience with ...?*

Student A: You are an interviewer. Talk to Student B about:

- why he or she chose the field of environmental engineering
- his or her experience in the field
- a specific skill you're looking for

Student B: You have an interview for an environmental engineer position. Talk to Student A about the position.

Writing

9 Use the conversation from Task 8 to complete the interview sheet.

GREEN TECHNOLOGIES INTERVIEW SHEET

CANDIDATE NAME: _____

INTERVIEWER NAME: _____

MOTIVATION FOR ENTERING THE FIELD: _____

EXPERIENCE: _____

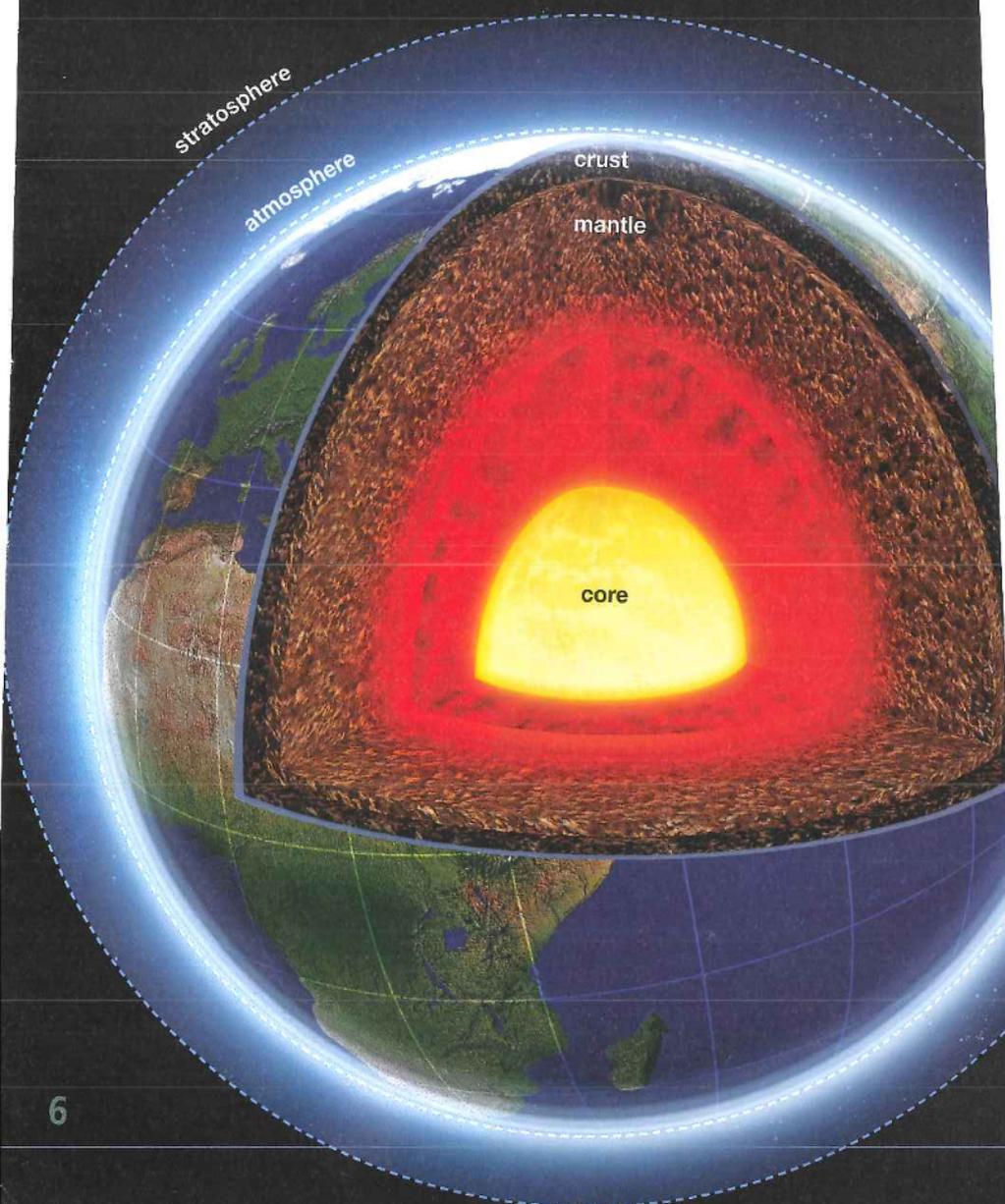
EPS 101

INTRO TO EARTH
SCIENCES

This course introduces students to the different Earth layers. We begin with the **geosphere**. Students identify the **mantle** and **crust**. These make up the **lithosphere**. We also discuss the Earth's **core**.

Next, we move above the Earth's surface. We'll talk about the layers of the **atmosphere**. These are the **troposphere** and the **stratosphere**. The last topic we cover is the **hydrosphere**. The hydrosphere includes all water on Earth. It also includes water vapor in the atmosphere.

The **biosphere** is of interest throughout the course. We'll learn how each sphere contributes to life. This is the overarching theme of the course.



Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are the layers of the Earth's surface?
- 2 In which layer of the Earth is life found?

Reading

2 Read the course description. Then, choose the correct answers.

- 1 What is the purpose of the class?
 - A to compare how pollution impacts different layers of the Earth
 - B to examine life and the layers of the Earth
 - C to introduce students to the field of environmental engineering
 - D to show the impact of one layer of the Earth on the others
- 2 Which of the following make up the lithosphere?
 - A the geosphere and the crust
 - B the core and the mantle
 - C the crust and the core
 - D the mantle and the crust
- 3 Which of the following is part of Earth's surface and the atmosphere?
 - A the stratosphere
 - B the hydrosphere
 - C the lithosphere
 - D the troposphere

Vocabulary

3 Place the words from the word bank under the correct headings.

Word BANK

lithosphere hydrosphere mantle troposphere
atmosphere geosphere biosphere stratosphere

| At or below Earth's surface | Above Earth's surface | Can be above Earth's surface |
|-----------------------------|-----------------------|------------------------------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

4 Read the sentences and choose the correct words.

- The **biosphere/core** is at the center of the Earth.
- The surface of the Earth, made of rock and soil, is called its **crust/hydrosphere**.
- The **atmosphere/mantle** is a layer below Earth's crust.

5 Listen and read the course description again. What is the unifying theme of the course?

Listening

6 Listen to a conversation between a student and a professor. Mark the following statements as true (T) or false (F).

- ___ The woman is confused about the order of the spheres.
- ___ The man recommends starting at the top of the atmosphere.
- ___ The woman states the order of the spheres incorrectly.

7 Listen again and complete the conversation.

Student: I'm confused about the 1 _____ of the spheres.

Professor: Okay, let's start with the geosphere. Starting at the surface, which layer 2 _____?

Student: First is the 3 _____, right? And then comes the 4 _____?

Professor: Not quite. Those two make up the 5 _____. But the crust comes first.

Student: Oh, I see. And then the core is next.

Professor: Exactly. That's the geosphere. But the 6 _____ has more layers.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

The ... comes first, right?
Then the ...
What's next?

Student A: You are a student.

Talk to Student B about:

- a problem you're having with the Earth's atmosphere
- which sphere comes first
- which sphere comes after

Student B: You are a professor.

Talk to Student A about the Earth's spheres.

Writing

9 Use the course description and the conversation from Task 8 to complete the worksheet.

EPS 101

Earth's Spheres Worksheet

Name: _____

Date: _____

Name 3 layers in the geosphere:

Name 2 spheres that can be found in the Earth's atmosphere:

Get ready!

1 Before you read the passage, talk about these questions.

- 1 How are the species in an ecosystem connected?
- 2 Why is genetic diversity important?

Sunday Edition

JACKSON TIMES

Letter to the Editor

I am concerned about the Darby River. The river is home to a rare **species** of fish. They are called southern pygmy perch. This particular **population** is shrinking quickly.

Their **habitat** is in danger. Industrial waste negatively impacts the **ecosystem**. The fish are running out of food. Waste in the water kills plant life. Without those plants, these **organisms** have fewer food options.

As fish numbers dwindle, other **biotic** creatures suffer. Birds that eat the perch will starve and die.

The whole **community** is connected. Even if an **abiotic component** is compromised, it will affect everyone.

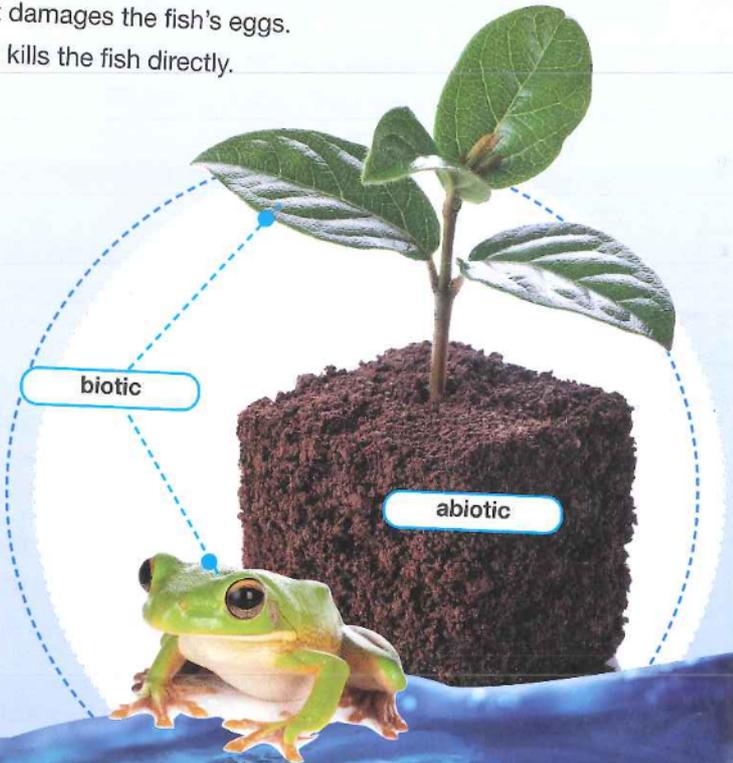
We must put a stop to this. We must preserve the **genetic diversity** of the Darby River!

Respectfully,
Edwin Jace
Environmental Engineer

Reading

2 Read the letter to the editor. Then, choose the correct answers.

- 1 What is the main purpose of the letter?
 - A to describe genetic diversity at the Darby River
 - B to classify the Darby River ecosystem
 - C to give information about the southern pygmy perch
 - D to explain a threat to the Darby River ecosystem
- 2 Which is NOT a part of the Darby River ecosystem?
 - A fish
 - B birds
 - C plants
 - D humans
- 3 How is the toxic waste affecting the fish?
 - A It kills a plant they rely on for food.
 - B It reduces the oxygen levels in the water.
 - C It damages the fish's eggs.
 - D It kills the fish directly.



population

species