JAF01 Lesson 11 The Physical Earth

I. Form questions using the phrases below and then discuss with a partner.

1. the most beautiful place on the Earth
2. seeing the Earth from space
3. the application Google Earth
4. the Earth being in trouble
5. challenges the Earth is facing

II. What word matches the definitions? The first letter is given in brackets.

1. Land with sea on all sides (i)
2. Where a river meets the sea (m)
3. A river that flows into another river (t)
4. Where a river starts (s)
5. A river of ice (g)
6. An extremely large mass of ice floating in the sea (i)
7. The top of a mountain (s)
8. Where land meets sea very sharply – a high area of rock (c)
9. A small stream (b)
10. Land with sea on 3 sides (p)
11. A part of a sea partly surrounded by land (b)
12. A natural spring that sometimes sends hot water or steam up into the air (g)

III. What are the opposites of the adjectives below?

1. A deep river
2. A gentle slope
3. A rocky beach
4. A rough sea
5. An extinct volcano

(II and III adapted from McCarthy, M.; O´Dell, F. *Test Your English Vocabulary in Use.* Cambridge university Press, 2001)

IV. Environmental problems – cause and effect

1. Study the examples below and notice the use of the phrases in bold.

*Eating too much sugar can **lead to** health problems.*
*The cyclone has **resulted in** many thousands of deaths.*
*The poor harvest **caused** prices to rise sharply.*
*The problems of farmers are **caused by** the bad weather.*
*Both the developing and developed countries **are to blame for** the current situation.*
*The environmental conditions are getting worse **because of** insufficient investment into reforestation.*

2. Form sentences from the hints below. Use the verbs and phrases in italics.

Lead to – result in – cause – to be caused by – be to blame for – because of

Pollution of the atmosphere – destruction of the ozone, greenhouse effect
Poor waste disposal – acute problems in industrialised and over-populated regions
Fewer fish in the sea – over-fishing
Deforestation – damage to habitat, biodiversity loss, climate change,
Human activity - unforeseen ecological consequences
Battery farming – animals in unnatural and unhealthy conditions

V. Previewing key parts of a text

Previewing the key parts of a text before you read will make it easier to understand the main ideas. To preview a text, look carefully at the **title**, the **introduction** and the **headings**. It is also a god idea to read the **first sentence** of each paragraph.

1. Read the key parts of the text "Earth´s Four Systems" and complete the chart below. Write the names of the systems in the first column and the key features next to the system.

Name of the system	Key feature(s)

Earth´s Four Systems

From outer space, Earth looks like one solid blue ball. In fact, our planet is much more complex. It is actually made up of four very different but interconnected systems: the lithosphere, the hydrosphere, the atmosphere and the biosphere.

The lithosphere

The lithosphere includes Earth´s crust and the top layer of the mantle. The crust is a thin layer of rock that covers the whole planet. Its thickness ranges from about 5 to 80 kilometres. The mantle is the section directly under the crust. The lithosphere is not one solid piece of rock. Instead, it is broken into many smaller pieces called plates.

The hydrosphere

The hydrosphere is all the water on Earth, including oceans, lakes, rivers, glaciers, rain and snow. Water covers more than 70 percent of Earth. Approximately 97 percent of Earth´s water is salt water from oceans, and 3 percent is freshwater from glaciers, lakes, rivers, and groundwater.

The atmosphere

The atmosphere is the air surrounding Earth. It is made up mostly of gases. The primary gases are nitrogen and oxygen. Gases in the atmosphere create air for us to breathe, and they protect Earth from the Sun´s ultraviolet radiation. The atmosphere is also where weather conditions, such as clouds and storms, form.

The biosphere

The biosphere is made up of all the living things on Earth. It includes humans, animals, and plants. Life on Earth is very diverse, but all living things share certain features. For example, they all eat, breathe, and grow.

The interconnections of Earth´s systems

The lithosphere, the hydrosphere, the atmosphere, and the biosphere connect with each other in important ways. 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. In fact, these connections are so strong that a change in one system can affect the others. Consider this example: Driving a car contributes to pollution in the atmosphere. Air pollution causes Earth to grow warmer. Warmer temperatures cause important changes in the hydrosphere: Glaciers melt and ocean levels rise. These changes to the hydrosphere affect the humans, animals and plants of the biosphere. For example, people who live in coastal areas along the ocean are in danger of losing their homes because of floods. The polar bear is gradually losing its natural habitat because of warming temperatures in the Arctic. When you think about these interconnections among the systems, it is easy to see that our planet is very complex.

2. Building vocabulary

Based on the information in the text above, match the word parts in the left column with their meanings on the right.

1. Litho-	a) Water
2. Hydro-	b) Life
3. Atmo-	c) Rock, stone
4. Bio-	d) Gas, vapour

Now circle the correct word in each sentence.

1. Lithology is the study of the physical qualities of (rocks/ water / gases).
2. Countries that use hydropower to create energy are using (water/ rocks/ air).
3. Atmospherology is the study of (water/ rocks/ gases).
4. A biologist works with (rocks/ gases/ living things).

3. **Building vocabulary: Learning verbs with their prepositions.**
   Fill in the blanks with the correct prepositions – if necessary, you can find the verbs in the text Earth´s Four Elements.
   1. Its thickness ranges _____ 5 to 80 km.
   2. Gases in the atmosphere create air for us to breathe, and they protect Earth _____ the Sun´s ultraviolet radiation.
   3. The four systems connect _____ each other in important ways.
   4. We depend _____ the atmosphere for air to breathe.
   5. Driving a car contributes _____ air pollution in the atmosphere.

4. **Complete these sentences with something that is true for you.**
   1. I depend _____.
   2. The summer temperature where I live ranges _____.
   3. I would (not) like to contribute _____.

   (Task V. adopted from Wharton, J. *Academic Encounters, The Natural World.* Cambridge University Press, 2009)

VI. Video – Top Earth Facts

http://www.videojug.com/film/top-earth-facts?sourcelink=verticalrecommendation

Listen and complete the gaps:

1. The most important thing of all is that the Earth has abundance of life, so many millions and millions of different plant and animal _____ .
2. The Earth also has a big moon to _____ its axis.
3. We also are lucky enough to have an abundance of liquid water on the surface, one of the key ingredients that allows human beings to _____.
4. We also have the other advantage of a big magnetic field that keeps out a lot of the _____ radiation from space.
5. Astronomers think that planets like the Earth with that special set of _____ are good places to search for life.

VII. What causes the seasons?

Complete the gaps with suitable words.

We divide the year into four seasons: spring, summer, autumn and winter. Summer is much warmer than winter, and the days are _____. Seasons are caused by the combination of the tilt of the Earth´s axis and the Earth´s _____ around the Sun. The particular season _____ on whether the Earth´s axis is tilted towards the Sun or away from it. When the southern hemisphere is tilted towards the Sun, this _____ the northern hemisphere is tilted away from the Sun. So, where the sunlight hits the hemisphere tilted towards the Sun it would be summer, and where the sunlight hits the hemisphere tilted away from it would be winter. The seasons in the southern hemisphere are the _____ of those in the northern hemisphere.

(adapted from Kelly, K. *Science.* Macmillan, 2008)