JAG01 Unit 2 The Earth

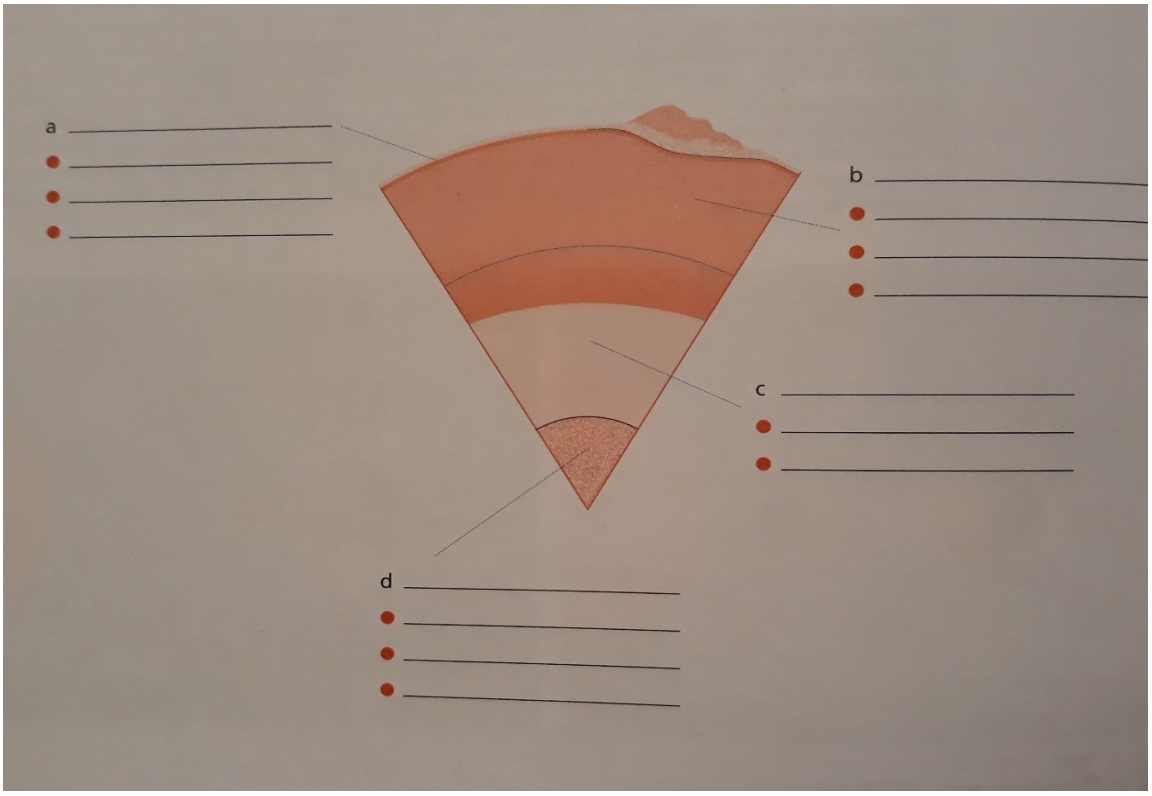
Task 1 Speaking: What makes the planet Earth unique?

Task 2 Read the text. Can you find four pieces of false information?

The Earth is the fifth largest planet in our solar system and the third planet from the Sun. The Earth is made up of three main layers. There is the crust which is the outer layer and is very thin, between 5 and 67 km thick. The crust consists of the land and sea. The land is mainly made up of two types of rock: granite and basalt.

Then there is the mantle. This is a thick layer which is about 3000 km thick that lies directly below the crust. It consists of hot dense rocks and compounds of magnesium, iron and silicon. The rocks of the mantle are much heavier than those in the crust.

Lastly, there is the core. This is the centre of the Earth which consists of heavy metals. It has an inner and an outer layer. The outer core consists of molten rocks, iron and nickel, and it is about 2000 km thick. The inner core is about 1500 km thick and is a solid structure containing nickel and iron. The temperature and pressure of the inner core of the Earth is so great/ high that the metals are squeezed together making it difficult for them to move about like a liquid, instead they are forced to vibrate in one place like a solid.



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

Task 3 Video: The Earth´s age

https://ed.ted.com/lessons/the-earth-s-age-in-measurements-you-can-understand-joshua-m-sneideman

Watch the video about the Earth´s age and answer the questions below.

1. What analogies can be used to represent the age of the Earth?
2. How do geologists determine the age of planets?
3. How old is the Earth?
4. Why is understanding geological time important?

Explain the meaning of the expressions from the video:

estimate
entire
single-celled
a milestone
to wipe sth. out
to go extinct

Task 4 Predictions

A) Speaking: What do you think your life will be like in 10, 25, 50 years? What do you think the main events in science in 10, 25 or 50 years will be?

B) Predicting probability. Complete the gaps in the table with the following expressions:

possible *likely* *improbable* *certain*

<table>
<tr><td rowspan="7">It is extremely/ fairly</td><td>1. ……..</td><td rowspan="3">that X will occur.</td><td>100%</td></tr>
<tr><td>2. probable</td><td rowspan="3">50%</td></tr>
<tr><td>3. ……</td></tr>
<tr><td>4. ……</td><td rowspan="3">that X will occur.</td></tr>
<tr><td>5. ……</td></tr>
<tr><td>6. unlikely</td><td rowspan="2">0%</td></tr>
<tr><td>7. certain</td><td>that X will not occur.</td></tr>
</table>

There is a/an	extremely fairly	strong high weak low remote	possibility that X will happen.

The possibility probability likelihood	that X will happen is	extremely fairly	high/strong. low/ weak.

C) Using the structures for predicting probability, talk about a student of geology/ mathematics / literature / medicine / law.

E.g. A student of geology might have a microscope in his/her bedroom.

D) Reading – Read this passage and find predictions.

The World Turns

The Earth is round; the fifteenth- and sixteenth-century explorers like Columbus and Magellan proved it. But there were ancient Greeks who had known this two thousand years earlier. They saw ships descend over the horizon and observed the curved shadow of the earth on the moon during a lunar eclipse. Then, in 200 B.C., the Greek astronomer Eratosthenes noted that at noon on the first day of summer, when the sun was at its highest, its rays shone to the bottom of a vertical well in Seyne, Egypt. Yet, on the same day in Alexandria, five hundred miles to the north, it was reported that a vertical post cast a shadow. If the earth had been flat, the post could not have cast a shadow at noon. – 3rd cond.

The earth spins, or rotates on its axis, once every twenty-four hours, causing us to have day and night. At any given time, the side of the earth facing the sun will have daylight, and the side turned away from the sun will have night. Although the earth is spinning at a speed of over one thousand miles an hour, we do not feel the movement or wind because everything around us, including the atmosphere, is moving at the same speed. The effect is similar to riding in an airplane. The air moves with you. If you light a match on an airplane, no wind will blow it out. – 1st Cond.

The earth also revolves around the sun once every year. This yearly revolution, plus the tilting of the earth on its axis, causes the seasons. When the sun´s rays are nearly overhead (*not* when the earth is closest to the sun) and the days are long, great amounts of the sun´s radiation are absorbed and the weather is hot. For example, from April through September, the North Pole tilts towards the sun and the northern hemisphere experiences summer while the southern hemisphere has winter. Then the North Pole tilts away from the sun and the seasons are reversed. On March 23 and September 21, the North Pole is not leaning toward or away from the sun. If you travelled around the earth on these two dates, you would find the days and nights equal every place you went. – 2nd Cond.

(adapted from Bates, M.; Dudley-Evans, T. *Nucleus English for Science and Technology.* Longman, 1990)

Which of the predictions you have found is probable, hypothetical and impossible?

1. **A probable prediction:** This prediction will come true if certain conditions are met.
2. **A hypothetical prediction:** This prediction will also come true if certain conditions are met, but it may or may not come true.
3. **An impossible prediction:** Here, the prediction cannot be fulfilled because the condition is impossible, i.e. it is based on a past action.

Now, formulate the sentence patterns for predictions below.

1. **A probable prediction:** *If + present tense, will + infinitive*
2. **A hypothetical prediction:** *If + past simple, would + infinitive*
3. **An impossible prediction:** *If + past perfect, would + have + -ed*

Write all three types of predictions for the following:

a) **active voice:** study hard – pass the exam

1. If you study / she studies, you´ll pass.

2. If you studied, you would pass.

3. If you had studied hard, you would have passed…

b) passive voice: eclipse hidden – photos ruined

Task 5 Grammar practice

A) Complete the sentences by filling in the proper form of the verb in brackets:

1. When winter comes, the bears _____ (hibernate).
2. Plants will not grow if they _____ (be) deficient in nitrogen.
3. A satellite will go into orbit when it _____ (reach) a speed of 18,000 miles per hour.
4. The calcium would melt if you _____ (heat) it to 845°C.
5. It _____ (be surprising) if the oil prices continued to rise.
6. If the iron bar was exposed to air, it _____(rust).
7. If the compound had been acid, it _____(turn) the litmus paper red.
8. Many lives would have been saved if scientists _____ (predict) the tornado.

(Zimmerman, F. *English for Science.* Prentice Hall Regents, 1989)

B) Create predictions in any logical or imaginative way:

1. After I graduate, _____
2. If I didn´t use English grammar correctly, _____ .
3. If I could go anywhere in the world, _____ .
4. If I could change one thing in the world, _____ .
5. My life would be easier if _____ .
6. If I had known what my studies at university would involve, _____ .
7. Dinosaurs wouldn´t have become extinct if _____ .