

Sequence IV : Pluto

A. Reading Comprehension

B. Pronunciation / Spelling

C. Word-Building

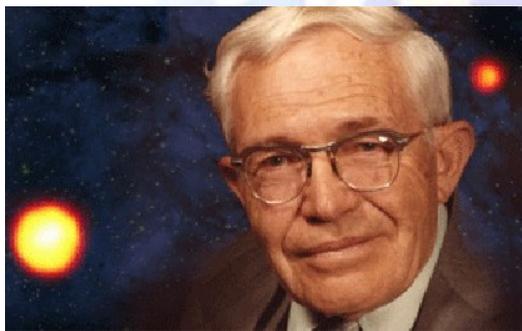
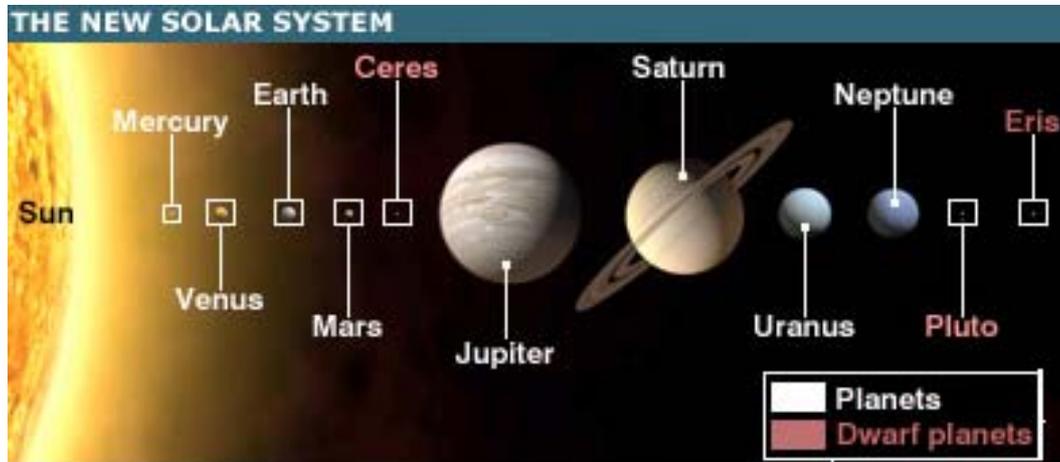
D. Grammar

E. Writing

A. Reading Comprehension

Read this text then do the activities

PLUTO



Pluto was discovered by an American Clyde W. Tombaugh in 1930; it remains the only planet that has not been visited by a spacecraft.

Pluto is usually farther from the Sun than any other planets; however, due to the eccentricity of its orbit, it is closer than Neptune for 20 years out of its 249 year orbit. It has an orbital inclination of 17° C.



Pluto's rotation period is 6.387 days, the same as its satellite Charon. Although it is common for a satellite to travel in a synchronous orbit with its planet, Pluto is the

only planet to rotate synchronously with the orbit of its satellite. Thus, Pluto and Charon continuously face each other as they travel through space.

Thanks to the Hubble Space Telescope, more recent images of Pluto and its satellite Charon have been provided. The improved optics allow us to measure Pluto's diameter as 2,274 kilometers and Charon's diameter as 1,172 km.



Pluto's density lies between 1.8 and 2.1 grams per cubic centimeter. It is concluded that Pluto is 50% to 75% rock mixed with ices. Its temperatures can reach -230°C .



However, the 26th General Assembly for the International Astronomical Union (IAU) which was held in 2006 took some resolutions, among them the definition of a planet. A new distinct class of objects called

“dwarf planets” was also decided. According to that definition, Pluto is a “dwarf planet” like Ceres and 2003 UB 313 (temporary name) and is recognized as the prototype of a new category of trans-Neptunian objects. More “dwarf planets” are expected to be announced by the IAU.

Activity 1 : Choose the best answer (a or b)

1. Pluto is

- a). nearer to the Sun than Neptune.
- b). as close to the sun as Neptune.

2. Pluto and Charon

- a). have an identical rotation period.

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- b). don't rotate with their orbit.
- 3. The Hubble Space Telescope has made it possible to**
 - a). measure Pluto's density
 - b). calculate Pluto's diameter.
- 4. Dwarf planets are**
 - a). Trans - Neptunian objects.
 - b). objects that have been recently discovered in space.
- 5. Pluto was declared a Trans - Neptunian object**
 - a). in 1930.
 - b). in 2006.
- 6. 2003 UB 313 is the name of**
 - a). an astronomical organization.
 - b). a dwarf planet.

Activity 2

Answer these questions

1. What makes Pluto closer to the Sun than Neptune?
.....
2. What has the Hubble Space Telescope enabled experts to do?
.....
3. List 2 resolutions adopted by the International Astronomical Union in 2006.
.....

Activity 3

Match the words in A with their definitions in B

A	B
1. remain	a. extend; be situated
2. synchronous	b. person, animal, thing much below the usual size.
3. provide	c. have, observe, conduct
4. lie	d. continue to be; continue in the same place or condition.
5. hold	e. that happens at the same time.
6. dwarf	f. give; supply what is needed.

1.	2.	3.	4.	5.	6.
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Activity 4

Complete each sentence with a word from activity 3



1. The Scots a festival of music at Edinburgh each year.

2. the Mitidja plains between Algiers and Blida.





3. After the fire, very littleed of the building.



4. It is the parents' role to their children with food and clothes(a good education?).



5. A bonsai is a tree that is grown in a pot and prevented from reaching its normal size.



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6. The sound track of a film must be with the scenes.

B. Pronunciation / Spelling

Writing and Saying Numbers

a)- Numbers over 20 are written with a **hyphen**

e.g.: 35 → **thirty-five**

b)- Numbers over 100

e.g.: 429 → **four hundred and twenty nine**

c)- Numbers over 1000

e.g.: 1,100 → **one thousand one hundred**

2,500 → **two thousand five hundred.**

✚ **A comma** is often used to divide large numbers into groups of **3 figures**.

33,423 → **thirty three thousand four hundred and twenty three.**

d)- **Decimals**

e.g.: 79.3 → **seventy-nine point three**

3.142 → **three point one four two**

0.67 → **zero point six seven / nought point six seven**

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e)- The figure “0” has several names.

✚ **Zero:** used in precise scientific, medical and economic contexts and to talk about temperatures.

e.g.: It was ten degrees below **zero** last night.

✚ **nought:** used to talk about a number, age.

e.g.: A million is written with six **noughts**.

Activity 1

Write these figures in letters

19:
142:
67:
359:
24,998:
2.54:
4,534:
34.15:
632:

Activity 2

Write the corresponding figures

1. two thousand nine hundred and seventy- three
2. two point six three eight
3. nine point zero five two
4. eight hundred and eleven
5. three thousand six hundred
6. one point seven six
7. nought point four one

C. Word-Building

- We can form nouns from adjectives
e.g.: accurate → accuracy
arrogant → arrogance

Activity 1

Form nouns from these adjectives and classify them in the table below.

defiant – casual – rational – honest – relevant – wide – sad –
eccentric – long – material – deep – dark – royal - rude

-ism	-ance	-ness	-ty	-th
.....
.....
	
			

Activity 2

Complete each sentence with a noun formed from one of these adjectives.

1. When he settled in Canada, he suffered from for months before he could make friends.
2. A lot of species are threatened by..... , so man has to protect them.
3. The plane turned back to the airport because of poor
4. Injustice engenders hate and
5. When I entered the room, I didn't see them as there was complete
6. She showed some to join us on the trip but finally we managed to persuade her to take some rest.

7. He is always in debt because of his
for months before he could make friends.
8. There is a to build an airport on the island so
that planes could fly there.

D. Grammar

1. Reading speed and temperature

Earth is 12,756 km **in diameter**.

Light travels at 299,792 **km per second (kps)**

The normal temperature of the human body is **37° C.**
(thirty-seven degrees Celcius)

◆ Asking questions with **How + adjective**

- We use **how far** for **distances**.

e.g.: How far is Earth from the Sun?

Earth is 150,000,000 km **far from** the Sun.

- We use **how big** for **sizes**.

e.g.: How big is Earth?

Earth is 12,756 km **in diameter**.

- We use **fast** for **speed**.

e.g.: How fast does Pluto rotate round the Sun ?

Pluto rotates at a speed of 4.74 km/sec

- We use **how hot / how cold** for **temperatures**.

e.g.: How hot was Djanet yesterday ?

It was 38° C.

How cold was Berlin on January 12th?

<http://www.efduidz> It was 15° C.

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- We use **how deep** for **depth**.

e.g.: **How deep** is that swimming pool?
It is 3m. **deep**.

- We use **how high / how tall** for **height**.

e.g.: **How tall** are you?
I am 1.72 m **tall**.

How high is that building?
It is 20 m **high**.

- We use **how long** for **length** or a **period of time**.

e.g.: **How long** is the Nile?
It is 6,700 km. **long**.

How long have you stayed in London?
for two years.

Activity 1

Ask questions



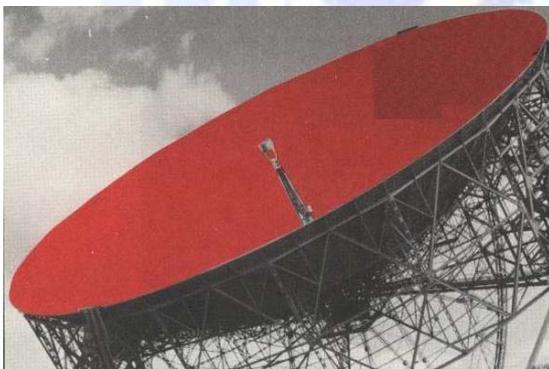
1. a) Earth
from the Sun?

b) It is 150 million km.



- 2. a)**
El Azzizia in Lybia in 1922?
b) It was 58° C.

- 3. a)** Mauna Kea in Hawaii?
b) This mountain is 4,200 m.



- 4. a)**
Arecibo Telescope?
b) This telescope is 304.8 meters in diameter.

- 5. a)** has the Hubble Space Telescope been orbiting the Earth ?
b) It was launched in 1990, so it has been orbiting our planet for 17 years now.

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6. a)
the Pacific Ocean?
b) It's 180 million sq. km.
7. a) And?
b) It is 11 km deep in some
places.

2. Connectors

a)- To express contrast, we can use:

◆ **while / whereas**

e.g.: Jupiter has 63 satellites **while/whereas** Uranus has 27.

◆ **Unlike**

e.g.: **Unlike** Ptolomy who believed the Earth was at the centre of the universe, Copernicus said that the Earth and the other planets orbited around the Sun.

b)- To express similarity, we can use:

◆ **like**

e.g.: Neptune, like Saturn and Jupiter, is known as the Jovian planets.

= **Like** Neptune, Saturn and Jupiter are known as the Jovian planets.

Activity 2

Complete with **while** (= **whereas**), **unlike** or **like**:

1. Pluto, Mercury is a small planet.
2. One day is 24 hours on Earth a day on Venus is 243 Earth days.
3. Pluto, Mercury is the nearest planet to the sun.
4. Earth is inhabited the other planets are not.
5. Arecibo is a radio telescope the Keck which is a reflector telescope.
6. In 2006, Pluto was declared to be a “dwarf planet” the eight others in the solar system.

E. Writing

Activity 1

Write a summary of the reading passage

.....

.....

.....

.....

Activity 2

Reorder these sentences to get a coherent paragraph:



- a)-During that same period the first Observatory, the Tower of Seville, was constructed by the Arabs under the supervision of Jabir Ibn Afiah in 1190 AD.
- b)- The Muslims have thus made the greatest contributions to astronomical knowledge during medieval times.
- c)- The outstanding Spanish astronomers were Majriti of Cordoba, Al Zarqali of Toledo, Ibn Afiah of Seville and Al Bitruji.
- d)- During the 10th and 11th centuries astronomical studies were especially favoured in Spain.
- e)- This latter was considered the exponent of a new astronomy marking the culmination of the anti- Ptolomaic movement.

1.	2.	3.	4.	5.
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