

In 1997, astronomers reported that an asteroid 1.5 km across might come into collision with the Earth in the year 2028. Fortunately, this warning turned out to be a false alarm, but the outcome was that it sparked off research at an international level into NEO (Near Earth Objects)...

Asteroids and comets consist of the remains and debris of the formation of the solar system about 4.5 billion years ago and range in size from small stones to rocky or icy masses nearly 1,000 kilometers across. If the trajectory of an asteroid or a comet intersects the orbit of the Earth or is within 0.3 Astronomical Units, (1 AU = distance Earth-Sun) it is labeled as a "NEO". It is not, however, classified as "potentially hazardous", unless it comes within 0.05 AU (7.5 million kilometers) of the Earth and its diameter attains 150 m. So far, 258 potentially hazardous objects have been located.

Asteroids are made up of different carbonaceous materials, rocks (silicates) or metal. In structure, they may be solid masses of stone or iron, or comprised of clusters of rocks held together only by their own weak gravitational forces. They are not spherical in shape and may spin as they travel.

Comets, on the other hand, consist essentially of dust-covered ice. If their trajectory brings them close to the sun, the gases evaporate, freeing dust, and thus forming the tail which can sometimes be seen with the naked eye. The numbers and dimensions of NEOs can be worked out, either directly, using data gathered from ground-based telescopes or, alternatively, it can be derived from calculations based on crater impacts on the Moon or the planet Mercury.

I- Reading comprehension: 8.5 p

1- Say if the following statements are true or false all justifying your answer.

- By 2028, an asteroid will collide with the earth. **False**

“...an asteroid 1.5 km across **might come into collision** with the Earth in the year 2028”. 1

- Near Earth Objects (NEOs) are comets and asteroids that have been nudged by the gravitational attraction of nearby planets into orbits. **True**

“...If the trajectory of an asteroid or a comet intersects the orbit of the Earth or is within 0.3 Astronomical Units, (1 AU = distance Earth-Sun) it is labeled as a "NEO". 1

2-When should we consider NEO's as potentially hazardous? 1

When they come within 0.05 AU (7.5 million kilometers) of the Earth and its diameter attains 150 m. So far, 258 potentially hazardous objects have been located.

3-What is the difference between comets and asteroids? 3

4-Find in the text synonyms of the following words: 2.5

reaches=attains

result=outcome

rotate=spin

course=trajectory

dangerous=hazardous

II- Grammar:

Exercise 1: Form compound nouns corresponding to the following definitions.

4. p

1. Activity which is located in the brain of rats. **Rat brain activity**

2. A column which is made of concrete and weighs 25 tones. **25 tones concrete column**

3. A mine which is placed underwater and can be controlled at a distance. **Remote controlled underwater mine**

4. Proteins which protect by preventing freezing. **Protective anti-freezing proteins**

5-Pipette which is made of glass and is controlled by a computer. **Computer controlled .**

6-Effect in a term (period) which is long) **long-term effect.**

7-Centre for transplantation which is in the town of St Louis. **St Louis transplantation centre.**

8-Rates of success of implantation of 65%. **65% implantation success rates.**

Exercise 2: Complete with the following verbs in their correct forms: *carry on, *get on, *hold on, *put on, *try on. 5 p

1. Hi! Is Mr. Robinson in?

Hold on I'll call him.

2. Excuse me, could I **try on** this dress, please?

3. How are you **getting on** at college?

4. Are you still **carrying on** with your tennis lessons?

5. It was a bit chilly, so she **put on** her jacket.

Exercise 3: Fill in the gaps with the following words 3.5 p

Electron – atomic number –atomic weights- nucleus-elements-grouped-properties

In 1869, the Russian chemist Dmitri Mendeleev first proposed that the chemical elements exhibited a "periodicity of properties." Mendeleev had tried to organize the chemical elements according to their atomic weights, assuming that the properties of the elements would gradually change as atomic weight increased. What he found, however, was that the chemical and physical properties of the elements increased gradually and then suddenly changed at distinct steps, or periods. To account for these repeating trends, Mendeleev grouped the elements in a table that had both rows and columns.

The modern periodic table of elements is based on Mendeleev's observations; however, instead of being organized by atomic weight, the modern table is arranged by atomic number.

The "periodic" nature of chemical properties that Mendeleev had discovered is related to the electron configuration of the atoms of the elements.

In other words, the way in which an atom's electrons are arranged around its nucleus affects the properties of the atom.

N.B: Rewrite all the exercises with their answers on the exam sheet.