<u>LUNES 23 Y MARTES 24 DE MARZO DE 2020:</u>

Lectura y resumen de las páginas 120 y 121.

Para que comprendáis mejor la página 121, os envío un vídeo ilustrativo.

https://www.youtube.com/watch?v=j4JzGjJmMJc

Haced los tres ejercicios de la página 121.

<u>VIERNES 27 DE MARZO DE 2020:</u>

Esquema de páginas 122 y 123:

Hacer de la página 128, el ejercicio 2, los apartados: a-b-c-e y f. (los demás apartados no se hacen).

El trabajo de esta página me lo enviáis para el Lunes 30 de Marzo, como muy tarde.

El Universo. Ley de Gravitación Universal. En inglés, os lo envío en esta página:

The Universe: the law of universal gravitation

The Universe is vast with a diameter close to 1025 km. It is so great that a beam of light would take 100 billion years to cross it.

In it there are numerous celestial bodies, such as stars and planets, which are grouped into different systems, such as galaxies, as a result of forces of attraction that they exert on each other.

As a result of this force of attraction:

- objects experience the force of weight.

- the Moon revolves around the Earth.

- the planets orbit the Sun.

- stars are grouped into galaxies.

- galaxies are grouped in clusters of galaxies.

Newton's law of universal gravitation

Based on many experiments, the English physicist Sir Isaac Newton (1642-1727) established the **law of universal gravitation**.

This law states that the value of the force with which two bodies attract each other:

- is directly proportional to the product of the values of their masses, m_1 and m_2.

- is inversely proportional to the square of the distance, d, that separates them.

The gravitational constant is symbolised by G.

Mathematically we write:

$$F = G \cdot \frac{m_1 \cdot m_2}{d^2}, \text{ where } G = 6.67 \cdot 10^{-11} \frac{N \cdot m^2}{kg^2}$$

The term 10^{-11} indicates that the value of G is extremely small:

$$10^{-11} = 0.000\,000\,000\,01$$

As this value is so small, gravity is only observable when at least one of the two masses is very large.

The **Solar System** is made up of the Sun and 8 planets. It has a diameter of approximately 0.00095 light years (up to the orbit of Neptune).

LIGHT YEAR

The Universe is so big that we use a unit much larger than the kilometre to indicate distances and sizes within it.

This unit is the **light year**, which is the distance that light travels in a year: $9.6 \cdot 10^{12}$ km (light travels at $3 \cdot 10^8$ m per second).

The Solar System is on the outer edge of the **Milky Way**, which contains between 200 billion and 400 billion stars and is about 150 billion light years across.

Local Group.

The Milky Way is one of approximately 40 galaxies that form a small galaxy cluster, known as the **Local Group**, which has a diameter of approximately 6 million light years.

Universe.

The galaxy cluster that includes the Milky Way is one of many millions that form the known **Universe**.

NEW VOCABULARY

vast: immense

QUICK REVISION

- A light year is the measure of length used to talk about enormous distances.

LUNES 30 DE MARZO DE 2020.

5. RELACIONES ENTRE MAGNITUDES. PÁGINA 124 .

Debéis hacer una lectura de la página y hacer los 5 ejercicios, que son los pasos que hay que seguir para hacer una representación gráfica. Le hacéis una foto y me la enviáis para que la corrija.

MARTES 31 Y VIERNES 3 DE ABRIL:

6. PRESIÓN: PÁGINAS 126 Y 127. Hacéis un esquema, sacais la fórmula de la presión para el formulario del tema.

Ejercicios 1 y 2 de la página 127.

Estas actividades me las enviáis el viernes 3 de Abril como fecha tope.