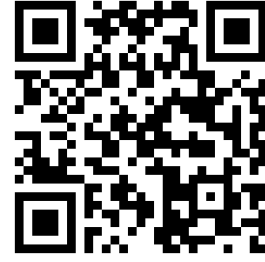


تم تحميل هذا الملف من موقع المناهج الإماراتية



الملف ملخص وشرح الدرس الأول Lesson1 travels light how مع امتحانات السنوات السابقة

موقع المناهج ← المناهج الإماراتية ← الصف الثامن ← علوم ← الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب الصف الثامن



روابط مواد الصف الثامن على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

المزيد من الملفات بحسب الصف الثامن والمادة علوم في الفصل الأول

[ملخص وشرح الدرس الأول Properties Wave خصائص الموجة](#)

1

[أسئلة الامتحان النهائي بريدج](#)

2

[حل أسئلة الامتحان النهائي - انسابير](#)

3

[حل مراجعة الدروس المطلوبة وفق الهيكل الوزاري انسابير](#)

4

[تدريبات مراجعة للامتحان مناهج انسابير](#)

5

Lesson 1(how light travels)

Main types of waves:

-Mechanical waves: travel only through matter **Example: Sound Waves**

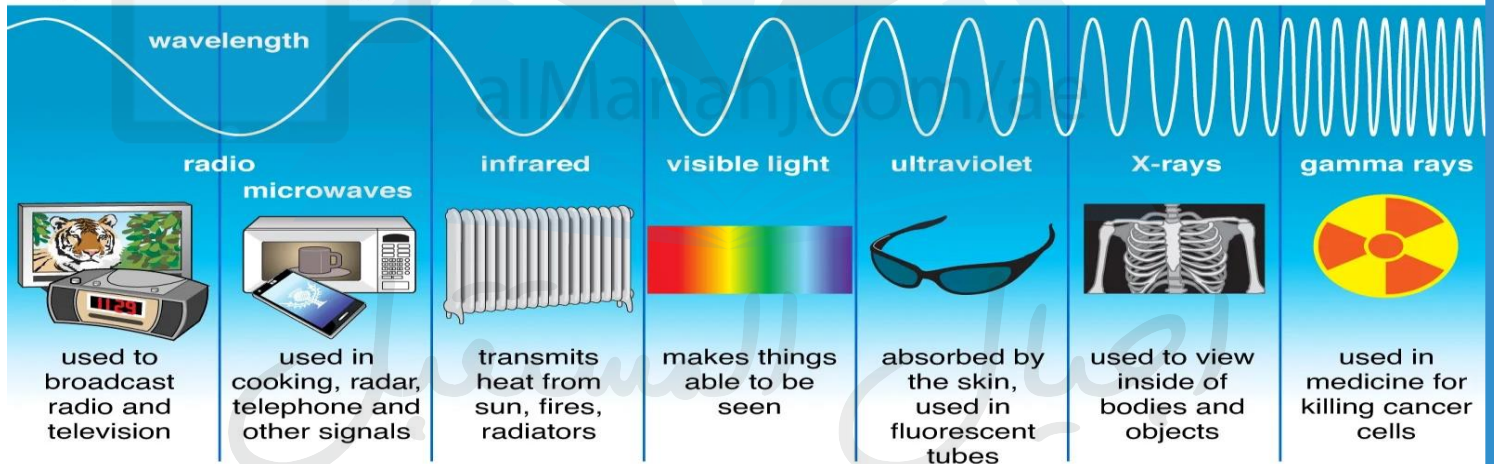
-Electromagnetic waves: travel through empty space (vacuum) or through matter **Example: Light Waves**

- ✓ An electromagnetic wave is made up from electric wave and magnetic wave.

Electromagnetic spectrum: is the entire range of electromagnetic waves with different frequencies and wavelengths.

- ✓ Each type of wave has a different frequency and wavelength, and each carries a different amount of energy.
- ✓ All these waves together make up the electromagnetic spectrum

Types of Electromagnetic Radiation



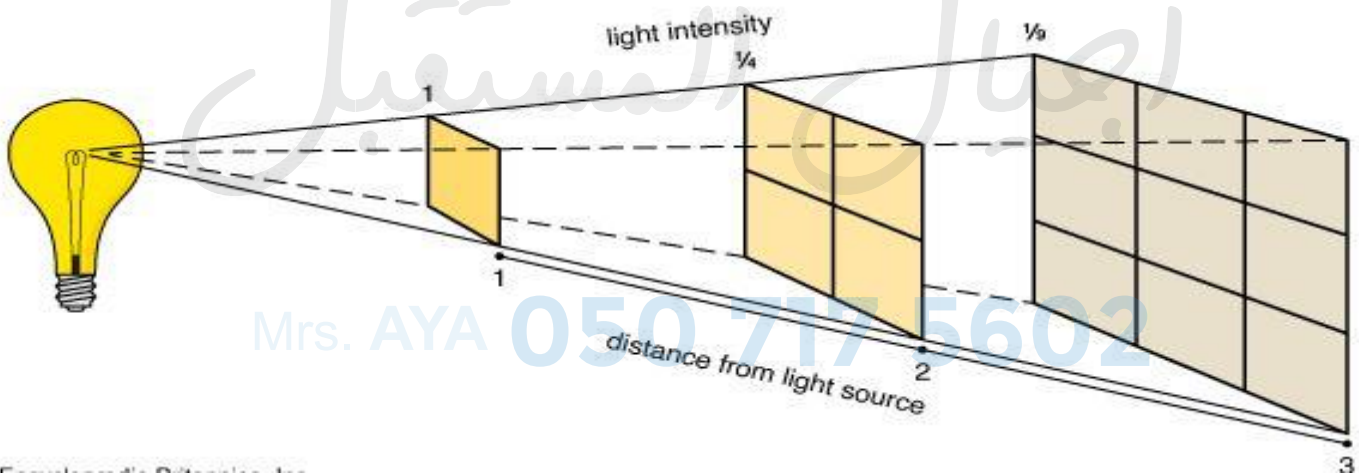
THE ELECTROMAGNETIC SPECTRUM



- ✓ The electromagnetic spectrum is organized into groups based on the wavelengths and frequencies of the waves.
- ✓ Note That: visible Light is the only wave that you can see with your eyes
- ✓ Remember That:
As frequency decreases, wavelength increase, (vice versa).



- ✓ Radiant energy: The energy carried by an electromagnetic wave
- ❖ Intensity is the amount of energy that passes through a square meter in one second.
Intensity depends on:
 - ✓ The amount of energy a source emits.
 - ✓ The light's distance from the source.



Speed of light

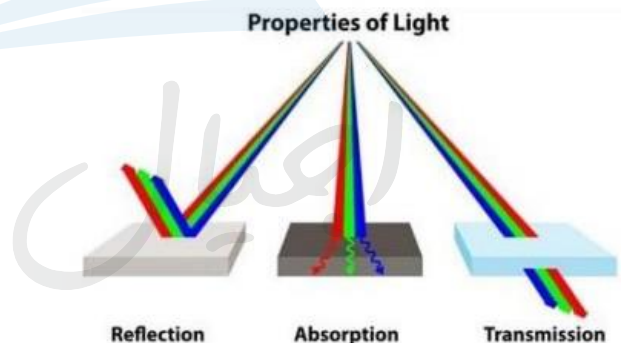
Electromagnetic waves travel through space (Vacuum) at: 300,000 km/s

Speed of Light Waves in Some Materials	
Material	Wave Speed (km/s)
Vacuum	300,000
Air	299,920
Water	225,100
Glass	193,000

- **At which material light waves travels faster? Answer: Vacuum**
- **Compare the speed of light through different states of matter.**
 - ✓ Light waves travel much faster in gases (air), than in liquids (water) and solids (glass)

Remember that:

- ✓ **Reflection:** Waves transfer back or bounce back
- ✓ **Transmission:** The passage of light through an object
- ✓ **Absorption:** The transfer of energy by a wave to the medium through which it travels



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Two types of materials can transmit light:

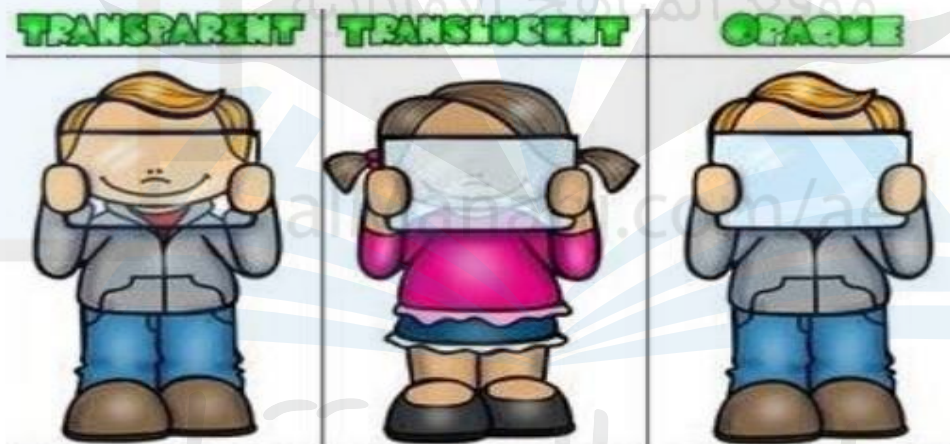
- **Transparent:** A material that allows almost all the light that strikes it to pass through and form a clear image Example: Clean water - Plain glass - Some plastics
- **Translucent:** A material that allows most of the light that strikes it to pass through and form a blurry image.

Note That:

- ✓ If you can see the object behind the material then it's transparent.
- ✓ In Translucent material: light can be transmitted & absorbed

One type of materials absorb and reflect light (you cannot see objects through them):

Opaque: A material through which light does not pass Example: wood – metals.



Extra Notes:

- What is the main source of light on Earth?
 - The Sun is luminous
- What does luminous mean?
 - Luminous objects: release, or emit, light. مصدر مضيئ
 - Luminous objects are sources of light.
- The Moon might appear bright, but it is just a rocky sphere.
 - You see the Moon because it reflects light from the Sun.

Previous exams questions:

How does the energy of a light wave depend on its frequency? (Final Exam 2022)

Answer: The higher the frequency, the more energy the photon has

What happens to the energy of an electromagnetic wave if its frequency increases? (Final Exam 2021)

Answer: As the frequency of an Electromagnetic wave increases, the energy of the wave increases.



أجيال المستقبل

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