

FINAL PROJECT: You're a scientist and you've been asked to intervene in an international lecture about the Doppler Effect.

Use all you will learn in the following activities to prepare your oral presentation.

Activity 1 : CO

Video : Physics and waves : an introduction

1. What are the different types of waves ? _____
2. Explain the difference between transverse waves and longitudinal waves. Give examples of each of them.
3. What does the « duck experiment » show ?
4. How do we measure a wavelength ?
5. How do we measure the amplitude of a wave ?
6. How do we measure the frequency ? What unit is used to measure it ?
7. How do we calculate the speed of a wave ?

The Doppler effect

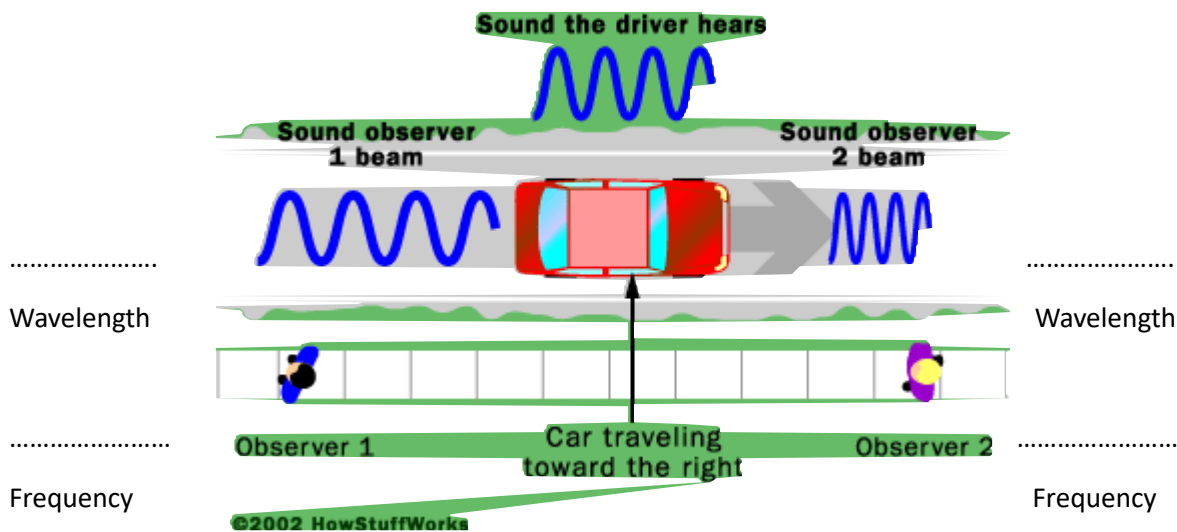
You may have noticed that when an ambulance or police car goes past, its siren is high-pitched as it comes towards you, then becomes low-pitched as it goes away. This effect, where there is a change in frequency and wavelength, is called the Doppler effect.

When a source moves towards an observer, the observed wavelength decreases and the frequency increases.

When a source moves away from an observer, the observed wavelength increases and the frequency decreases.

1. Read the text and complete the scheme with the words below

HIGH / LOW / LONG / SMALL



Activity 3 : CO

3 videos :

- - the Doppler effect fluvore 4'41
- - the doppler effect : what does motion do to waves?
- - Red Shift and Doppler Effect

Watch the videos and answer the following questions or do the tasks

1. What do we call the Doppler effect ?

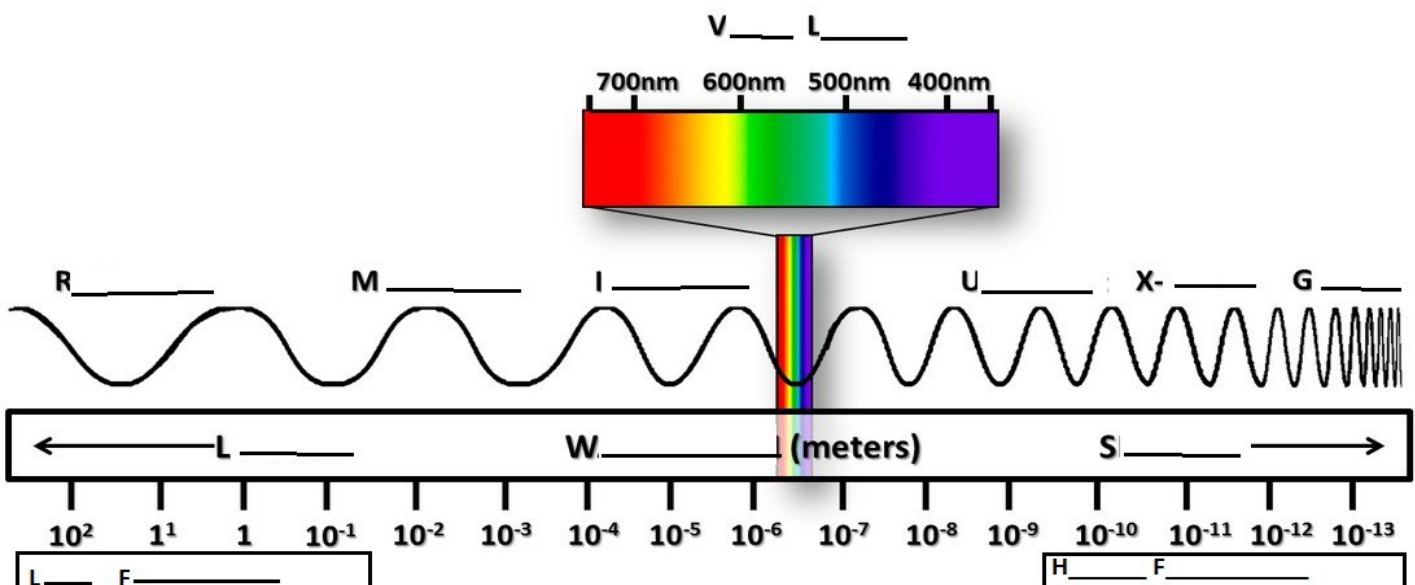
2. Why is it called « Doppler » effect ?

3. What are the consequences and/or differences on the sound we can hear from a stationary source and from a moving source ?

4. Explain the relation between the wavelength, the frequency and the pitch

5. What happens when a stationary object starts to move ?

6. Focus on light waves. Colour and complete the electromagnetic chart below



7. Explain the expressions Red Shift and Blue Shift .

8. What is the relation between the Red Shift theory and the Big Bang Theory ?

Vocab : complete the chart below

ENGLISH	FRENCH	ENGLISH	FRENCH
A wave		The speed	
The pitch		The shift	
high		A fire engine	
low		An observer	
A sound		A soundwave	
A light		A lightwave	
The crest		To bunch	
The trough		The amount	
To measure		To grow	
The universe		To approach	
To expand		To recede	