

PENANG SANGAM HIGH SCHOOL  
WEEK 14  
LESSON NOTES  
PHYSICS – Y13

---

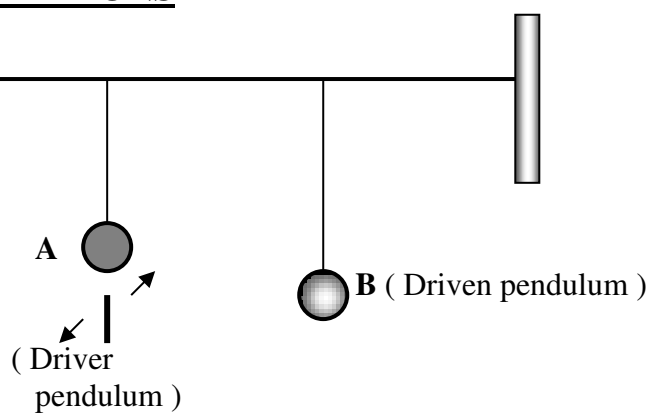
STRAND 2: OSCILLATORY MOTION : SIMPLE HARMONIC MOTION

---

SUB-STRAND: Forced Oscillation and Resonance  
CONTENT LEARNING OUTCOME: to understand about resonance and Damped oscillations .

---

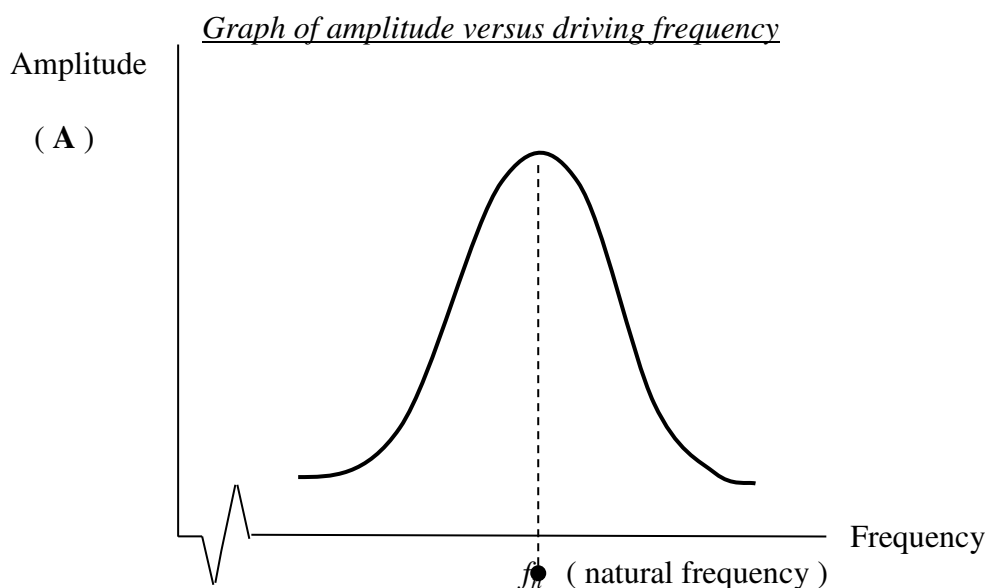
FORCED OSCILLATIONS



If an object (B) is free to move, it can be caused to oscillate by a driving force ( A ). This is called forced SHM. The frequency of the motion always matches the frequency of the driving force, but the amplitude varies greatly.

When the **driving frequency equals the natural frequency** the **amplitude is very large**.

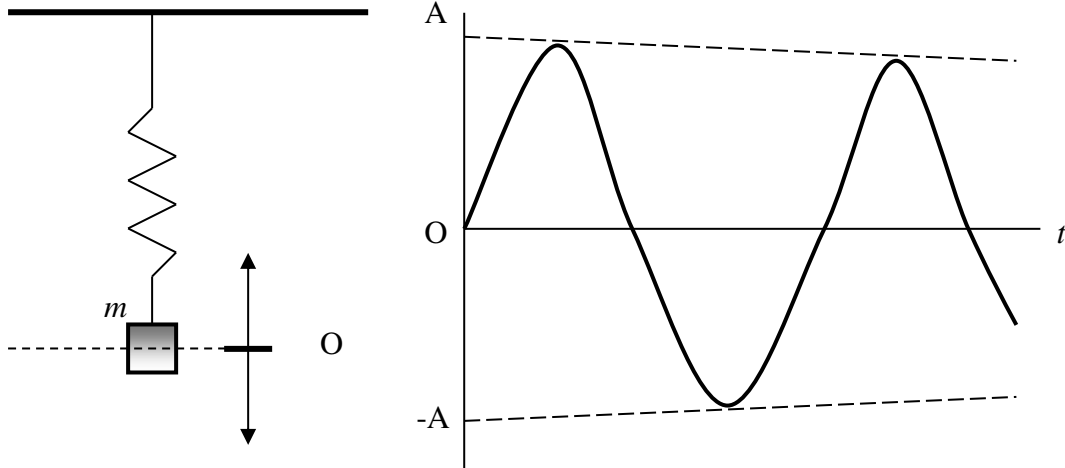
This condition is called **resonance**.



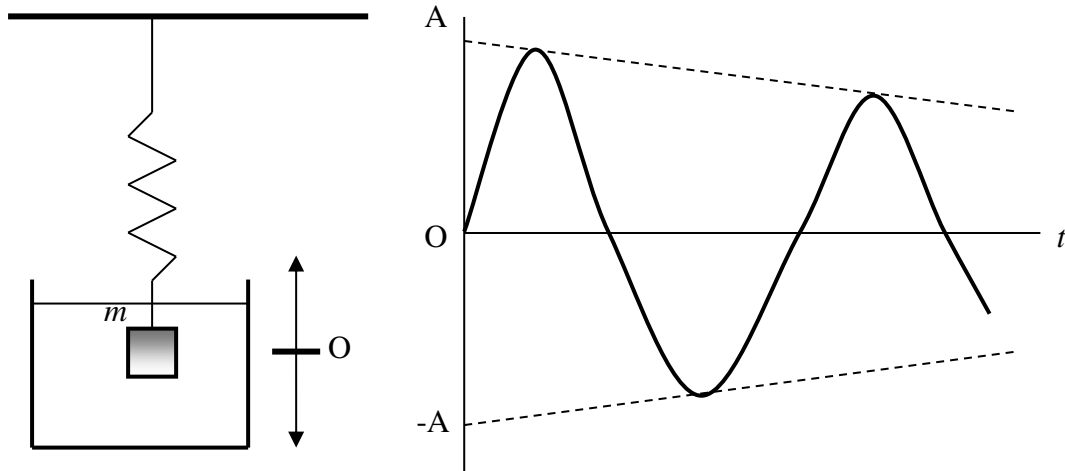
## DAMPED SHM

When friction is introduced in SHM, the amplitude gradually decreases and the oscillation comes to a stop. This effect is called damping.

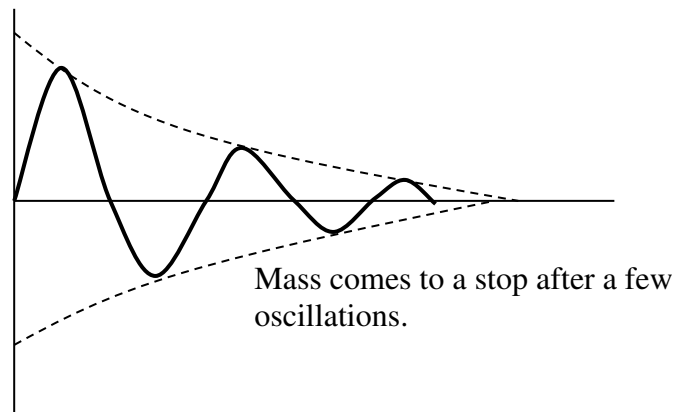
### 1. Mass in air.



### 2. Mass in water



### 3. Mass in oil



- This effect is used in shock absorbers in cars to quickly dispense SHM effect caused by pot – holes, bumpy roads etc...