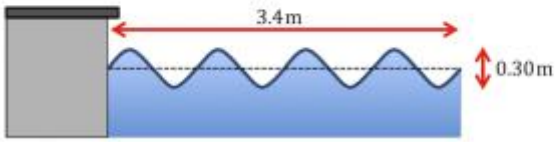
Lesson 4 – Waves & radiation part 1

(all answers are given in the online video)

1. Question 1 – wave terms and the wave equation

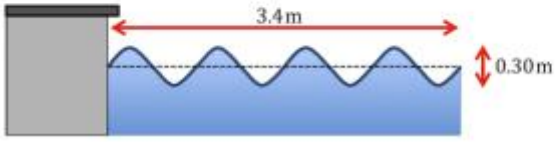
A wave machine in a swimming pool produces waves as shown below.

(a) Determine the wavelength and amplitude of the water waves.



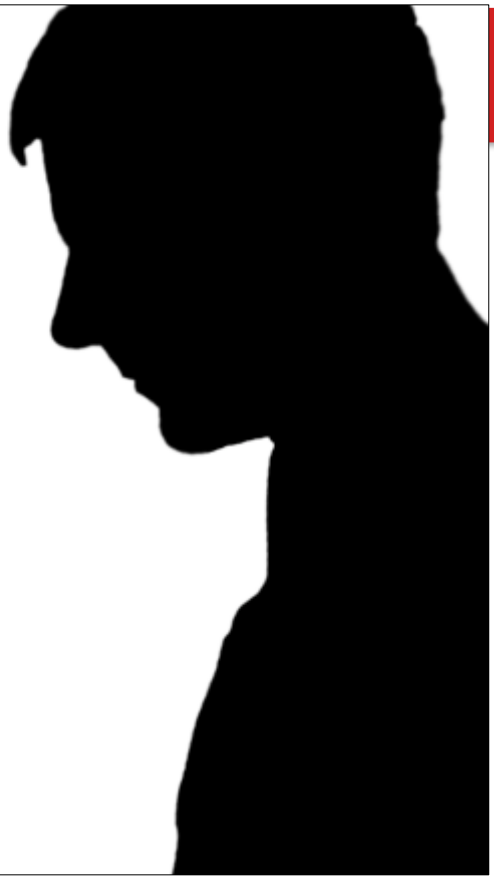
A lifeguard finds that the waves travel the full length of the 25m pool in a time of 5.2s.

(b) Calculate the frequency of the water waves.



2. Now a refraction question – use your pen & ruler for this one

A man notices that, when he fills his coffee mug full of water, he can see a 20p coin which was dropped into it. When the mug was empty, he could not see the coin.
Draw a ray diagram to show how light from the coin reaches the man's eye.



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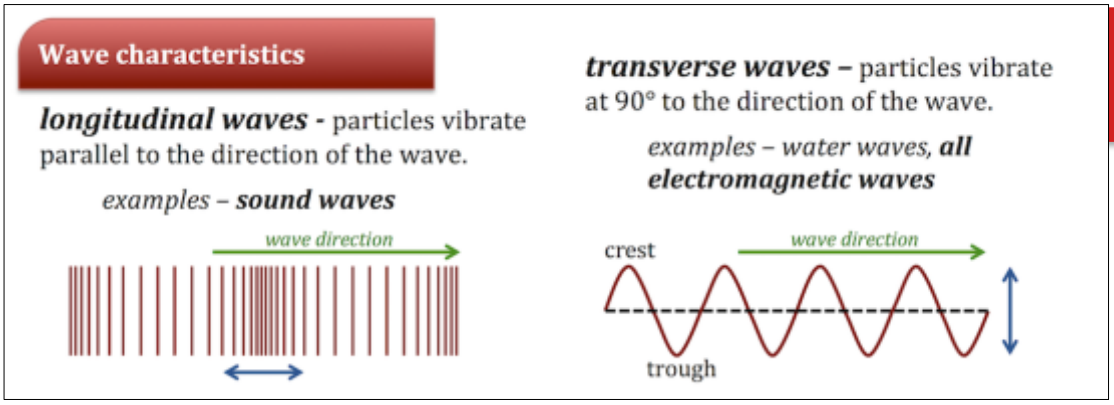
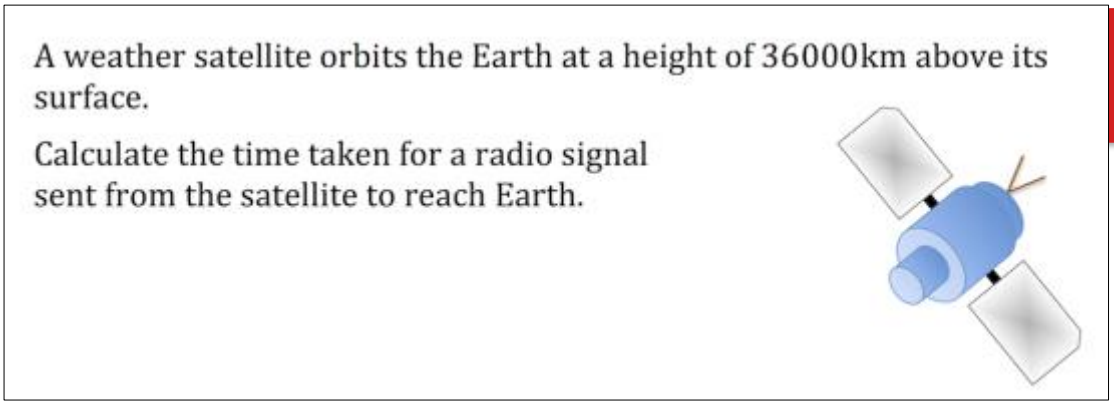
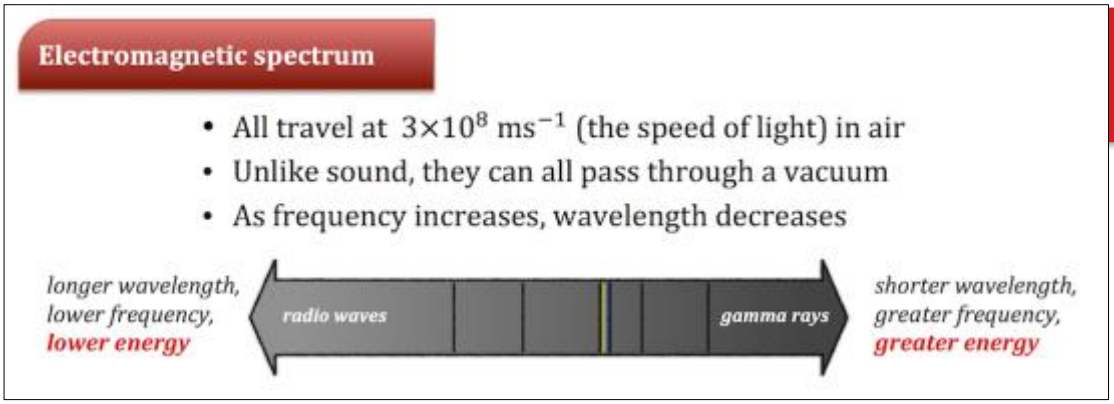
3. The difference between longitudinal and transverse waves

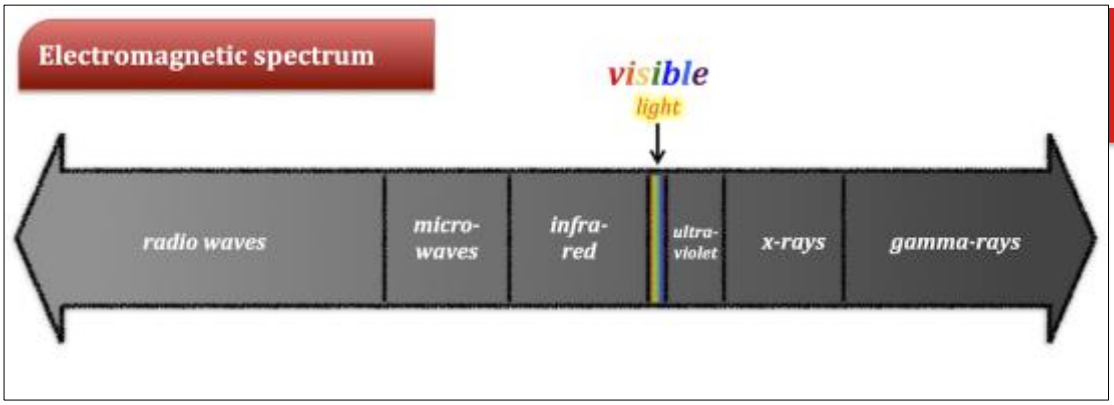


4. Satellite question – an intro to the electromagnetic spectrum



5. The electromagnetic spectrum in more detail – remember Roger Moore!





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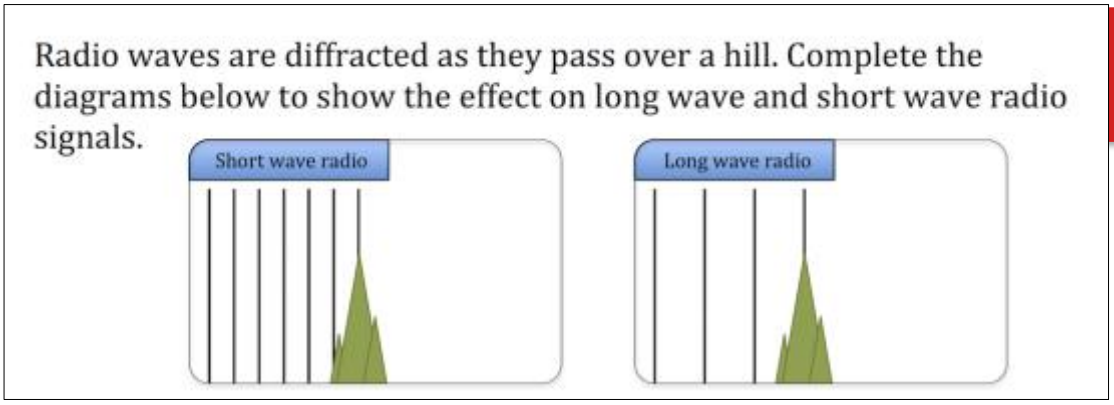
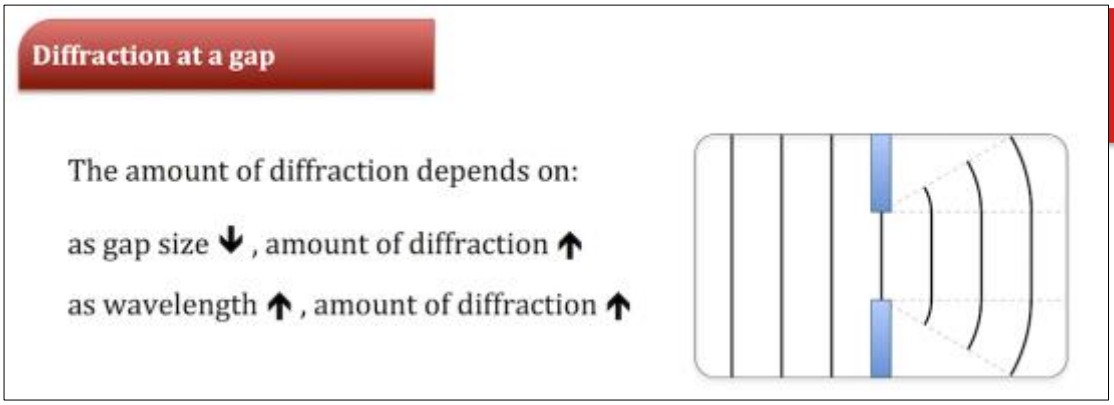
6. Diffraction – see video for guidelines on how to complete the diagrams



7. Diffraction at a gap



All questions and slides were covered in the lesson.