

**Vibrations and Waves continued:**

5. A rapid-fire pellet gun fires 10 rounds per second.  
The speed of the pellets is 300 m/s.



- a. What is the distance in the air between the flying pellets? \_\_\_\_\_
- b. What happens to the distance between the pellets if the rate of fire is increased?  
\_\_\_\_\_

6. Consider a wave generator that produces 10 pulses per second. The speed of the waves is 300 cm/s.

- a. What is the wavelength of the waves? \_\_\_\_\_
- b. What happens to the wavelength if the frequency of pulses is increased?  
\_\_\_\_\_

7. The bird at the right watches the waves. If the portion of a wave between 2 crests passes the pole each second, what is the speed of the wave?

What is its period?  
\_\_\_\_\_



8. If the distance between crests in the above question were 1.5 meters apart, and 2 crests pass the pole each second, what would be the speed of the wave?

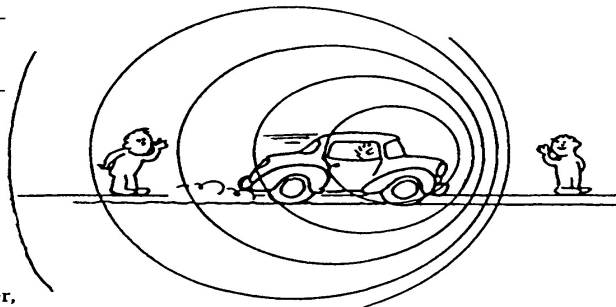
What would be its period?  
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9. When an automobile moves toward a listener, the sound of its horn seems relatively

(low pitched) (normal)  
(high pitched)

and when moving away from the listener, its horn seems

(low pitched) (normal)  
(high pitched)



10. The changed pitch of the Doppler effect is due to changes in  
(wave speed) (wave frequency)