

PHY138 – Waves, Lecture 3

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Office Hours: Mon. 6 PM, Wed. 2 PM, Wed. 6 PM, Fri. 9 AM
... come on by!

Reading Assignment

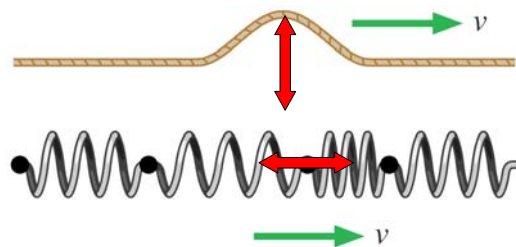
- This week's reading assignment from the text by Knight is: **Chapter 20**, Sections 20.1-20.7
- There is also an article on Medical Ultrasound available on the web-page for Wednesday's Lecture (Waves Lecture 4).
- Suggested Chapter 20 Exercises and Problems for Practice: 1, 25, 35, 39, 53, 69, 71, 79, 82 (**79 is funny!**)

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Today's overview

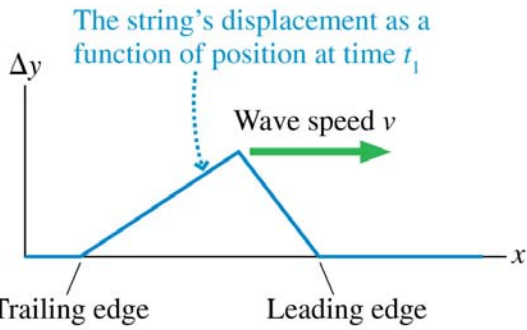
- The Wave Model
- Speed of Waves on a String
- Sinusoidal Waves
- Spherical Waves, Plane Waves

Transverse versus Longitudinal

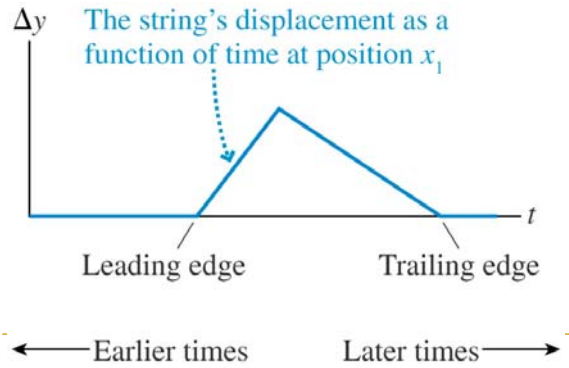


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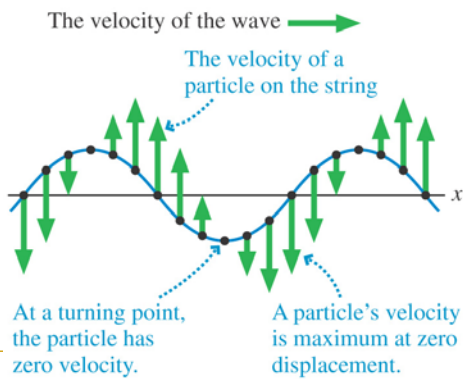
Snapshot Graph



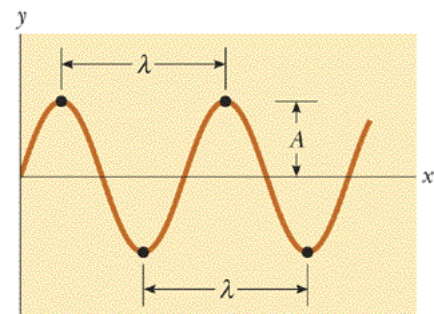
History Graph



Sinusoidal Waves

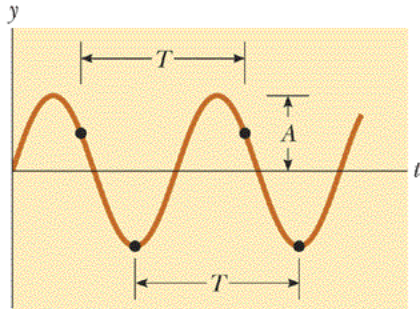


Sinusoidal Wave Snapshot Graph



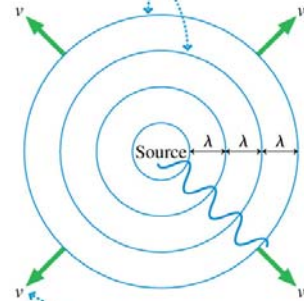
$k = 2\pi/\lambda$ is the wave number

Sinusoidal Wave History Graph



$\omega = 2\pi/T$ is the angular frequency

Wave fronts are the crests of the wave. They are spaced one wavelength apart.



The circular wave fronts move outward from the source at speed v .

Very far from the source, small segments of spherical wave fronts appear to be planes. The wave is cresting at every point in these planes.

