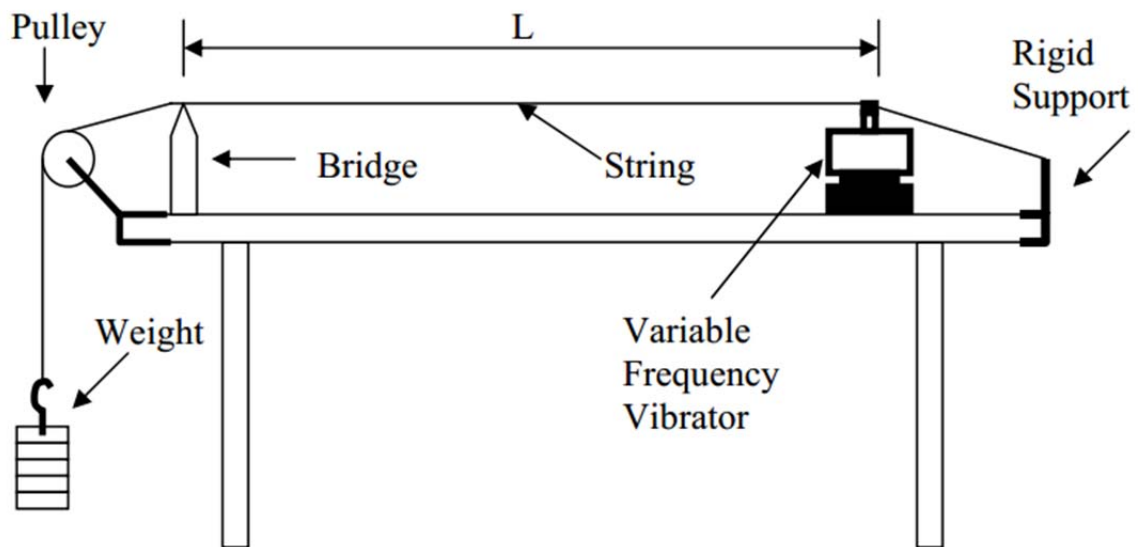


Investigating Standing Waves



Investigation 1

Keep the weight (and hence the tension in the string) constant.

Vary the length of the string.

Adjust the frequency for each length until you reach the fundamental standing wave.

Tabulate length and frequency, then calculate the wavelength and wave speed for each row in your table.

What can you conclude about wave speed when the string tension is kept constant?

Investigation 2

Record the length L . This time you will be using the first overtone, so L corresponds to the wavelength of the wave.

Keep the length the same and vary the weight (and hence the tension in the string).

Adjust the frequency for each tension until you reach the first overtone.

Tabulate tension and frequency, then calculate wave speed for each row in your table (you will need

Plot a graph of wave speed against tension.

Remember

- Correct headings for your table and labels for your graph
- Measurements recorded to correct number of d.p.
- Derived quantities (e.g. wave speed) to correct number of sig fig
- Good range of readings in each investigation
- Good number of readings in each investigation
- Good quality data – redo if your graph shows poor data
- Big graph