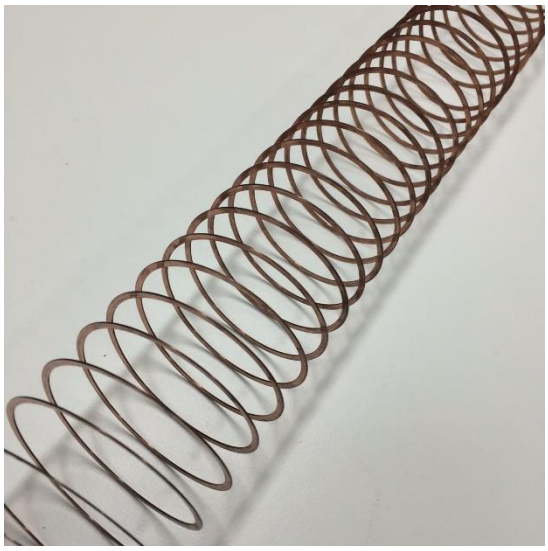
Slinky Redshift Modelling



Equipment

- Slinky

This is a simple activity demonstrating how waves produced by a source will increase in wavelength (thus decreases in frequency) as the source moves away from an observer, and that waves decrease in wavelength if the source moves towards an observer.

Method

1. Two people hold opposite ends of the slinky and stand approximately 2 m apart.
2. The people move away from each other slowly and notice what happens to the distance between the loops in the slinky, with each loop representing one wavelength. This is red shift.
3. The two people return to the original position and then move towards each other slowly. Notice what is happening to the distance between the loops of the slinky. This is blueshift.

Extras

- Can you represent a spinning galaxy in some way?
- Listen carefully to vehicles driving past – can you hear the Doppler shift of the sound waves?