

Forms part of the Gr 10 Physical Sciences 3-in-1 Class text and Study Guide.
See p. 84 MODULE 2 TOPIC 1 Unit 2 for the theory.



PRACTICAL DEMONSTRATION

Superposition of pulses

Materials

- slinky spring or a heavy rope

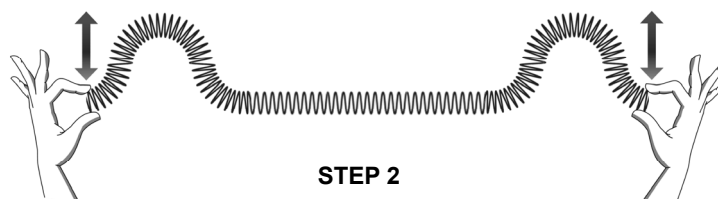
NOTE

Two people are required to perform this practical.



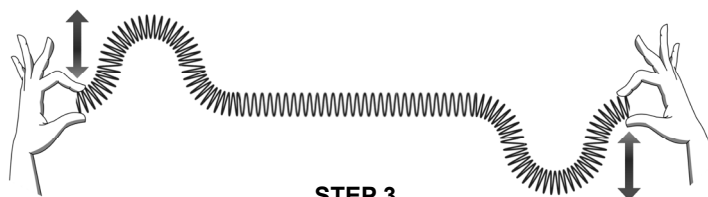
Method

- 1 Have two people stand on opposite ends of the spring (or rope), firmly holding its ends while stretching it out on a smooth surface.
- 2 Each person flicks the ends of the spring simultaneously to the same side across the same distance. Observe the pulses that travel along the same side of the spring towards each other.



STEP 2

- 3 Repeat STEP 2, but now flick the ends of the spring in opposite directions, so that the pulses travel along opposite sides of the spring towards each other.



STEP 3

Observations and discussion

- When the **two pulses** traveling along the **same side** of the spring, meet / overlap, the **amplitude** of the combined pulse is **bigger** than that of the individual pulses.
- When the **two pulses** traveling along **opposite sides** of the spring meet / overlap, the **amplitude** of the combined pulse is **smaller** than that of the individual pulses, or zero.
- The pulses separate again and continue to move into their original directions.

Conclusion

Two pulses that occupy the same space at the same time can amplify or weaken / cancel each other.