

Forms part of the Gr 10 Physical Sciences 3-in-1 Class text and Study Guide.
See p. 86 MODULE 2 TOPIC 2 Unit 1 for the theory.



PRACTICAL DEMONSTRATION

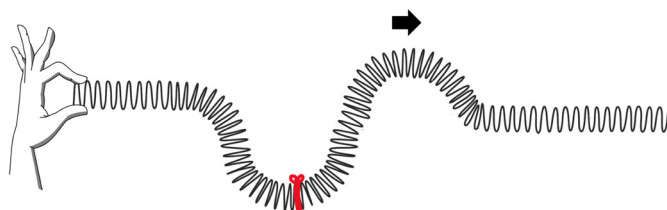
Transverse waves in a spring

Materials

- a slinky spring or a heavy rope
- a piece of string

Method

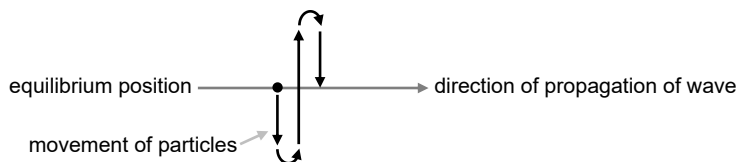
- 1 Attach the one end of a slinky spring (or rope) to a fixed point. Tie a piece of string to one coil.
- 2 Quickly flick the other end from the equilibrium position to one side, then to the other side (or up and down) and back again. Perform this movement once and observe what happens to the piece of string.
- 3 Now move this end repeatedly at a steady rate from side to side or up and down. Note your observations.



A single wave created in a slinky spring

Observations and discussion

- If the movement (from the equilibrium to the sides and back) is performed once, one full vibration cycle is complete and one transverse wave moves along the spring.



One full vibration cycle

- Each particle in the spring (represented by the piece of string) oscillates (moves sideways or upwards and downwards) around its equilibrium position as the wave is propagated along the spring.
- When the spring is flicked repeatedly from side to side (or up and down) several waves are generated and propagated along the spring.

Conclusion

One or more transverse waves, consisting of successive transverse pulses, are propagated along the spring.