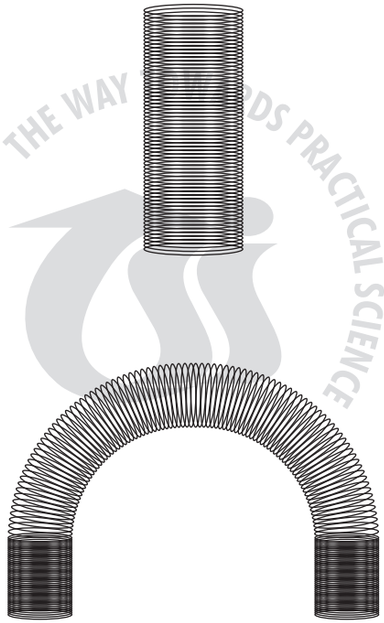
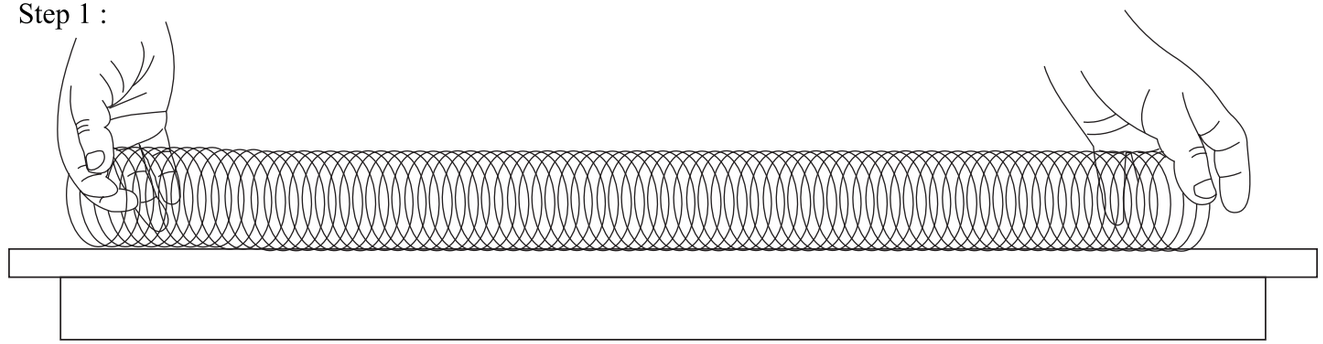
SLINKY SPRING
Demonstration of longitudinal waves

SLINKY : Slinky is a flat coiled spring measuring 3 to 4 inch in diameter and of suitable length. It can be extended many times its length without extension.



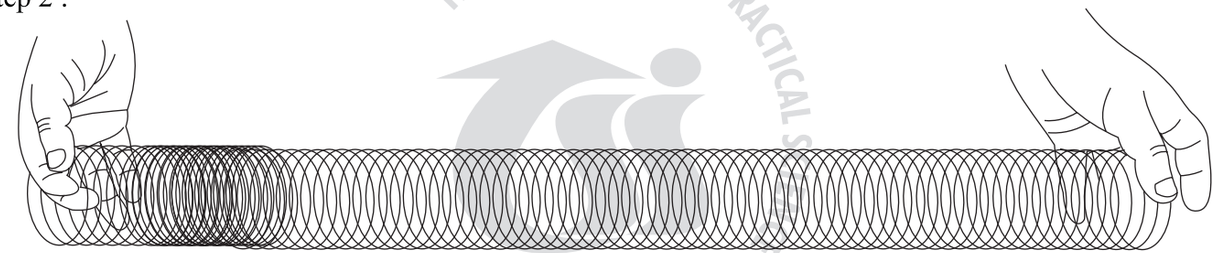
To do and observe

Step 1 :



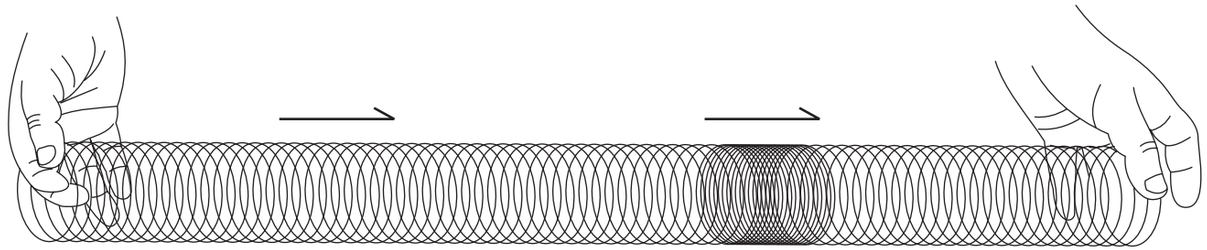
Stretch the spring on a smooth big table. Ask one of your friend to hold one end of the slinky horizontally as shown above.

Step 2 :



movable Steady hand

Keeping the slinky in the horizontal position give a sudden jerk on the free end of the spring. You will notice that the slinky is suddenly compressed. This compression travels along the slinky as shown below.



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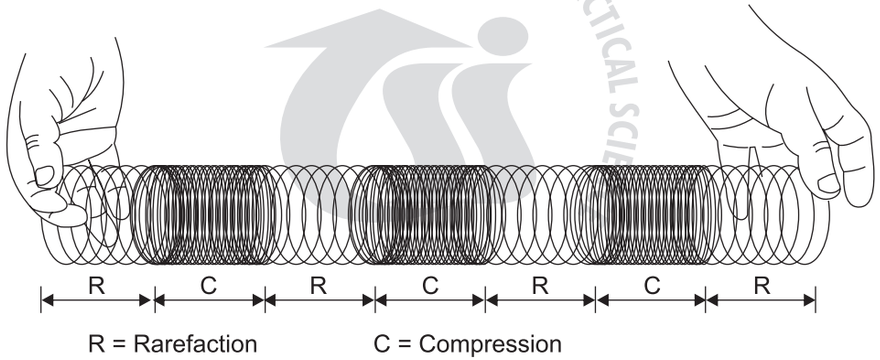
Step 3 :

Give jerks periodically on the free end of the slinky. You will observe that the compressions travel in succession continuously from free end to the fixed end. See that rarefaction also gets created and follows the compression. Such a wave is called longitudinal wave (You may also observe slight reflection).



What is going on?

When you give a single jerk to the slinky, you are creating disturbance in it. This disturbance moves in the form of compression along the spring. When you are giving push and pulls, a compression is created followed by rarefaction. The region where the coils come closer is called compression. The region where the coils are farther apart is called rarefaction.

Sound travels through air in the form of longitudinal waves. When sound travels through air it produces compressions and rarefactions in air like what is observed in the slinky.

Followup :

Observe the paddy field when wind blows across it.

RICHARD T. JAMES
(Inventor of Slinky)

THE WAY TOWARDS PRACTICAL SCIENCE

SLINKY SPRING

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