Speedy

Purpose
To demonstrate the method used by early sailors to determine the speed of ships.

Materials
Scissors  Pencil  Stopwatch
Yardstick (meter stick)
11 - foot (3.3-m) cord
Helper

Procedure
1. Cut 9 feet (2.7 m) of cord and tie a knot in each end.
2. Cut eight 3-inch (7.5-cm) pieces of cord.
3. Tie one short piece of cord at each 12-inch (30-cm) interval along the long piece of cord.
   NOTE: Tie the short pieces tight enough so they do not slide along the string.
4. Wind the long piece of cord around the center of the pencil.
5. Hold the pencil in both hands and position the wound cord loosely between the thumb and index finger of one hand.
6. Ask your helper to hold the free end of the cord and start the stopwatch.
7. When your helper says, “Go,” slowly walk away backward from your helper, allowing the cord to unwind and counting the knots on the cord as they pass between your thumb and index finger.
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8. Stop when your helper informs you that 2 seconds have passed.
9. Rewind the cord onto the pencil and repeat steps 5 to 8, but this time walk as fast as you can.
10. Compare the amount of cord unwound each time.

Results
The number of knots passing through your fingers is fewer when you walk slow than when you walk fast.

Why? In this experiment, counting the knots as you moved at different speeds is similar to the method that sailors in the past used to determine the speed of ships. Knots were tied at regular intervals along the rope, and a log was tied to one end of the rope. When the rope was thrown overboard, the floating log and rope trailed behind the moving ship. A sailor counted the number of knots that passed through his hands in a given time. As with the number of knots that passed through your hands when you walked faster, the more knots that passed through the sailor’s hands, the greater the speed of the ship. Sailors used the word knot to measure the speed of the ship. The word is still used today. A knot is 1 nautical mile per hour. A nautical mile equals 6,076 feet (1,823 m).