**SPEED USING A TICKER TIMER**

coil

magnet

ticker tape

power input (a.c.)

vibrating bar

carbon paper disc

**Aim**

These simple experiments will help you to learn how to use the ticker timer to measure distance, speed and acceleration.

# Experiment 1

This experiment is to measure the distance traveled and the speed of a piece of ticker tape using a ticker timer.

**YOU WILL NEED:**

A ticker timer, a 12V AC power supply, ticker tape, two 4mm connecting leads and a pair of scissors. If your ticker tape is not gummed you will also need some glue.

**WHAT TO DO:**

1. Connect the timer to the power supply.
2. Put a 1 m length of tape under the carbon disc and switch on.
3. Pull the tape through steadily (or walk away).
4. Pick three sections of tape that are at the start, middle, and end of the tape. the tables below
5. Cut the tape into FIVE SPACE lengths (6 dots) and stick them into your books side by side as shown in the diagram below – but you will only have three sections.

Remember that you must measure FIVE SPACES and NOT 5 DOTS.

1. Measure the length of your FIVE SPACE lengths and work out its speed in the table below.

**Results Table**

 Near the start of the tape Near the middle of the tape Near the end of the tape

|  |  |  |
| --- | --- | --- |
| Distance (d)of tape | = | cm |
| Distance (**d**)of tape in metres | = | m |
| Time (**t)**  | = | s |
| **Speed** (**d** ÷ **t**) | = | m/s |

|  |  |  |
| --- | --- | --- |
| Distance (d)of tape,  | = | cm |
| Distance (**d**)of tape in metres | = | m |
| Time (**t)**  | = | s |
| **Speed** (**d** ÷ **t**) | = | m/s |

|  |  |  |
| --- | --- | --- |
| Distance (d)of tape,  | = | cm |
| Distance (**d**)of tape in metres | = | m |
| Time (**t)**  | = | s |
| **Speed** (**d** ÷ **t**) | = | m/s |

# QUESTIONS

1. What were the main sources of error in your experiments and how could you reduce them?

2. The sample pieces of ticker tape shown in the diagram with experiment (see above) one are not all quite the same length. What does this tell you about the speed with which the ticker tape was pulled through the time?