

Name\_\_\_\_\_

Class\_\_\_\_\_Date\_\_\_\_\_

## Introduction to a Ticker Timer

### Aim

To become familiar with a ticker timer.

To produce a graphical representation of motion.

### Equipment

Ticker timer

Transformer/rectifier

ticker tape

4 sheets graph paper

scissors and glue

### Method

1. Connect the ticker timer to the power supply. Remove the carbon paper.
2. If necessary, adjust the timer so that it is hitting clearly.
3. Practice pulling a 1m strip of ticker tape through the timer, at a steady speed that takes about 1 second to move through the timer.
4. Replace the carbon paper (ink side down), with the tape under the carbon paper.
5. Pull a tape through at your practised speed, and label this A. Repeat, using another piece, and label this B. If you have been careful and consistent, then the two tapes should look very similar.
6. Remove the carbon paper, and practice pulling a 1m piece of tape through, but taking only 0.5 seconds to do this.
7. Repeat steps 4 and 5, but this time labelling the tapes C and D.
8. Cut the tapes into 5 tick intervals (pentaticks), as shown in figure 1. It is important that you keep the pentaticks in order. Discard the first one or two sets of pentaticks, where the tape was accelerating.  
The ticker timer makes a hit 50 times a second. So five hits (a pentatick) represents 0.1 second (one tenth).

Figure 1

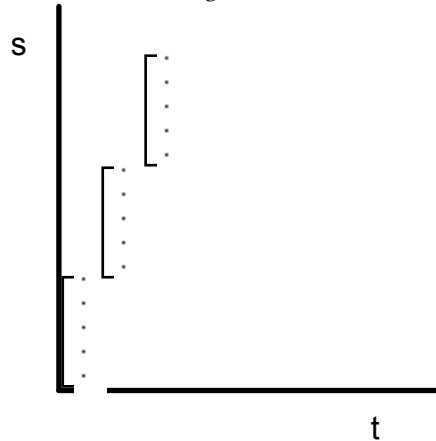


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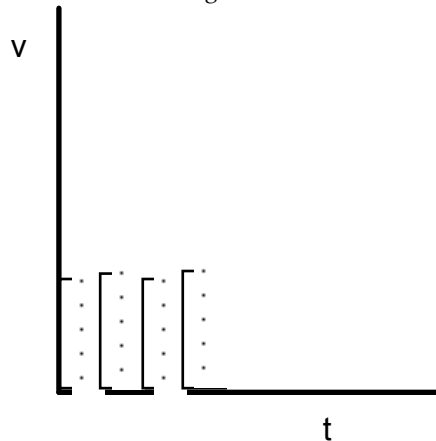
9. Construct two distance time graphs, using tapes A and C. Stick the segments end to end, as shown in figure 2. This graph shows how far the tape moved in each successive pentatick.

Figure 2



10. Construct two velocity time graphs, using tapes B and D. Stick the segments along the time axis, as shown in figure 3. This graph shows the distance moved per pentatick (ie velocity).

Figure 3



### Interpretation

Was the rate at which each tape was pulled constant for most of the tape? What evidence do you have?

What effect does the faster speed of tapes C and D have on the graphs?

S. Hersey, adapted from Senior Physics, Yr 11, by Moyle et al.