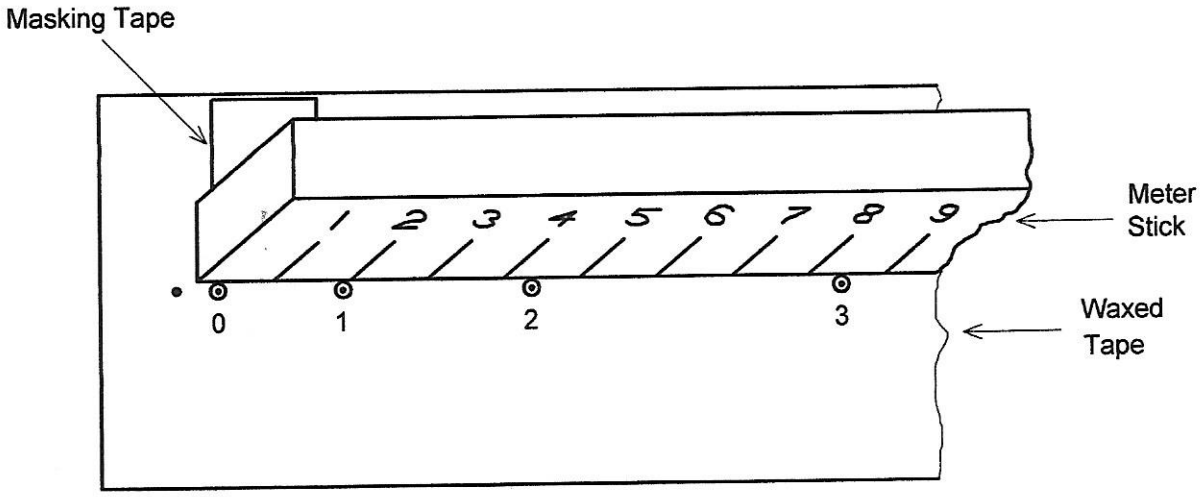
7. Lay the strip of waxed-paper tape out on a table. Ignore the first large dot on the waxed paper where several sparks hit before the carriage started to fall. Draw a small circle around the next dot and number it 0. Continue circling the dots and numbering them until you reach the line marking the place where the carriage started to slow down. The small circles around the dots will distinguish them from extraneous marks that may accidentally get on the waxed-paper tape during later measurements.

8. Go to the Data Table at the end of this section. Record the dot numbers in the first column. Stop with the number of the last dot prior to where the carriage started slowing down (at your line on the waxed-paper tape). Record the corresponding times in the second column of the data table (i.e., 0, 1/30 sec, 2/30 sec, etc.).

9. Lay a meter stick on the strip of waxed paper. Its narrow edge should be against the paper, and its centimeter markings should be as close as possible to the circled dots. The zero of the meter stick should be at some arbitrary point between the large first dot on the waxed-paper tape and the dot numbered 0. Attach the meter stick to the waxed-paper tape with bits of masking tape as shown in the sketch below. Then read the value of s from the meter stick for each of the circled dots and record your results in the third column of the data table. Try to take your readings to the nearest .01 cm or .02 cm. For the last few readings you may have to lay a ruler down beyond the end of the meter stick. (Note that the actual position of the zero reference for s is not critical, since you will be calculating values of Δs by subtracting one value of s from another. But once a zero reference is chosen, it must not be allowed to change until all measurements are complete.) See the figure below.



10. Make a sample calculation here of the distance between dot number 0 and dot number 1. This is the distance the carriage moved between t = 0 and t = 1/30 sec.

$\Delta s_{01} = s_1 - s_0 =$ (Substitute)

$=$ _____ cm (Final Answer)

Continue calculating the values of Δs for all later time intervals by subtracting successive values of s. (Use scratch paper if necessary.) Record all the values of Δs in the Data Table at the end of this section.

11. If so directed by your instructor, omit steps 9 and 10 and measure the values of Δs directly with a ruler instead. The first value of Δs is the distance from dot 0 to dot 1; the second value of Δs is the distance from dot 1 to dot 2; etc. Try to read these distances to the nearest .01 cm or .02 cm and record them in the Data Table. But omit this step 11 if you have already performed steps 9 and 10.