## Rubber Band Hubble's Law



You will need:-

Rubber band Rule Peg board with 1cm spaced holes

1). Mark onto the rubber band three points, labelled S, A and B, as shown below.



S represents the sun and A and B represent two galaxies some distance from the sun.

- 2). Put the rubber band onto the peg board so that it is barely stretched. Measure the distances SA and SB and record in the table below. This represents their separation at time t=0
- 3). Stretch the rubber band by 1cm on the peg board. This represents an interval of time. Re-measure SA and SB and record in the table.
- 4). Repeat for another five or six times.

## Results table.

Time interval (cm extension)	SA (cm)	SB (cm)
0		
1		
2		
3		
4		
5		
6		

- 5). Plot a graph of Distance (SA and SB) against time (extension). Allow space on your graph for 'negative times' i.e. times before you started to make measurements of extension. Plot SA and SB on the same axes
- 6). Extrapolate both graphs and note where they cross indication the origin of the Big-Bang theory.
- 7). Also calculate the gradients of the two lines. The ratio of the gradients should also be the ration of B to A, i.e. the speed of recession depends on the distance.