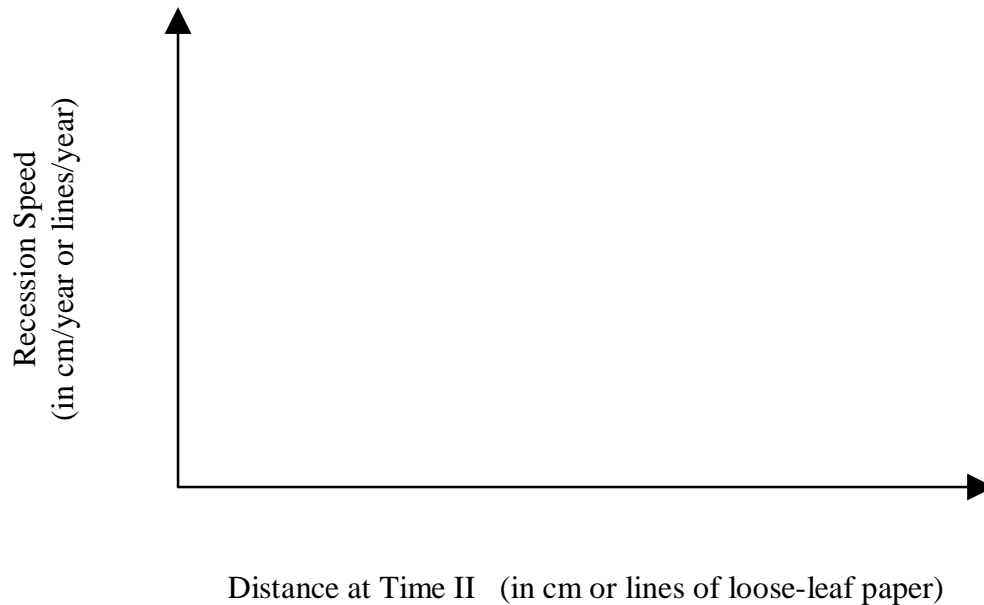


- Make a **Hubble Diagram** for our toy universe by plotting the distance to our four galaxies at Time II on the horizontal axis and the recession speed of those same galaxies on the vertical axis. Be sure to label the four points with which galaxy letter they represent and also label the actual numbers for each point on both axes (please make the scale relatively accurate).



- Draw a straight line through the points on our diagram. What is the slope of this line? Reminder: The slope of a line is the difference in the vertical direction divided by the difference in the horizontal direction to get from a point on a line to another point on the line. Hint: The slope should be a positive number. Note: Don't cancel out common units for now.
- The slope of our line is our **Hubble constant** (H_0) which relates a galaxy's recession velocity to its distance by **Hubble's Law**: $v = H_0 * d$. What is the reciprocal of our Hubble constant (i.e. what is $1/H_0$)? Now cancel out any common units. What does $1/H_0$ represent?
- Now make a prediction: What will we see if we choose a different "home galaxy?"
- Test your prediction: Label a new home galaxy H' on both transparencies and align them on top of each other. What happens to the distances between H' and all other galaxies? What about the galaxies closest to H'? Farthest from H'?
- Keeping H' as home, what will we see if we look at an even later time (call it Time III)?

