

PRACTICAL EXERCISES AND QUESTIONS FOR THE STUDENTS

Materials Required (for each pair of students):

student handout

4 strips of paper cut 2cm x 30 cm

1 marker

scissors

large paper clips

1 large balloon

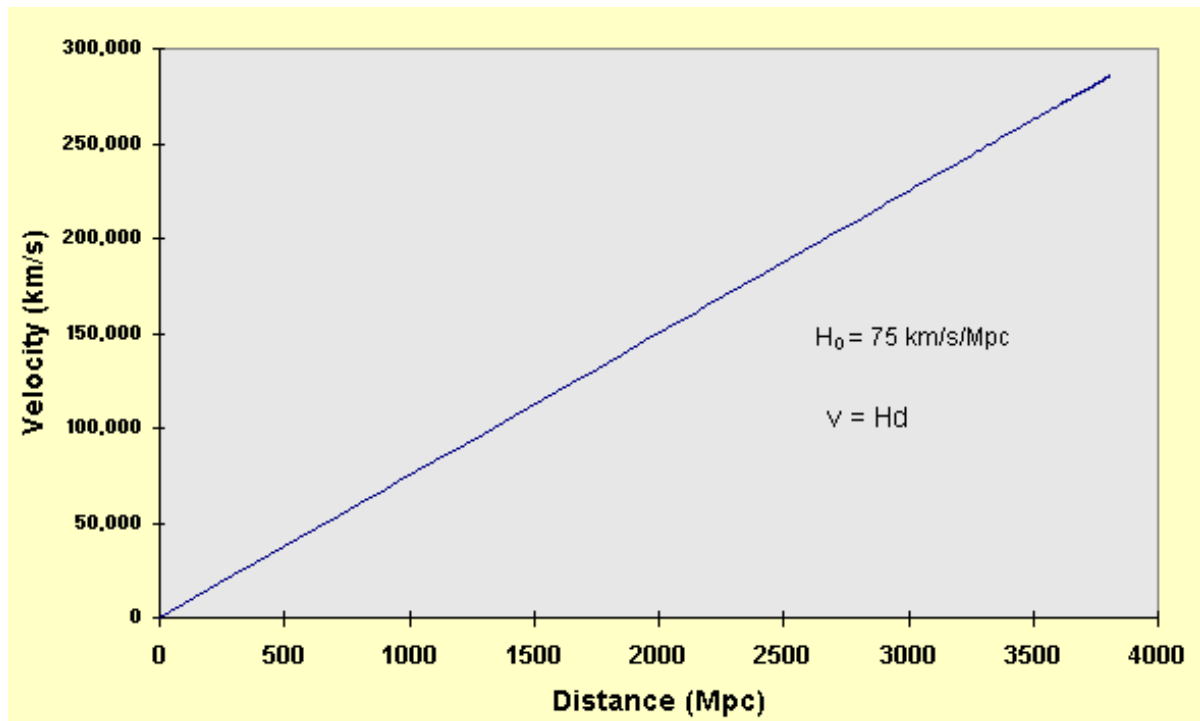
2 bendy metric rulers

science journal

pen/pencil

PRACTICAL EXERCISE 1: The Hubble–Lemaître law

The graph below is often used by the astronomers who study the Universe and specialize in cosmology. Can you tell what it illustrates? Use the guiding questions from the table under the graph and fill in your answers in the empty boxes in the second column.



GUIDING QUESTIONS	ANSWERS
What is shown on the horizontal axis? What are the units used? How (using what methods) can the scientists measure this parameter?	
What is shown on the vertical axis?	

How (using what methods) can the scientists measure this parameter?	
Which of the two parameters is harder to measure?	
What are the dimensions of the parameter, represented by the slope of the graph?	
What is the parameter, represented by the slope of the graph?	
What would be the dimensions of the parameter that is the inverse of the slope of the graph? Can we use it to study the Universe? If yes - how, if no - why?	