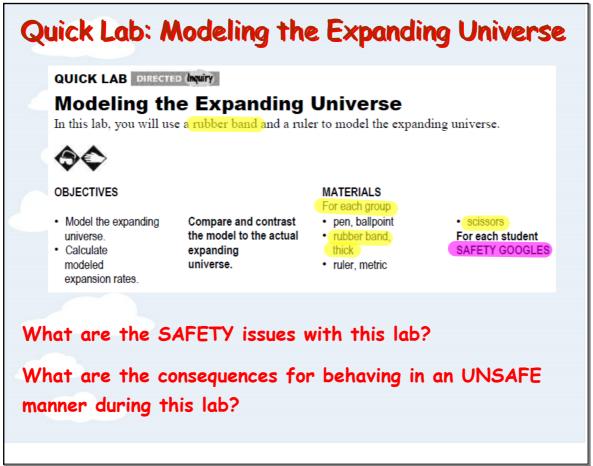


Sep 25-6:22 AM



Quick Lab: Modeling the Expanding Universe					
NameClass	Date	Name Class Date			
QUICK LAB OUTCOTO MANY Modeling the Expanding I In this lab, you will use a rubber band and a rule Construction OBJECTIVES ' Model the expanding Universe. Compare and contrast the model to the actual	r to model the expanding universe. MATERIALS For each group	Quick Lab continued General How could you calculate the rates at which the marks moved when you stretched the rubber band? Calculate the rate of movement for each mark if the rubber band was stretched for 2 seconds, and record your calculations in the table below. Criginal mark (cm) Rate of movement (cm/a)			
 Catulate expanding modeled universe. expansion rates. PROCEDURE Outs a scissors to cut a thick rubber band. Spr stretching the band. Outs a ballpoint peat to mark the rubber band Hold the first mark (1 cm) in place next to the second mark (2 cm) aligns with the 3 cm m Observe and measure how many centimeters. Record your observations in the table below 	at each centimeter from 1 cm to 6 cm. e ruler while stretching the rubber band until the ark on the ruler.	What do the expansion rates tell you about the rate of movement relative to the distance from the stretching point?			
Activity for overvations in the bole denvit initiation initiation in the bole denvit initiation initiatio initiatio initiation initiation initiation initiati					

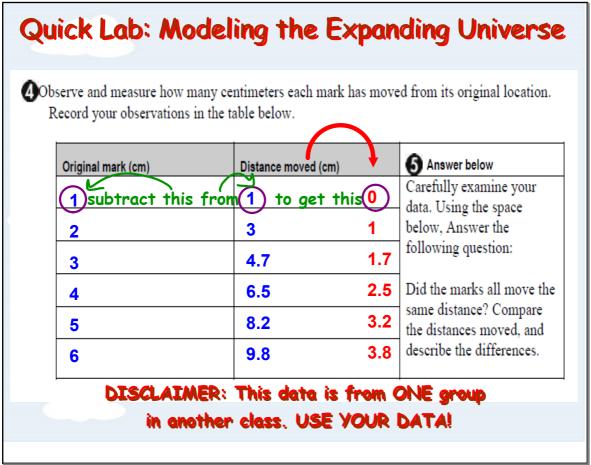
Oct 21-12:23 PM

Quick Lab: Modeling the Expanding Universe

ick L	Lab continued
	How is the rubber band model similar to the expanding universe? How is it ifferent?
1	
s	Make two sketches that show galaxies in an area of space. Galaxies can be piral galaxies, elliptical galaxies, and irregular galaxies. The first sketch
v	will show galaxies as they appear now. The second sketch will show the
v s	will show galaxies as they appear now. The second sketch will show the same galaxies as they will appear at some time in the future.
5	will show galaxies as they appear now. The second sketch will show the
5	will show galaxies as they appear now. The second sketch will show the
v s	will show galaxies as they appear now. The second sketch will show the
v 5	will show galaxies as they appear now. The second sketch will show the
v s	will show galaxies as they appear now. The second sketch will show the
v 5	will show galaxies as they appear now. The second sketch will show the
v 5	will show galaxies as they appear now. The second sketch will show the
7 5	will show galaxies as they appear now. The second sketch will show the
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7 5	will show galaxies as they appear now. The second sketch will show the

Your lab show a BLANK facing 4th page which may be used to continue answers to questions, your illustration (question 10) or show calculations.

You may use calculators. HOWEVER, put them away, as well as <u>ALL OTHER</u> <u>MATERIALS</u> once you have completed your data collection with your partner.



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BRAINSTORM with your partner how you will do the calculations required in the TABLE under Question 6.

USE information from UNIT 1, Lessons 1 & 2 to help you answer the lab questions.

WORK with your partner to complete the Quick Lab.

NO WANDERING AROUND THE ROOM.

Oct 21-12:23 PM

Quick Lab: Modeling the Expanding Universe						
	Quick Lab continued					
Below. Change HIGHLIGHTED column heading to						
	Change in Distance Original mark (cm)	Rate of movement (cm/s)				
	0	Divide Change in				
	1	Distance by 2				
	1.7					
	2.5					
	3.2					
	3.8					

