Name:_____ Date: _____ Bell: _____

Activity: Modeling the Big Bang

Materials:

- 1 balloon
- 1 Marker
- 1 Measuring tape (or a string and ruler)
- 1 Clothespin

Procedure:

1. Partially inflate your balloon to a diameter of around 10 cm. Clip it shut with the clothespin so the air does not escape.
2. Draw 3 dots on the balloon with the marker and label them as Galaxies A, B, and C. Measure the distance from Galaxy A to Galaxies B and C and record in the data table below.
3. Remove the clothespin and inflate the balloon some more, to a diameter of around 20 cm. Measure the distance from Galaxy A to Galaxies B and C again and record in the data table.
4. Repeat step 3 and inflate the balloon a third time, so it has a diameter of around 30 cm (or as big as you can get without popping the balloon.
5. Deflate your balloon to a diameter of around 10 cm. Draw a wave between Galaxies A and B (this will represent a light wave traveling from one galaxy to another). Measure the wavelength of your wave and record in the data table.
6. Inflate your balloon to its maximum diameter. Measure the wavelength again and record in your data table.

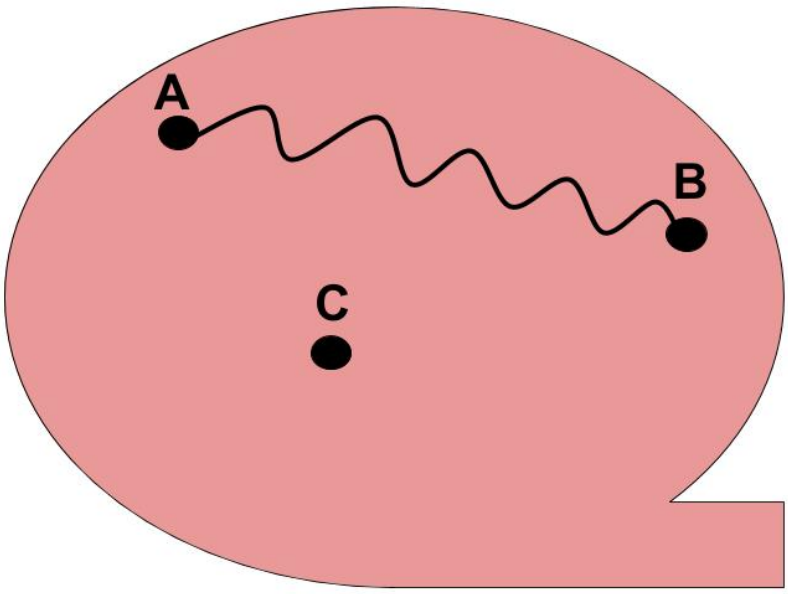

Figure 1: Example of experimental set up

Data:

	Initial distance from Galaxy A (cm)	Second inflation, distance from Galaxy A (cm)	Third inflation, distance from Galaxy A (cm)
Galaxy B			
Galaxy C			

Initial wavelength (cm)	Inflation wavelength (cm)

Analysis Questions

1. How did the distance from Galaxy A to each of the other galaxies change each time you inflated the balloon? (reference your data and what the data indicates)

_____

_____

2. Which galaxy appeared to move the greatest distance?

_____

_____

Conclusions:

How would the light traveling from a distant galaxy appear to an observer in Galaxy A? Justify your claim with evidence from the activity and explain your reasoning.

Claim: _____

_____

Evidence: _____

_____

Reasoning: _____

_____

_____

_____