Big Bang Activity

Introduction

In this short activity we will compare an expanding balloon to the Big Bang and attempt to explain the beginning of the Universe.

Materials

Balloon
Marker
Clothespin
Measuring Tape

Procedure

1. Partially inflate the balloon.
2. Fold and clip it shut with the clothespin so the air does not escape.
3. Draw six evenly spaced dots on the balloon with the marker.
4. Label the dots A through F
5. Using the ruler, measure the distance, in mm, from Dot A to each of the other dots
6. Record your measurements in Table1 under initial measurements.
7. Remove the clothespin and inflate the balloon some more
8. Observe what happens to the dots
9. Pin the balloon closed and measure the distance from Dot A to each of the other dots.
10. Record your data in Table 1 under Trial #1
11. Repeat Steps 7 – 10 two more times

Table 1

Balloon Point	Distance from A - ???			
	Initial Measurement	Trial 1	Trial 2	Trial 3
A				
B				
C				
D				
E				
F				

Questions

1. If the Universe formed from the sudden release of energy and matter, why are there billions and billions and billions and billions of dots on your balloon? Hint: what force caused some of these little dots to form big dots.

2. In your model, what distance changed the most?

3. In your model, what distance changed the least?

4. If each dot represents a group of stars, describe the motion of these groups relative to one another

5. Based on your model, is the Universe expanding, contracting, or staying the same?

6. Based on your model, how does the distance between the objects effect how quickly the objects are moving away?

7. What parts of the Big Bang theory does your model allow you to verify?

8. How is your model similar to reality and how is your model different?

9. What are some of the advantages and disadvantage of using your model to study the Big Bang Theory?

10. Does your model prove the Big Bang Theory? Explain.

11. What alternative theories could explain what you modeled?