Name _____ Date _____ Period _____

THE BIG BANG THEORY INTRODUCTION

Activity 1 – A Simple Model

Purpose: observe and create a simple model showing the main big bang theory concept.

Materials: 12 inch balloon, marker and measuring tape.

Lab safety : 1. The group only gets 1 balloon, so be careful. 2. Only those who can follow directions can participate. 3. Use supplies as they are directed to be used and not in any other way.

Procedures: Follow the steps below.

1. Inflate the balloon until it has a diameter of 10 centimeters. Do not tie the end of the balloon, but have one person at the lab hold the end so air does not escape.

2. A second group member should use the marker to make **six widely random** dots on the balloon. Label one dot "Earth." Label the other dots A, B, C, D and E.

3. Measure the circumference of the balloon and the distance between the Earth and each dot using the measuring tape. Record the circumference and the distances (cm) in the row **"10 cm."**

4. Inflate the balloon so its diameter increases 5 centimeters. Measure the circumference of the balloon and distance between Earth and each dot. Record the measurements in the row **"15 cm"**

5. Inflate the balloon so its diameter increases an additional 5 centimeters. Measure the circumference of the balloon and the distance between Earth and each dot. Record the measurements in the row **"20 cm"**

6. Repeat step five two more times, until the balloon has a diameter of **30 cm**.

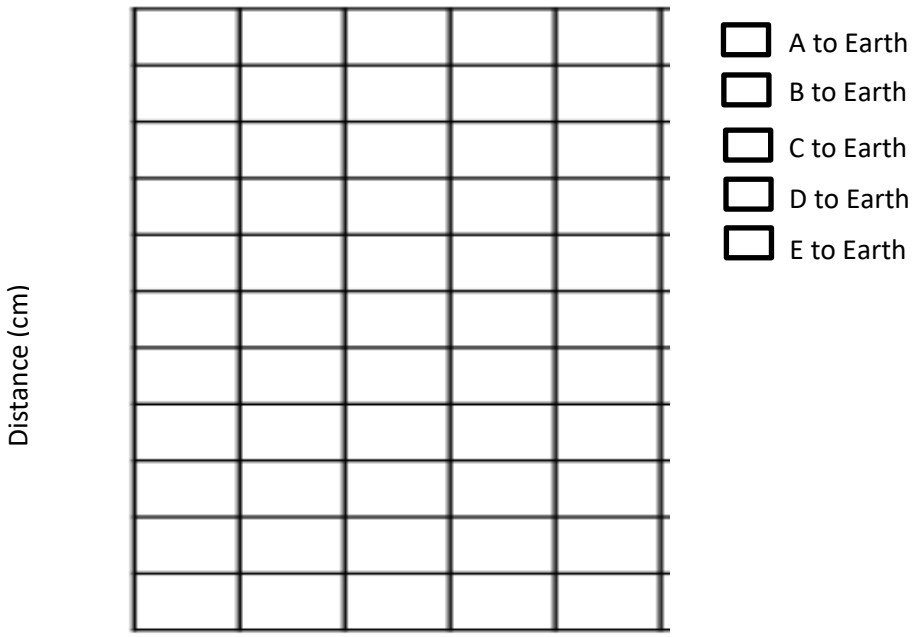
Balloon Circumference	**Distance From Earth Measurements (cm)**				
	Point A to Earth	**Point B to Earth**	**Point C to Earth**	**Point D to Earth**	**Point E to Earth**
10 cm					
15 cm					
20 cm					
25 cm					
30 cm					

7. When done, return the balloon, marker, and measuring tape to the supply table and continue on the activity 2.

Activity 2 – Graphing the Data!

Directions – Use the data gathered from activity 1 to create a **line graph** that will show the changes from the experiment and to help answer the analysis questions. To create the line graph, you will need to choose six different colored pencils. Each point to Earth will be a different color. There will be six different colored lines on your graph.

Graph Title:_____



Analysis Questions

1. Explain what happens to each of the objects as the circumference of the balloon increases. (full points for full sentences)

2. What do you predict (inference) will happen if the balloon was increased to a circumference of 40 cm?

3. Does the pattern of the graph support the idea that objects in the universe are mostly moving away from each other? Explain the answer. (full points for full sentences)

4. What are 2 ccc's that are used in this experiment?
    a.
    b.
5. Create a question that another student in class could answer, based on the data collected during this experiment.