Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ballooniverse**

In this activity, you will simulate the motions of several galaxies that you mark on a balloon.

**Materials**:

Balloon

Sharpie

Ruler/yard stick

Yarn/string (to help with measuring)

**Procedure**:

1. Blow up your balloon just enough to make it spherical. DO NOT TIE THE BALLOON.

2. Mark a spot on your balloon called “Home”. Mark the capital letters A through E, scattered on different parts of your balloon.

3. Measure and record the distance of each letter from the “Home” location.

4. Blow the balloon up enough so that it doubles in size, but is not at its maximum. DO NOT TIE THE BALLOON.

5. Measure and record the distance of each letter from the “Home” location.

6. Blow the balloon to its maximum size. DO NOT TIE THE BALLOON.

7. Measure and record the distance of each letter from the “Home” location.

8. Let out all of the air from the balloon, and observe what happens.

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **1st Measurement** | **2nd Measurement** | **3rd Measurement** |
| **A** |  |  |  |
| **B** |  |  |  |
| **C** |  |  |  |
| **D** |  |  |  |
| **E** |  |  |  |

**Discussion Questions**

1. Why were you asked to mark “letters” on the balloons instead of just dots?
2. After the third time you blew up the balloon, what did you notice about the location and the distance between the letters as compared to the first and second time you inflated your balloon?
3. Did the distances all increase at an equal rate? Were there differences? Explain.
4. Explain how these observations relate to the concept of an expanding universe. (Write your response below for this question.)