



Activity: The Expanding Universe with a Balloon

Objective:

To visualize how galaxies move away from each other as the universe expands.

Materials:

- A balloon
- A marker
- A ruler

Steps:

- 1. Prepare the balloon:**
 - Before inflating the balloon, use the marker to draw several small dots over its surface. Each dot represents a galaxy.
- 2. Inflate the balloon slightly:**
 - Blow up the balloon just a little so that it's partly inflated.
 - Notice how close the dots (galaxies) are to each other when the balloon is not fully expanded.
- 3. Measure the distance:**
 - Pick a couple of close dots and use the ruler to measure the distance between them. Write it down.
- 4. Inflate the balloon more:**
 - Blow up the balloon further, but don't fully inflate it. Watch what happens to the distance between the dots.
 - The dots will move farther apart as the universe expands, just like galaxies do.
- 5. Measure again:**
 - Measure the new distance between the same dots you measured earlier. Notice how much farther apart they are compared to when the balloon was smaller.





Conclusion:

As the balloon expands, the dots move farther apart. This is similar to how galaxies move away from each other as the universe expands. The universe isn't expanding from a single point; space itself is stretching, causing galaxies to move apart in all directions.

•

