

Science Fair Log

Student Name: Jannah Venus

Grade: 5

Experiment Title: Solar System Formation

Date Started: Jan 1, 2025

Date Completed: Feb 2, 2025

Day 1: Research and Planning

Date: (01/01/2025)

- Today, I chose my experiment: How the Solar System forms
- My question is: Can I produce a simulation of how that happens with household items
- My hypothesis (what I think will happen): I will take items like a water filled balloon with sparkles and beads inside making it rotate
- I researched [list any books, websites, or sources]. Youtube "Formation of the Solar System in 6 minutes"

https://youtube.com/watch?v=x1QTc5YeO6w&si=iyMpouFfywb_V_Ax

Sent from my iPhone

Day 2: Gathering Materials

Date: [01/04/2025]

- Today, I collected all my materials:
- Cordless Drill (Young Star)
- Duct Tape
- Beads
- Glitter
- Aluminum Confetti
- Measuring Spoons
- Transparent Balloons
- Balloon Arrangement Stem
- Water

Day 3: Conducting the Experiment (Trial 1)

Date: [01/12/2025]

- Today, I started my experiment.
- We did two attempts outside my apartment building into a large plastic bin
- It did not work out well for me, the water filled balloons wobbled and did not create a flattened effect I wanted to see.

Day 4: Conducting the Experiment (Trial 2)

Date: [01/26/2025]

- I repeated the experiment to make sure my results were accurate. But this time I added more water too the balloon tested to almost making it grapefruit sized
- What I observed: This time the spinning of the balloon did create a flattening effect where the simulation of the creation of solar system was more evident

Day 5: Analyzing the Results

Date: [01/26/2025]

- I looked at my data and noticed: I reviewed the video of my successful simulation and watched how the sparkles, beads and confetti acted in the water filled balloon
- My hypothesis was correct because the items I used in the right combination ended up creating the flattened disk stretch on the balloon. It just needed more water inside. In many ways this is just like the conditions needed for the solar system to form. There must be the right amount of materials in the stellar nurseries and protoplanetary disks to have the force of gravity work in a way that starts the processes of a star to have impact on the materials around it.

Day 6: Writing My Conclusion

Date: [02/02/2025]

- My final conclusion is: My simulation with the water filled balloon was very basic and the balloon did eventually burst due to the forces acting upon it. I did see the glitter beads and confitty start to spread out as the balloon became more of a disc shape. I can conclude that on a larger scale like that of the solar system a protoplanetary disc of rotating gas and dust would start to create the conditions for planets to form. To better explain this we must think of the cordless drill that I used to be the analog for a young star at the center of the protoplanetary disc.
- If I did this experiment again, I would change: Try to find a way to make the simulation last longer and actually have the items in the balloon stick or clump together like what happens in the way solar systems are formed.