

TIPPE TOP IN MICROGRAVITY



Bao Truong & Quan Chu
(Vietnam)

Aim

When you spin a top on a flat surface in Earth's atmosphere, you will see its top end slowly revolve about the vertical direction and this process is called precession. As the top spins, the precession will get larger and larger. With a tippe top, precession doesn't fully apply because when it shakes, it will turn upside down and continue spinning until precession gets too large for it to spin. We want to find out how would the tippe top spins in a condition with 0 gravitational energy and see how would the tippe react with forces being applied.

Materials and Methods

Materials:

- Tippe top
- String



Methods:

1. Spin tippe top on a flat surface and observe the movement of the tippe top
2. Apply forces to the spinning tippe top
3. Spin the tippe top in air
4. Spin the tippe top with a string
5. Observe the direction, stability of the top.

Hypothesis

When the tippe top spins in 0 gravity, on a flat surface, the tippe top will stay at one place and spin without stopping. If it is spinned in air, the tippe top will move slowly to the direction of the spinning force applied making spin and also moving to a direction non- stop. If a force is applied the tippe top will spin slower or even stop and keep moving but the direction of movement will change.

Result

The tippe top moves to the direction of the spinning force applied no matter if it's on a flat surface or in air. Not only that it spins to the direction of the force applied, it also went upward. The stability of the tippe top stays the same during the time of spinning.

The hypothesis were missing information about the tippe top going upward and its stability.

Discussion

Due to no gravity in space, the tippe top kept spinning to the direction that it was applied. The reason that the spinning wasn't stable was because it was done in a condition where air was present, making the tippe top shake. However it was still expected that the tippe top will keep spinning because precession doesn't apply in space where there is no gravity pulling the top down.

Questions

- 1) How does it feel like to live in space, where there's not a lot of people around and the surrounding is different from earth.
- 2) What are the difficulties or challenges when living in space and how do you cope with it?