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Mass in Weightlessness

First of all, the International Space Station was set at a certain speed so that it doesn't crash with the Earth. Gravity also has an effect on the ISS, like it does on the moon ; it prevents it from heading straight up, and makes it orbit around the Earth.

The station is actually freefalling, the same way astronauts do. This way, they cannot hold onto the station as it is falling with them. That is why astronauts float around, in the ISS.

In conclusion, gravity still has an effect on the station and the astronauts in space, making them fall freely around the planet and creating weightlessness.

Material for the experience :

- Elevator
- A scale
- 2 persons

Protocole :

- Before going into the elevator, measure the weight of both the first and second person.
- Once in the elevator going up, measure the weight of both the first and second person
- And measure the weight of both the first and second person while going back down.
- Compare the results and see if there is a difference.

RESULTS

Mass in Weightlessness

Objects	**Weight before going into the elevator (g)**	**Weight while going up (g)**	**Weight while going down (g)**
Person 1	61000	62000	60600
Person 2	52500	54000	50900

Conclusion :

First of all, we had some issues during the experiment : the lift wasn't fast enough to see drastic changes, and we think that the scale wasn't accurate.

However, we got some results. The weight of the 1st and 2nd person varied when going down, and less when going up. When going up, the person was heavier, and when going going down, lighter.

This demonstrates that when going down we are in victims of weightlessness, however, it isn’t as strong as in space because the speed of the elevator and of the ISS are not relevant.