

		 VRIJE ASO.SCHOOL
Mars, here we come ...		
NAME: Morigi Mattia	NAME:	
NAME: Murcy Hélène	NAME:	
SCHOOL / CLASS: 4H	MARKS: /...	
EXPERIMENT: BIOLOGY – muscles		

RESEARCH QUESTION

When astronauts arrive back on earth they have trouble standing up and walking. Why?

HYPOTHESIS (Indicate the correct answer.)

During their stay in space astronauts have to use their muscles *less/more* cause there's is *less/more* gravity. This causes atrophy of the muscles. When they arrive back on earth the amount of muscle is so small they can't stand up or walk very well.

OPERATION OF THE EXPERIMENT

- a) Measure your mass standing up straight on a scale.
- b) Put the scale vertical against the wall. Lie down on your back with your feet against the scale. Push your legs against the scale. What's your mass now?
- c) Describe the difference (you feel) in your legs standing up or lying down.

THE RESULTS / OBSERVATIONS

- a) The mass standing up straight on a scale is 81 kg.
- b) My mass lying down on my back with my feet against the scale is 7 kg.
- c) Standing up my legs support my mass, while lying down my legs don't feel the weight of my body.

CONCLUSION

Watch the following clips:

http://www.slate.com/blogs/bad_astronomy/2014/06/08/back_to_earth_how_astronauts_get_back_from_the_space_station.html
<https://www.youtube.com/watch?v=rYnV5P4OuTE>

Combine this information with the results of the experiment.

When astronauts arrive back on earth they have troubles standing up and walking. Why?

When they are in space without gravity, their weight is remarkably lower than on earth because there are no external forces.

REFLECTION

Did you expect this answer?

Yes, I expected this answer, but I was surprised the weight was much less.

Compare your results with the results in the other school. Did you come to the same conclusion?

Yes, in both case the results are the same.