

		
<h2>Mars, here we come ...</h2>		
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SCHOOL / CLASS: 3WETc	MARKS: /...	
<b>EXPERIMENT: BIOLOGY – muscles</b>		

### 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** cause there's is **less** 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

- Measure your mass standing up straight on a scale.
- 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?
- Describe the difference (you feel) in your legs standing up or lying down.

## THE RESULTS / OBSERVATIONS

- a) 55 kg
- b) 7 kg
- c) When you lay down, you can put less force on the balance than if you stand on it.

## 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](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? During their stay in space astronauts have to use their muscles less cause there's is less 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.

## REFLECTION

Did you expect this answer?

Yes, because it's quite logical.

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

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