

 VRIJE ASO.SCHOOL	 eTwinning	
<h2>See you in space</h2>		
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<h3>EXPERIMENT: BIOLOGY – muscles</h3>		

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

THE RESULTS / OBSERVATIONS

- a) 66,5kg (Lars)
- b) 7kg (Lars)
- c) When you lie down, you don't use your muscles and the gravity doesn't work on you. You feel lighter.

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?

..Because in space, their muscles don't need to work so hard, because the gravity is less strong in space and when they're back on Earth, their muscles need to work hard again but they can't because they're weak.

REFLECTION

Did you expect this answer?

.....Yes, we did because it's logical that you're weak when you don't use your muscles for a long time.

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

.....The people in the other school don't answer.