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Ready-to-Use English Lessons by Sean Banville

Level 5

Soft, robotic muscles 1,000 times stronger

30th November, 2017

https://breakingnewsenglish.com/1711/171130-muscles-5.html

Contents

Please try Levels 4 and 6. They are (a little) harder.

THE READING

From https://breakingnewsenglish.com/1711/171130-muscles-5.html

Scientists from two elite universities have pioneered a new way of creating artificial muscles. The scientists dubbed their discovery a "soft robot". It is a 2.6-gram "muscle" that looks like a small bag with water-filled compartments. It is supported by an origami-inspired structural framework that gives it great strength. This means the muscle can lift something 1,000 times its own weight. This weight-to-strength ratio is the same as a newborn baby lifting a large 4WD car. This ground-breaking discovery could benefit many areas of science, medicine, robotics and engineering.

The scientists are from the Massachusetts Institute of Technology and Harvard University. They work in the area of soft robotics. Their new soft robot muscle can be made in 10 minutes and costs less than a dollar. Professor Robert Wood hopes to create "softer" robots that are similar to humans. He said: "Humans are normally soft and brittle compared to the big industrial robots that you might find on an assembly line. The next step is to take this system and develop it into a fully functional robot." The robots could be like the human hand - strong enough to grip an object, while being soft and gentle.

Sources: https://www.**newscientist.com**/article/2154480-feather-light-artificial-muscles-lift-1000-times-own-weight/
https://www.**theverge.com**/2017/11/27/16705062/soft-robot-muscles-origami-skeleton-mit-harvard
https://www.**news-medical.net**/news/20171127/Origami-inspired-artificial-muscles-can-lift-1000-times-their-weight.aspx

PHRASE MATCHING

From https://breakingnewsenglish.com/1711/171130-muscles-5.html

PARAGRAPH ONE:

1. Scientists from two	a. strength ratio
2. pioneered a new way of creating	b. framework
3. a small bag with water-	c. and engineering
4. an origami-inspired structural	d. artificial muscles
5. lift something 1,000 times	e. elite universities
6. This weight-to-	f. breaking discovery
7. This ground-	g. filled compartments
8. medicine, robotics	h. its own weight

PARAGRAPH TWO:

1. They work in the area	a. grip an object
2. "softer" robots that are similar	b. brittle
3. Humans are normally soft and	c. and gentle
4. the big industrial	d. functional robot
5. on an assembly	e. of soft robotics
6. a fully	f. to humans
7. strong enough to	g. line
8. being soft	h. robots

LISTEN AND FILL IN THE GAPS

From https://breakingnewsenglish.com/1711/171130-muscles-5.html

Scientists (1) _____ universities have pioneered a new way of creating artificial muscles. The scientists (2) _____ a "soft robot". It is a 2.6-gram "muscle" that looks like a small bag (3) _____ compartments. It is supported by an origami-inspired structural framework that gives (4) _____. This means the muscle can lift something 1,000 times its own weight. This (5) _____ ratio is the same as a newborn baby lifting a large 4WD car. This ground-breaking discovery could (6) _____ of science, medicine, robotics and engineering.

The scientists are from the Massachusetts Institute of Technology and Harvard University. They work in the (7) _____ robotics. Their new soft robot muscle can be made in 10 minutes (8) _____ a dollar. Professor Robert Wood hopes to create "softer" robots that are similar to humans. He said: "Humans are normally (9) _____ compared to the big industrial robots that you might find on (10) _____. The next step is to take this system and develop it into (11) _____ robot." The robots could be like the human hand - strong enough to (12) _____, while being soft and gentle.

PUT A SLASH (/)WHERE THE SPACES ARE

From https://breakingnewsenglish.com/1711/171130-muscles-5.html

Scientistsfromtwoeliteuniversitieshavepioneeredanewwayofcreatin
gartificialmuscles.Thescientistsdubbedtheirdiscoverya"softrobot".I
tisa2.6-gram"muscle"thatlookslikeasmallbagwithwater-filledcomp
artments.Itissupportedbyanorigami-inspiredstructuralframeworkt
hatgivesitgreatstrength.Thismeansthemusclecanliftsomething1,00
0timesitsownweight.Thisweight-to-strengthratioisthesameasanew
bornbabyliftingalarge4WDcar.Thisground-breakingdiscoverycoul
dbenefitmanyareasofscience,medicine,roboticsandengineering.The
scientistsarefromtheMassachusettsInstituteofTechnologyandHarva
rdUniversity.Theyworkintheareaofsoftrobotics.Theirnewsoftrobotm
usclecanbemadein10minutesandcostslessthanadollar.ProfessorRo
bertWoodhopestocreate"softer"robotsthataresimilartohumans.Hes
aid:"Humansarenormallysoftandbrittlecomparedtothebigindustrial
robotsthatyoumightfindonanassemblyline.Thenextstepistotakethis
systemanddevelopitintoafullyfunctionalrobot."Therobotscouldbelik
ethehumanhand-strongenoughtogripanobject,whilebeingsoftandg
entle.

ROBOTIC MUSCLES SURVEY

From https://breakingnewsenglish.com/1711/171130-muscles-4.html

Write five GOOD questions about robotic muscles in the table. Do this in pairs. Each student must write the questions on his / her own paper.
When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student A: Do not show these to your speaking partner(s).

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

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WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student B: Do not show these to your speaking partner(s).

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

WRITING

From https://breakingnewsenglish.com/1711/171130-muscles-5.html

Write about **robotic muscles** for 10 minutes. Read and talk about your partner's paper.