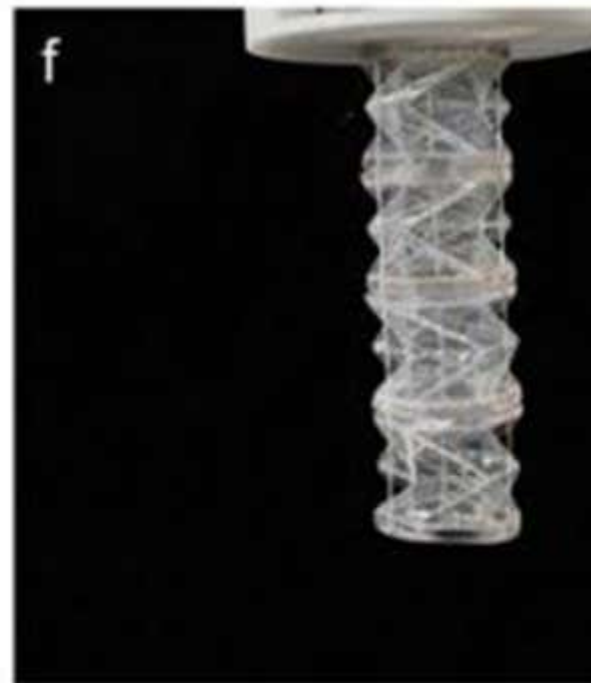
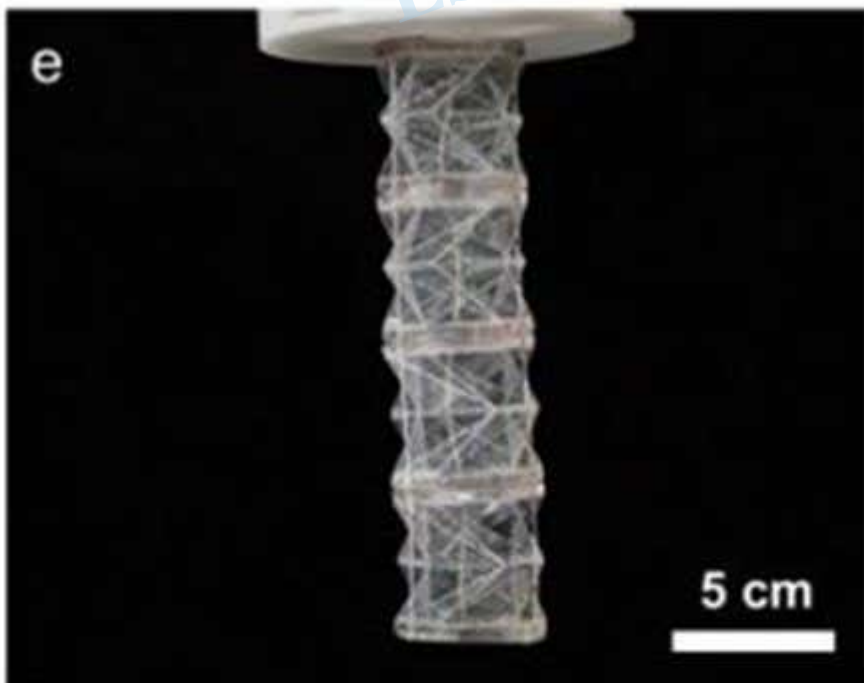
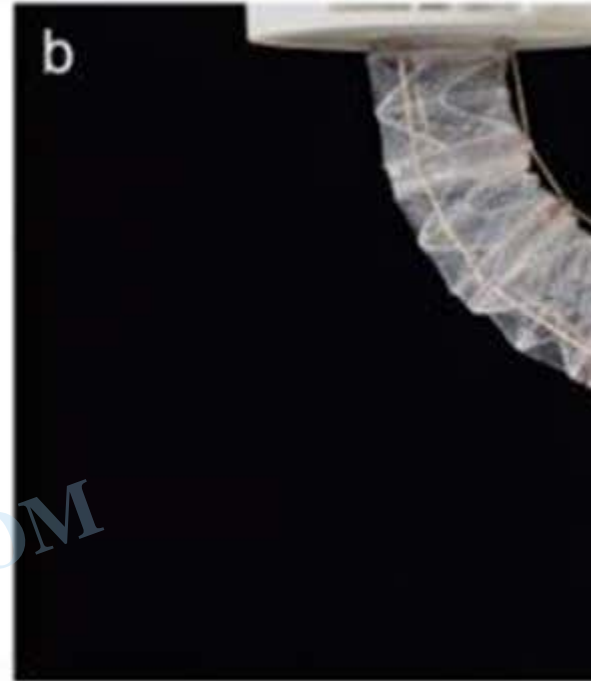




Biodegradable pig gelatin robot decomposes to reduce waste.

Description

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A new robot arm, inspired by origami, is designed to biodegrade once its job is done. This soft robot is made from materials derived from cotton plants and pigs. It can be used for medical procedures inside the body and then safely dissolve away.

Soft robotics is a growing field that focuses on creating flexible robots for safe and delicate tasks. Most soft robots are usually made from synthetic materials, but this new robot is different. Created by scientists at Westlake University in China, it is made from cellulose and gelatin, making it biodegradable.

The robot arm is controlled by a computer and can also act as a controller itself. It is made in an origami shape that can bend and compress, allowing it to move in different directions. By adjusting internal threads, the arm can be manipulated using external motors.

The gelatin in the robot arm also works as a sensor, changing resistance when bent. This helps determine the arm's position. The researchers believe that such robots could be essential in reducing waste on the planet, as they can degrade harmlessly when no longer needed.

Experts like Kaspar Althoefer from Queen Mary University of London see great potential for soft robotics in various applications, including industrial processes, safe interactions with humans, and medical procedures like surgery.

Vocabulary List:

1. **Biodegrade** /ˌbaɪ.əʊ.dɪˈgreɪd/ (verb): To break down naturally by microorganisms or other biological means.
2. **Synthetic** /sɪnˈθetɪk/ (adjective): Made by chemical synthesis especially to imitate a natural product.
3. **Celulose** /ˈsɛljʊ.loʊs/ (noun): A substance found in the cell walls of plants used in the production of fiber.
4. **Gelatin** /ˈdʒɛlətɪn/ (noun): A translucent colorless flavorless food ingredient derived from collagen.
5. **Manipulated** /məˈnɪpjəleɪtɪd/ (verb): Handled or controlled in a skillful manner.
6. **Resistance** /rɪˈzɪstəns/ (noun): The refusal to accept or comply with something; the ability to withstand something.

Comprehension Questions

Multiple Choice

1. What are the main materials used to make the biodegradable robot arm?

Option: Synthetic materials only

Option: Cotton plants and pigs

Option: Aluminum and steel



Option: Plastic and rubber

2. Where was the new biodegradable robot arm created?

Option: MIT in the United States

Option: Westlake University in China

Option: Oxford University in the United Kingdom

Option: Tokyo University in Japan

3. What does the gelatin in the robot arm act as?

Option: A power source

Option: A sensor

Option: A protective coating

Option: A hydraulic system

4. Who sees great potential for soft robotics in various applications?

Option: Elon Musk

Option: Bill Gates

Option: Kaspar Althoefer

Option: Mark Zuckerberg

5. In what shape is the robot arm designed?

Option: Cube

Option: Sphere

Option: Origami

Option: Pyramid

6. What can the robot arm do to move in different directions?

Option: Fly

Option: Swim

Option: Bend and compress

Option: Expand and contract

True-False

7. The biodegradable robot arm is made from synthetic materials.

8. The robot arm is controlled by manual manipulation.



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9. The gelatin in the robot arm helps determine its position.
 10. Soft robotics focuses on creating rigid robots for heavy-duty tasks.
 11. The robot arm was inspired by the art of sculpting.
 12. Kaspar Althoefer is associated with Queen Mary University of London.

Gap-Fill

13. The robot arm is made from _____ and gelatin.
14. Soft robotics focuses on creating flexible robots for _____ tasks.
15. The robot arm can be controlled by a _____.
16. The researchers believe that biodegradable robots could help in reducing _____
on the planet.
17. Kaspar Althoefer sees great potential for soft robotics in industrial processes, interactions with humans,
and _____.
18. The robot arm is designed to biodegrade once its _____ is done.

Answer

Multiple Choice: 1. Cotton plants and pigs 2. Westlake University in China 3. A sensor 4. Kaspar Althoefer
5. Origami 6. Bend and compress

True-False: 7. False 8. False 9. True 10. False 11. False 12. True

Gap-Fill: 13. cellulose 14. safe and delicate 15. computer 16. waste 17. medical procedures like surgery 18.
job

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)



1. What is the probability of an event happening called?

- Option: Risk
- Option: Governance
- Option: Association
- Option: Consumption

2. What are used to indicate a particular condition or feature?

- Option: Vulnerabilities
- Option: Markers
- Option: Biodegrade
- Option: Encrypted

3. What is working jointly with others to achieve a common goal?

- Option: Innovation
- Option: Agreement
- Option: Collaboration
- Option: Surveillance

4. What is the introduction of contaminants into the natural environment causing adverse change?

- Option: Pollution
- Option: Aerosols
- Option: Consequences
- Option: Sensistive

5. Which substances are used in aerosol cans for spraying?

- Option: Ethical
- Option: Acceleration
- Option: Aerosols
- Option: Compromise

6. What kind of consequence is the opposite of gain?

- Option: Development
- Option: Loss
- Option: Resistance
- Option: Manipulated

7. In what form can data be secured from unauthorized access?

- Option: Encrypted
- Option: Synthetic
- Option: Celulose
- Option: Gelatin



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8. What is the refusal to accept or comply with something?
Option: Vulnerabilities
Option: Resistance
Option: Marked
Option: Consumption
9. Which term refers to weaknesses that can be exploited by threats?
Option: Innovation
Option: Vulnerabilities
Option: Surveillance
Option: Debate
10. What is the act of using something up or eating or drinking?
Option: Consumption
Option: Legitimate
Option: Risk
Option: Association

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ is the process of growth or advancement.
12. A thorough examination or study of a situation is called _____ .
13. The way in which rules norms and actions are structured sustained regulated and held accountable is known as _____ .
14. Moral principles that govern a person's behavior or the conducting of an activity is said to be _____ .
15. A mutual understanding or arrangement among two or more parties is an _____ .
16. The process by which organic substances are broken down by natural organisms is called _____ .



17. An agreement or settlement of a dispute that is reached by each side making concessions is a _____ .
18. Something that is lawful reasonable or socially acceptable is considered _____ .
19. The introduction of new ideas methods or products is referred to as _____ .
20. Having a noticeable distinct or significant characteristic is described as _____ .

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The likelihood of an event resulting in harm danger or loss is known as .
22. The connection or link between two or more things is referred to as .
23. Close observation of a person or group especially one under suspicion is known as .
24. A formal discussion on a particular topic in a public meeting or legislative assembly is called a .
25. The increase in speed or rate of something is called .
26. Easily affected changed or damaged by external conditions feelings or circumstances is described as .
27. The result or effect of an action or condition is known as .
28. The production and discharge of something especially gas or radiation is called .
29. To handle or control in a skillful manner often for dishonest purposes is to .
30. Conforming to accepted standards of conduct or morals is being .

Answer

Multiple Choice: 1. Risk 2. Markers 3. Collaboration 4. Pollution 5. Aerosols 6. Loss 7. Encrypted 8. Resistance 9. Vulnerabilities 10. Consumption

Gap-Fill: 11. Development 12. Investigation 13. Governance 14. Ethical 15. Agreement 16. Biodegrade 17. Compromise 18. Legitimate 19. Innovation 20. Marked

Matching sentence: 1. Risk 2. Association 3. Surveillance 4. Debate 5. Acceleration 6. Sensitive 7. Consequences 8. Emissions 9. Manipulated 10. Ethical



CATEGORY

1. Sci/Tech - LEVEL3

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