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# Quantum Proteins: The Future of Biological Research

## Description

Crystal jellyfish can glow green. This is due to a natural protein in their bodies. Scientists use this glowing protein to study what happens inside cells.

Now, researchers want to make this protein even better. They want to use its special qualities in quantum computing. Peter Maurer, a quantum engineer, says scientists can turn this protein into a qubit. A qubit is a basic unit of information in quantum computing. This idea may sound strange, but it can work.

Fluorescent proteins help scientists in many ways. They can show where proteins are in cells and how they act. They can also help check if drugs are working. Adding quantum features could allow them to do even more.

Quantum sensors can find very tiny signals. They could help detect signals from neurons or identify early signs of illness, like cancer. These new quantum sensors could be controlled from a distance, making them useful in medicine and research.

Researchers are eager to see the new possibilities. They believe this work will lead to exciting advancements in science.

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## Vocabulary List:

1. **Crystal** /'krɪs.təl/ (noun): A clear solid substance that forms in patterns.
2. **Jellyfish** /'dʒɛl.i.fɪʃ/ (noun): A sea creature with a soft transparent body.
3. **Glow** /gləʊ/ (verb): To shine with a soft light.
4. **Protein** /'prəʊ.ti:n/ (noun): A substance in the body for growth.
5. **Scientists** /'saɪ.ən.tɪsts/ (noun): People who study the natural world.
6. **Researchers** /rɪ'sɜːr.tʃərz/ (noun): People who study to find new information.

## Comprehension Questions

### Multiple Choice

1. What color do crystal jellyfish glow?



- Option: Red
- Option: Blue
- Option: Green
- Option: Yellow

2. What is a qubit?

- Option: A type of jellyfish
- Option: A neural signal
- Option: A basic unit of information in quantum computing
- Option: A drug testing method

3. Who is Peter Maurer?

- Option: A cell biologist
- Option: A quantum engineer
- Option: A medical researcher
- Option: A drug developer

4. How can fluorescent proteins help scientists?

- Option: By providing energy
- Option: By indicating where proteins are in cells
- Option: By replicating DNA
- Option: By curing diseases

5. What medical condition could new quantum sensors help detect?

- Option: Diabetes
- Option: Hypertension
- Option: Cancer
- Option: Asthma

6. What feature do researchers want to add to proteins?

- Option: Radioactivity
- Option: Chemical resistance
- Option: Quantum features
- Option: Bioluminescence

### True-False

7. Crystal jellyfish can glow due to a natural protein.



8. Quantum sensors can detect large signals.
9. Researchers believe this work will lead to advancements in science.
10. Fluorescent proteins only help with drug development.
11. Quantum computers cannot use qubits.
12. Peter Maurer is a medical doctor.

### Gap-Fill

13. Crystal jellyfish glow \_\_\_\_\_ due to a natural protein.
14. A qubit is a basic unit of \_\_\_\_\_ in quantum computing.
15. Fluorescent proteins can show where proteins are in \_\_\_\_\_ .
16. Quantum sensors could help identify early signs of \_\_\_\_\_ .
17. Researchers are eager to explore new \_\_\_\_\_ in science.
18. Adding quantum features could allow proteins to do \_\_\_\_\_ more.

### Answer

**Multiple Choice:** 1. Green 2. A basic unit of information in quantum computing 3. A quantum engineer  
4. By indicating where proteins are in cells 5. Cancer 6. Quantum features

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

**Gap-Fill:** 13. green 14. information 15. cells 16. illness 17. possibilities 18. even

### Vocabulary quizzes

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

1. What does the term "salvage" most commonly refer to?

Option: Recovering goods after a loss



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- Option: Auctioning items of value
  - Option: Enhancing a vehicle's performance
  - Option: Developing new technologies

2. What is a V8 engine?

- Option: An 8-cylinder engine configuration
- Option: A type of electric motor
- Option: A standard bicycle gear
- Option: A brand of racing car

3. What is the primary goal of an investment?

- Option: To minimize risk
- Option: To maximize returns
- Option: To ensure liquidity
- Option: To avoid taxes

4. What does a frame in a vehicle typically provide?

- Option: Aesthetic design
- Option: Structural support
- Option: Wind resistance
- Option: Fuel efficiency

5. What is an auction primarily used for?

- Option: Selling assets to the highest bidder
- Option: Trading currency
- Option: Providing loans
- Option: Buying insurance

6. What does mileage refer to in vehicles?

- Option: The distance traveled per unit of fuel
- Option: The total distance a vehicle can travel
- Option: The total weight of the vehicle
- Option: The speed of the vehicle

7. What is a key characteristic of a community?

- Option: A group of people with shared interests
- Option: A collection of businesses
- Option: A series of isolated individuals
- Option: A network of global communication

8. What typically leads to enjoyment in activities?

- Option: Challenge and fulfillment
- Option: Monotony and repetition



Option: Absence of feelings

Option: Ignoring outcomes

9. What is the primary objective of racing?

Option: To finish before others

Option: To socialize with participants

Option: To enjoy the environment

Option: To demonstrate endurance

10. In economic terms what does value refer to?

Option: The importance or worth of something

Option: The process of manufacturing goods

Option: The total cost of production

Option: The number of sales made

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

11. A \_\_\_\_\_ is a vehicle designed for travel or operation in outer space.

12. The Earth's \_\_\_\_\_ is essential for sustaining life.

13. A scientific \_\_\_\_\_ is used to measure different physical quantities.

14. The island was formed by \_\_\_\_\_ activity.

15. A \_\_\_\_\_ is a solid material whose atoms are arranged in a highly ordered structure.

16. A \_\_\_\_\_ is a marine creature known for its gelatinous body and tentacles.

17. Many organisms exhibit a natural \_\_\_\_\_ known as bioluminescence.

18. A \_\_\_\_\_ is essential for the growth and repair of tissues in living organisms.

19. \_\_\_\_\_ conduct experiments to explore natural phenomena.

20. A \_\_\_\_\_ studies specific topics in depth to contribute to knowledge.

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

21. The power plant discharges waste materials into the river during production.



22. The mentor encourages her students to explore new ideas and pursue their passions.
23. The treasure hunter found a gold nugget buried in the ground.
24. In the Pokémon world trainers use pokedollars to buy supplies and Pokémon.
25. The trainer prepared for battle by practicing with his Pokémon every day.
26. He faced his greatest challenge but managed to defeat the champion in the final round.
27. As players gain experience they level up their characters to unlock new abilities.
28. The whistler entertained the crowd with his melodic tunes during the performance.
29. Certain species of jellyfish have the ability to glow in the dark through bioluminescence.
30. Researchers around the world collaborate to find solutions to complex global problems.

## Answer

**Multiple Choice:** 1. Recovering goods after a loss 2. An 8-cylinder engine configuration 3. To maximize returns 4. Structural support 5. Selling assets to the highest bidder 6. The distance traveled per unit of fuel 7. A group of people with shared interests 8. Challenge and fulfillment 9. To finish before others 10. The importance or worth of something

**Gap-Fill:** 11. spacecraft 12. atmosphere 13. instrument 14. volcanic 15. crystal 16. jellyfish 17. glow 18. protein 19. Scientists 20. researcher

**Matching sentence:** 1. discharges 2. encourages 3. nugget 4. pokedollars 5. trainer 6. defeat 7. level 8. whistler 9. glow 10. researchers

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