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# Bend Light with Cloud Material for Corner-defying Effect

## Description

A new material was discovered that can bend light around corners. This discovery was inspired by how clouds scatter sunlight. This type of light-bending could help with medical imaging, cooling electronics, and designing nuclear reactors.

Researchers from the University of Glasgow found that light can be scattered by printing objects with clear tunnels inside opaque white material. This process directs light back into the tunnels, similar to how light scatters in snow or clouds.

Unlike fiber optic cables that guide light through internal reflection, this material uses clear tunnels to steer light. It boosts light transmission significantly and can direct light around curves, though not as efficiently as fiber optics.

This method could improve medical imaging using existing translucent tunnels in the body. It could also help in cooling systems and nuclear reactors by directing heat and neutrons.

Researchers were surprised by how well this method worked and believe it could have been discovered long ago.

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## Vocabulary List:

1. **Discovery** /dɪs'kʌv.ər.i/ (noun): The act of finding or learning something for the first time.
2. **Scattered** /'skæt.əd/ (verb): To throw or spread things over a wide area.
3. **Opaque** /oʊ'peɪk/ (adjective): Not able to be seen through; not transparent.
4. **Transmission** /trænz'mɪʃ.ən/ (noun): The act or process of sending something from one place to another.
5. **Efficiency** /ɪ'fɪ.ən.si/ (noun): The ability to do something or produce something without wasting materials time or energy.
6. **Neutrons** /'nju:.trɒn/ (noun): A subatomic particle with no charge found in the nucleus of an atom.

## Comprehension Questions

### Multiple Choice



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1. What inspired the discovery of the material that can bend light around corners?
    - Option: Clouds scattering sunlight
    - Option: Fiber optic cables
    - Option: Scattering light in water
    - Option: Reflection in mirrors
  
  2. How do researchers from the University of Glasgow steer light using the new material?
    - Option: By using fiber optic cables
    - Option: By printing clear tunnels inside opaque material
    - Option: By reflecting light off surfaces
    - Option: By blocking light completely
  
  3. What applications could benefit from the light-bending material?
    - Option: Cooking food
    - Option: Scanning barcodes
    - Option: Medical imaging, cooling electronics, and designing nuclear reactors
    - Option: Playing music
  
  4. How does the new material direct light around curves?
    - Option: By blocking light
    - Option: By using opaque material
    - Option: By using clear tunnels
    - Option: By reflecting light off surfaces
  
  5. What surprised researchers about the effectiveness of the new method?
    - Option: How inefficient it was
    - Option: How quickly it faded
    - Option: How well it worked
    - Option: How expensive it was
  
  6. In what way does the new material differ from fiber optic cables?
    - Option: It is more expensive
    - Option: It uses clear tunnels to steer light
    - Option: It is less efficient
    - Option: It cannot bend light around curves

### **True-False**



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7. The new material discovered can only bend light in straight lines.
  8. The method of light-bending using clear tunnels is more efficient than fiber optics.
  9. Medical imaging is one of the potential applications that could benefit from the new material.
  10. The researchers believe the discovery of this light-bending method could have been made earlier.
  11. Cooling systems and nuclear reactors may benefit from directing heat and neutrons using the new material.
  12. The light-bending material was discovered by researchers from Harvard University.

### Gap-Fill

13. The new material discovered can bend light around corners, inspired by how clouds scatter sunlight.

This method could improve \_\_\_\_\_ using existing translucent tunnels in the body.

14. Researchers found that light can be scattered by printing objects with clear tunnels inside opaque white material. This boosts light transmission significantly and can direct light around curves, though not as efficiently as \_\_\_\_\_.

15. Researchers from the University of Glasgow discovered the new material that steers light by using clear tunnels to guide light back into the tunnels, similar to how light scatters in \_\_\_\_\_.

16. The light-bending material could help in cooling systems and nuclear reactors by directing \_\_\_\_\_ and neutrons.

17. The researchers were surprised by how well the new method worked and believe it could have been discovered \_\_\_\_\_ ago.

18. Unlike fiber optic cables that guide light through internal reflection, the new material uses clear tunnels



to \_\_\_\_\_ light.

## Answer

**Multiple Choice:** 1. Clouds scattering sunlight 2. By printing clear tunnels inside opaque material 3. Medical imaging, cooling electronics, and designing nuclear reactors 4. By using clear tunnels 5. How well it worked 6. It uses clear tunnels to steer light

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

**Gap-Fill:** 13. medical imaging 14. fiber optics 15. snow or clouds 16. heat 17. long 18. steer

## Vocabulary quizzes

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

1. Which type of energy sources can be replenished naturally?

Option: Coal

Option: Renewable

Option: Natural Gas

Option: Nuclear

2. What is the process of sending electricity over long distances?

Option: Distribution

Option: Storage

Option: Generation

Option: Transmission

3. What refers to the long-term patterns and trends in the weather conditions?

Option: Climate

Option: Weather

Option: Temperature

Option: Pressure

4. Which subatomic particles have no charge?

Option: Protons

Option: Electrons

Option: Neutrons

Option: Positrons

5. Who are people from whom you are descended like your grandparents and great-grandparents?



- Option: Descendants
- Option: Ancients
- Option: Relatives
- Option: Ancestors

6. What are proposals or suggestions given to guide decision-making or action?

- Option: Instructions
- Option: Recommendations
- Option: Requirements
- Option: Decisions

7. What form of energy results from the flow of electric charge?

- Option: Magnetism
- Option: Electricity
- Option: Heat
- Option: Light

8. What is the effect or influence of one thing on another?

- Option: Force
- Option: Impact
- Option: Magnitude
- Option: Pressure

9. Where can excess energy be kept for later use?

- Option: Transmission
- Option: Distribution
- Option: Generation
- Option: Storage

10. What is the systematic investigation into and study of materials and sources to establish facts and reach new conclusions?

- Option: Innovation
- Option: Discovery
- Option: Research
- Option: Production

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

11. Improving energy \_\_\_\_\_ can lead to reduced energy consumption.

12. Following the safety \_\_\_\_\_ can prevent accidents in the workplace.



13. Proper pet \_\_\_\_\_ is essential for maintaining their health and appearance.
14. The \_\_\_\_\_ provides structure and support for the human body.
15. The epic \_\_\_\_\_ unfolded over generations telling the story of a noble family.
16. High-voltage power lines are used for electricity \_\_\_\_\_ over long distances.
17. The new movie gained \_\_\_\_\_ rapidly due to positive reviews and word of mouth.
18. Increased customer \_\_\_\_\_ can lead to higher satisfaction and loyalty.
19. Optimizing processes can improve overall business \_\_\_\_\_.
20. Social media \_\_\_\_\_ allow users to connect and share information online.

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

21. The car manufacturing industry has been working on reducing harmful gases into the environment.
22. The security guard remained watchful and alert during the late-night shift.
23. The project manager laid out a detailed schedule outlining all the tasks and deadlines.
24. The scattered debris from the explosion covered a wide area of the street.
25. The company prided itself on delivering high-quality products to its customers.
26. The successful marketing campaign led to a significant increase in sales.
27. The police have been instructed to enforce the new regulations strictly.
28. The archaeologists made a groundbreaking discovery at the ancient burial site.
29. The government introduced various measures to control inflation and stabilize the economy.
30. The global pandemic had a far-reaching impact on healthcare systems worldwide.

## Answer

**Multiple Choice:** 1. Renewable 2. Transmission 3. Climate 4. Neutrons 5. Ancestors 6. Recommendations  
7. Electricity



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8. Impact 9. Storage 10. Research

**Gap-Fill:** 11. Efficiency 12. Recommendations 13. Grooming 14. Skeleton 15. Saga 16. Transmission  
17. Popularity 18. Engagement 19. Efficiency 20. Platforms

**Matching sentence:** 1. Emissions 2. Vigilant 3. Timeline 4. Scattered 5. Quality 6. Increase 7. Enforce  
8. Discovery 9. Measures 10. Impact

## CATEGORY

1. Sci/Tech - LEVEL1

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