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# New Plastic Film Design Destroys Viruses

## Description

Every day, people touch many surfaces, like kitchen counters, public transport handrails, and phone screens. Germs and viruses can easily spread through these surfaces.

Infection often happens when someone touches a contaminated surface and then their face. Although chemical cleaners can disinfect surfaces, they may harm the environment or cause germs to resist medicines, a problem called antimicrobial resistance.

Recently, researchers developed a new type of thin plastic surface with tiny features called nanotextures, as small as a billionth of a meter. These mimic surfaces found on insect wings, which can break apart viruses, specifically targeting a virus known as hPIV-3.

This new material could help reduce the spread of diseases on surfaces like hospital equipment and phones. Current disinfection methods need the surface to stay wet to kill germs, which isn't always practical, and can use harsh chemicals.

In nature, some insect wings naturally kill bacteria. Inspired by this, researchers created a material with tiny pillars that pierce and destroy viruses. In tests, up to 94% of hPIV-3 virus particles were damaged in an hour.

The technology could be used in many settings, including food packaging and public transport. Although these surfaces are durable, they face wear and tear over time. This approach may offer a new way to protect against viruses without relying on chemicals.

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## Vocabulary List:

1. **contaminated** //kən'tæmɪ,neɪtɪd// (adjective): covered with germs or dirty things
2. **disinfect** //,dɪsɪn'fekt// (verb): use chemicals to kill germs on something
3. **antimicrobial** //,æntɪmaɪ'krɒʊbiəl// (adjective): able to stop or kill germs and bacteria
4. **nanotextures** //,nænoʊ'tekstʃəz// (noun): very small surface shapes much smaller than cells
5. **pierce** //pɪrs// (verb): make a hole through with something sharp
6. **mimic** //ˈmɪmɪk// (verb): act like or copy something else

## Comprehension Questions



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## Multiple Choice

1. What is the size of the tiny features on the new plastic surface developed by researchers?

- Option: One meter
- Option: One millimeter
- Option: One billionth of a meter
- Option: One centimeter

2. What type of virus does the new material specifically target?

- Option: hPIV-3
- Option: COVID-19
- Option: Influenza
- Option: Ebola

3. What is a major drawback of current disinfection methods mentioned?

- Option: They are always effective
- Option: They require surfaces to remain wet
- Option: They are environmentally friendly
- Option: They use no chemicals

4. What inspired researchers to create the new material?

- Option: Plastic surfaces
- Option: Chemical cleaners
- Option: Insect wings
- Option: Hospital equipment

5. Up to what percentage of hPIV-3 virus particles were damaged in the tests?

- Option: 50%
- Option: 75%
- Option: 94%
- Option: 100%

6. In which settings could the new technology be used?

- Option: Only hospitals
- Option: Food packaging and public transport
- Option: Private homes
- Option: Only schools



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### True-False

7. Germs and viruses can spread through surfaces like kitchen counters and phone screens.
8. Chemical cleaners always benefit the environment.
9. The new plastic surface is designed to mimic surfaces found on insect wings.
10. Current disinfection methods do not require any specific conditions to be effective.
11. Researchers have found a way to destroy viruses using chemical means only.
12. The new material can help reduce the spread of diseases on surfaces.

### Gap-Fill

13. Infection often happens when someone touches a contaminated surface and then their \_\_\_\_\_ .
14. This new material could help reduce the spread of \_\_\_\_\_ on surfaces like hospital equipment.
15. Some insect wings naturally kill \_\_\_\_\_ .
16. The technology could be used in many settings, including food packaging and \_\_\_\_\_ .
17. Although these surfaces are durable, they face wear and tear over \_\_\_\_\_ .
18. The problem of antimicrobial resistance may occur when chemical cleaners \_\_\_\_\_ .

### Answer

**Multiple Choice:** 1. One billionth of a meter 2. hPIV-3 3. They require surfaces to remain wet 4. Insect wings 5. 94% 6. Food packaging and public transport

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

**Gap-Fill:** 13. face



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14. diseases 15. bacteria 16. public transport 17. time 18. harm

## **CATEGORY**

1. Health - LEVEL3

## **POST TAG**

1. B1
2. ESL learning
3. esl news
4. L3
5. Level 3
6. plastic film
7. ScienceAlert
8. viruses

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