

Nobel chemistry prize for molecule photos

7th October, 2017



The 2017 Nobel Prize in chemistry has gone to three scientists for their work on photographing molecules. Professors Jacques Dubochet, Joachim Frank and Richard Henderson will share the \$1,090,000 prize. They developed a

special way of taking photos of molecules. Molecules are the very smallest building blocks that make up the cells in our body. Everything and everyone is made of molecules. The three chemists developed a technique called cryo-electron microscopy (cryo-EM). This allows scientists to zoom in to amazing new levels. Scientists can now see things in our bodies that we have never seen before. They can see how the building blocks of life move.

The Nobel Prize committee said the new cryo-EM technique will change science forever. It said the technique has "moved biochemistry into a new era". The Nobel chairperson said: "Soon, there will be no more secrets. Now we can see the intricate details of the biomolecules in every corner of our cells and every drop of our body fluids. We can understand how they are built and how they act and how they work together in large communities. We are facing a revolution in biochemistry." Professor Frank said the practical uses for the technique were "immense". Cryo-EM will mean scientists can look at the building blocks of viruses. This means we will find cures for many diseases.

Sources: bbc.com / sciencemag.org / newyorker.com

Writing

The Nobel Prize money should be one billion dollars. Discuss.

Chat

Talk about these words from the article.

chemistry / scientists / molecules / taking photos / cells / everyone / zoom in / life / committee / forever / secrets / communities / revolution / technique / viruses / cures

True / False

- The Nobel Prize for Chemistry was won by three scientists. T / F
- The winners shared a prize of just under \$1,000,000. T / F
- Only people are made up of molecules. T / F
- Scientists can't now see how the building blocks of life move. T / F
- The Nobel committee said the new technique won't change science. T / F
- The Nobel chairperson said there would be no more secrets. T / F
- The committee said biochemistry is facing a revolution. T / F
- A professor said we would find cures for many diseases. T / F

Synonym Match

(The words in **bold** are from the news article.)

- | | |
|-----------------------|---------------|
| 1. work | a. made |
| 2. share | b. remedies |
| 3. developed | c. previously |
| 4. allows | d. liquids |
| 5. before | e. time |
| 6. forever | f. efforts |
| 7. era | g. groups |
| 8. fluids | h. lets |
| 9. communities | i. split |
| 10. cures | j. for always |

Discussion – Student A

- What do you know about the Nobel Prize?
- What do you know about chemistry?
- What do you know about molecules?
- How important are scientists?
- How good were/are you at chemistry?
- What would you like to zoom in on?
- How important are scientists compared to bankers?
- Why is it important to see the building blocks of life?

Phrase Match

- | | |
|--|-------------------------|
| 1. share the | a. in biochemistry |
| 2. They developed a special | b. of life move |
| 3. Everything and everyone | c. our body fluids |
| 4. see things in our bodies that we have | d. for many diseases |
| 5. how the building blocks | e. is made of molecules |
| 6. every drop of | f. were "immense" |
| 7. how they work together in large | g. \$1,090,000 prize |
| 8. We are facing a revolution | h. never seen before |
| 9. the practical uses for the technique | i. communities |
| 10. This means we will find cures | j. way of taking photos |

Discussion – Student B

- What do you think about what you read?
- How will the new technique change science?
- What secrets about the body would you like to know?
- What Nobel Prize would you like to win?
- What science would you like to work in?
- How important are scientists compared to police officers?
- Would it be good if all diseases were cured?
- What questions would you like to ask the prizewinners?

Spelling

- three sctssnitei
- share the \$1,090,000 zrpie
- taking photos of lsmelueoc
- chemists developed a nuthcieeg
- zoom in to inagazm new levels
- the lubgidni blocks of life
- there will be no more srceste
- every drop of our body ldfsui
- We are facing a iuovotnelr
- pctaciarl uses
- the building blocks of esruisv
- find cures for many sseidsea

Answers – Synonym Match

1. f	2. i	3. a	4. h	5. c
6. j	7. e	8. d	9. g	10. b

Role Play

Role A – Chemistry

You think the Nobel Prize for Chemistry is the best. Tell the others three reasons why. Tell them what is wrong with their prizes. Also, tell the others which is the least important of these (and why): Peace, Literature or Medicine.

Role B – Peace

You think the Nobel Prize for Peace is the best. Tell the others three reasons why. Tell them what is wrong with their prizes. Also, tell the others which is the least important of these (and why): Chemistry, Literature or Medicine.

Role C – Literature

You think the Nobel Prize for Literature is the best. Tell the others three reasons why. Tell them what is wrong with their prizes. Also, tell the others which is the least important of these (and why): Peace, Chemistry or Medicine.

Role D – Medicine

You think the Nobel Prize for Medicine is the best. Tell the others three reasons why. Tell them what is wrong with their prizes. Also, tell the others which is the least important of these (and why): Peace, Literature or Chemistry.

Speaking – Nobel Prize

Rank these with your partner. Put the most important real and imaginary Nobel Prize at the top. Change partners often and share your rankings.

- | | |
|---------------------|--------------|
| • Medicine | • Literature |
| • Economic Sciences | • Peace |
| • Sport | • Physics |
| • Music | • Chemistry |

Answers – True False

a	T	b	F	c	F	d	F	e	F	f	T	g	T	h	T
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Answers to Phrase Match and Spelling are in the text.