THE NOBEL PRIZE

Nobel Prize Lessons

Student worksheet – The 2018 Physics Prize

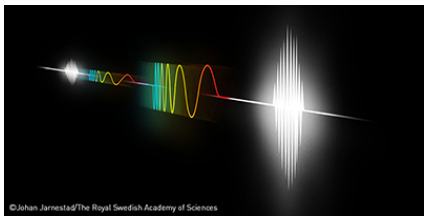
Hi! Below you will find information and some questions about the 2018 Nobel Prize in Physics.

Vocabulary list

The slide show and the following text include some words that may be tricky. Underline the words that are new to you.

Laser	A device that generates a beam of light with very precise colour, intensity and direction.
Optical	A process that uses light in order to function.
Pulse	A temporary change in something, which is often repeated – a bit like your own pulse.

The 2018 Physics Prize



The Prize rewards two different *"groundbreaking inventions in the field of laser physics"*. One half goes to Arthur Ashkin *"for the optical tweezers and their application to biological systems".* Ashkin invented a tool for capturing objects, for example small plastic beads, using light from a laser. This method makes it possible to examine very small, sensitive particles and substances such as viruses, cells and proteins. The tool can even capture atoms and molecules! The other half of the Prize goes to Gérard Mourou and Donna Strickland *"for their method of generating high-intensity, ultra-short optical pulses".* Their invention is based on manipulating the light from a laser. In a way that enables it to generate very strong, short optical pulses. These pulses of light can be used in many ways, for example in eye surgery, to drill or cut into sensitive materials or to obtain a detailed image of how a chemical reaction occurs.

Discussion questions

1. Imagine that you are asked to explain the work of the 2018 Laureates to a friend.
   - Why did they receive the Nobel Prize for their work?
   - What do you think was the most interesting thing about the Nobel Prize in Physics?

2. Alfred Nobel wanted the work of the Nobel Laureates to have "conferred the greatest benefit to humankind".
   - What do you believe the Laureates' contributions can lead to?
   - Can their contributions help other people in any way?