Why study physics? Some people study physics for the simple reason that they find it interesting. Physicists study matter, energy and their interactions. They might be interested in the tiniest sub-atomic particles, or the nature of the Universe itself. (Some even hope to discover whether there are more universes than just the one we live in!)

On a more human scale, physicists study materials to try to predict and control their properties. They study the interactions of radiation with matter, including the biological materials we are made of.

Some people don’t want to study physics simply for its own sake. They want to know how it can be used, perhaps in an engineering project, or for medical purposes. Depending on how our knowledge is applied, it can make the world a better place.

Some people study physics as part of their course because they want to become some other type of scientist - perhaps a chemist, biologist or geologist. These branches of science draw a great deal on ideas from physics, and physics may draw on them.

How do physicists think? One of the characteristics of physicists is that they try to simplify problems - reduce them to their basics - and then solve them by applying some very fundamental ideas. For example, you will be familiar with the idea that matter is made of tiny particles that attract and repel each other and move about. This is a very powerful idea, which has helped us to understand the behavior of matter, how sound travels, how electricity flows, and so on.

Once a fundamental idea is established, physicists look around for other areas where it might help to solve problems. One of the surprises of 20th-century physics was that, once physicists had begun to understand the fundamental particles of which atoms are made, they realized that this helped to explain the earliest moments in the history of the Universe, at the time of the Big Bang.

The more you study physics, the more you will come to realize how the ideas join up. Also, physics is still expanding. Many physicists work in economics and finance, using ideas from physics to predict how markets will change. Others use their understanding of particles in motion to predict how traffic will flow, or how people will move in crowded spaces.

Physics relies on mathematics. Physicists measure quantities and process their data. They invent mathematical models - equations and so on - to explain their findings. (In fact, a great deal of mathematics was invented by physicists, to help them to understand their experimental results.)

Computers have made a big difference in physics. Because a computer can crunch’ vast quantities of data, whole new fields of physics have opened up. Computers can analyze data from telescopes, control distant spacecraft and predict the behavior of billions of atoms in a solid material.

1. ***Make up a story with the following word collocations . The exercise is done in pairs or subgroups; a) and b) are given to different subgroups for further oral exchange of information***
2. To find it interesting, to study sub-atomic particles, to discover the nature of the Universe, to predict and control the properties, to use for engineering and medical purposes, to become some other type of a scientist.
3. To simplify the problems, to establish fundamental ideas, to look for other areas, to use ideas to predict, to invent mathematical models, to analyze data.

**WRITING AND SPEAKING**

**After-text exercises**

1. ***Give arguments for the following statements in written form. Do peer-review***.
2. Depending on how physics is applied, it can make the world a better place.
3. Other sciences draw a great deal on ideas from physics.
4. Physics is still expanding.
5. ***Give your arguments to your partner in oral form.***

**HOME WORK**

1. ***Revise The Active and The Passive Voices (Appendix 1)***
2. ***Watch the following videos and prepare a talk on the importance of physics***

# <https://youtu.be/pom8S7qF5Gk> Why Do I Study Physics? (2013)

# <https://youtu.be/biuFNcUuYCQ> Why Physics?

# <https://youtu.be/9QkE7dBlYxQ> Michio Kaku (2014) "Why Physics Is AWESOME!"

# <https://youtu.be/2WSgVRdD46A> Professor Tim Naylor: Why study Physics?

# <https://youtu.be/eKvAthYTHGc> !!! The Importance of Physics

# <https://youtu.be/HuZZpJJF71U> !!! What is Physics? - Inspiration

# <https://youtu.be/UJg68Tl1gJg> THE IMPORTANCE OF PHYSICS IN EVERYDAY LIFE