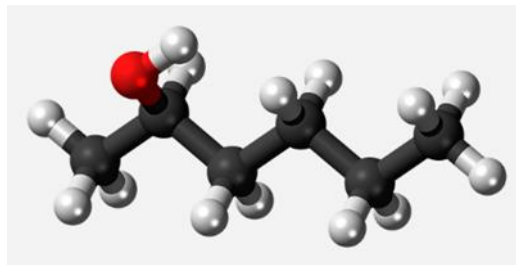# 3D printing applications in education

Scientific and technological progress does not bypass education.

A student of the 21st century is a person looking for new interesting solutions, for whom there are no barriers to use modern equipment, technology or applications.

The combination of equipment, technology and applications can be used in classes with a 3D printer.

The use of 3D printing technology at school increases the student's practical skills in the process of design, interest in science, and understanding three-dimensional space.

Working in graphic programs and 3D modelling is the development of spatial thinking, participation in the creation process.

The introduction of 3D printing to the didactic process fosters the development of thinking, develops the creativity and activity of the student.

3D printing is becoming a key challenge in education to understand abstract concepts and thus master the knowledge.

A 3D printer at school is an innovative promotion of the learning process, it gives access to a number of educational models - biological, chemical, physical or historical.

Working with 3D gives you the opportunity to design and develop your own models of buildings, machines, robots, complex vehicles or skeletons.

Examples include vehicle models with moving parts, or even your own steering model designs.

3 D printing is becoming cheaper and more popular among young people, so it's worth using your interests and inspiration to print mockups.

3D printing technology allows you to produce architectural models, objects, characters that can be used to make history lessons and art more attractive.

Humanity has always been fascinated by dinosaurs, which at the present time have become an inspiration for 3D printing, which we can use in different age groups with varying degrees of difficulty.

The knowledge in the field of 3D printing will be used by a student with an artistic soul and one with a scientific mind.

3D printing can arouse interest in the professions of an architect, constructor, doctor, jeweler, fashion designer and even a confectioner. At the moment, printing is great fun for the student, and in a few years a very good position on the labor market as a specialist.

3D modeling with a printout gives the opportunity to work in a group on joint creation

and construction of models, geographic mock-ups, educational installations in physics.

In physics lessons, the models of the atom used will cease to be an abstraction, and the construction of simple machines will help to understand the meaning of physical concepts.

The world of modern technology teaches you to face challenges and solve problems using creativity and ingenuity.

In each class, 3D printing can be used to make the didactic process more attractive.

Even working with the youngest ones can bring fantastic results when creating seasonal decorations.

The little ones can also print toys. Joint designing, selecting a model and even correcting mistakes combines the ability to solve problems with creativity and innovation.

3D printing makes it possible to produce very complex shapes and sizes that can be used in biology classes. The creation of a human skeleton or anatomical models will provide students with long-remembered knowledge.

Printed models of organs, cells, tissues, even prostheses, trigger the creativity and imagination of young artists, bringing them a lot of satisfaction.

Using a 3D printer develops a sense of technological thinking among students, and at the same time stimulates interest in science and technology.

A 3D printer at school can have an unlimited use.

The creativity of teachers and students is the educational potential to be used in education.

The teacher, together with the students, can design and print items that will be teaching aids.

Learning by contact with the model becomes faster and more effective.

The use of printed models will increase student involvement in the lesson.

People with the ability to model spatial and operate advanced equipment should be inspired and engaged to develop in the area of innovation.

In math lessons, 3D printing technology can be used to produce solids of any geometry. The student has the possibility of individual design, shape and size adjustment. Spatial intelligence includes relations between objects, interpretation of shape and size. The acquired knowledge about solids can be checked during the design of a polyhedron mesh.

We can also create aids that are used to better understand charts or functions.

For geography, history, physics or chemistry classes, a student can design a model himself or use the models available for free on many platforms.

One of the most popular platforms is Thingiverse, which has educational facilities. https://www.thingiverse.com/

3D printers can be used to create interactive maps showing ancient settlements as well as modern cities.

Preparing a model for printing requires the student to have skills in the field of spatial design and 3D printing.

3D printers are tools for learning new skills that students can practice in technology, computer science and interest groups.

Printed teaching aids accelerate the acquisition of knowledge, stimulate the imagination, make the didactic process more attractive, and allow obtaining better didactic results.

A school with a 3D printer is a modern school, perceived by students and their parents as an attractive school.

Małgorzata Żybura, MA physics teacher

It is possible to find more information about 3D printing, including applications, trends and its benefits for Education in the "3DP TEACHERS' GUIDEBOOK". Make sure you are following the "3DP TEACHER - implementation of 3D Printing in future education" project's Facebook page to be the first to know when the guidebook is published on project's website.