



Introduce 3D design and the “makers” culture in secondary schools

For the past few years, a group of French secondary school students have been taking the chance of slipping into the shoes of entrepreneurs and discovering 3D design during a national contest. Coached by their technology teacher, every team has to set up a fictitious startup to design, print, and market a 3D object of their own creation.

Proposed by the Fondation *La main à la pâte* with the support of La Fondation Dassault Systèmes, this pilot challenge, entitled **Made in 3D** (formerly **3Défi Collège**), was first tested in a college near Paris in 2017. Today, over 30 middle schools are participating each year, and this is meant to be duplicated on a larger scale in France, but also internationally. The aim of the latter is to place 3D technology and virtual worlds at the heart of education and research, in order to push the boundaries of knowledge and to arouse young people’s interest in engineering careers, as well as in science and digital technologies.

Are you a teacher in a secondary school? Do you wish to enroll your class in an international 3D design and prototyping challenge?

Aimed at secondary school teachers, **Made in 3D** invites students to design and manufacture a simple

3D object, in line with one of their school’s scientific topics, using specialized software and 3D printing technology. Organized as a start-up, groups of 5-6 students take part in the entire process of creation from the early design to the marketing of the object with help of promotional videos.

The **Made in 3D** challenge seeks to enhance the use of digital design and additive manufacturing tools based on an innovative learning approach. The objective is also a matter of developing the innovative and creative potential of students, and introducing them to the culture of “makers” and startups.

In addition, for young students, such a challenge is an opening towards different mindsets, cultures or societies: various needs, various approaches and various ways to communicate. They should be better prepared to cope with tomorrow’s borderless world, and to address its global challenges.

The foundations provide participating teachers with support, materials and teaching resources throughout the contest period for a school year.



COLLEGE PILOTE

La main à la pâte

TYPICAL TIMETABLE AND HOW THE PROJECT WILL BE IMPLEMENTED

BEFORE THE OFFICIAL START DATE, submit in a few lines a 3D design project that you want to carry out with your students. The project can be carried out in the context of a single course or across several courses.

AFTER THE START DATE, the teachers of selected classes are invited to attend a one-day training session on the Dassault Systemes campus, during which they are introduced to a digital design tool (SolidWorks) and 3D printing tools. At the end of this session, they receive an activity guide, a 3D printer and supplies for the design activities. A version of the SolidWorks CAD tool is also made available for the duration of the project for each group.

DURING THE NEXT 6 MONTHS, the projects are implemented in the classrooms. The groups organize themselves

according to the proposed protocol and conduct their work on a minimum of 5 sessions. They must prepare a presentation of their design process and an up to 30 seconds clip to promote the 3D object they made.

DURING MONTH 7, some classes are pre-selected, based on the achieved work, and send a delegation of students to represent them towards a panel of experts; the jury evaluates the creativity of the classes and the implementation of their approaches based on the videos created by the students.

END OF MONTH 8, the contest ends with an awards ceremony and a visit of the Dassault Systemes campus (immersive installations, VR headsets and virtual reality room, the professional FabLab, the Learning Hub, meeting with engineers and managers of the start-up incubator).

WHO CAN PARTICIPATE? : Any teacher who is a member of a secondary school pre-selected by the Fondation La main à la pâte. Minimal knowledge of CAD software and 3D printing are recommended.

HOW TO PARTICIPATE? : Before the official Made in 3D start date, send, the name and e-mail address of the teacher(s) indicating the project title, theme and the class level.

