Project:
Prototyped alveoli for Hives

Concerned students:

A group of students in 10th grade, studying the exploration module « Creation and Technological Innovation ».

Project Framework:

Installation of a little group of connected beehives, in the school enclosure. The goal is to optimise the honey production and examine the bees behavior.

Special request made to this group of students:

Replace the wax framework usually used by alveoli made with a 3D printer. We will examine the bees behavior using this kind of alveoli whith an infrared camera. The aim is to save time with the honey production.

- **Starting Point:** the Beehive and the standard framework

- **Goal:** Substitution of the wax by 3D printer made alveoli at différente stages in order to watch the bees response.

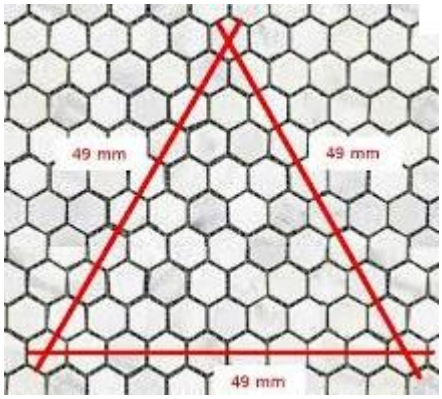
- **Subcontracting:** Examine the bees feedback

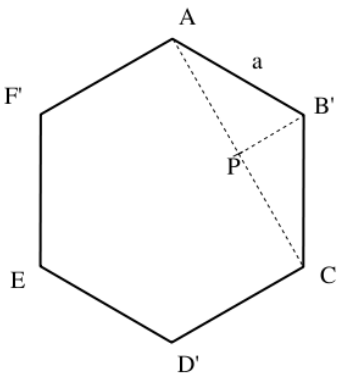
A group of sensors and an infrared camera will be installed by students of Terminale Science and Technology of Industry and Sustainable Development (STI2D) in order to observe the bees' reaction to these new alveoli.

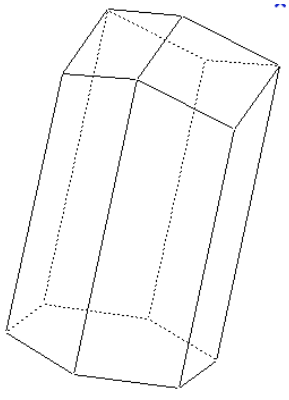
Activities in progress:

Analyze and draw lozenges and cells at different stages on an area of **200 * 200 mm** in different materials

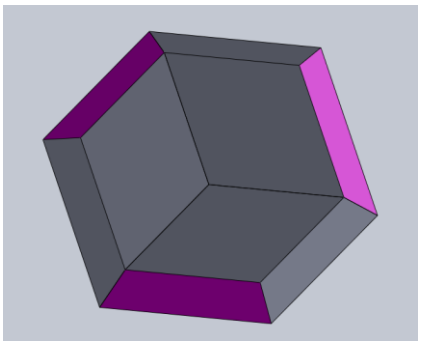
- **analysis:** Mathematics on the geometrical shapes of the alveoli



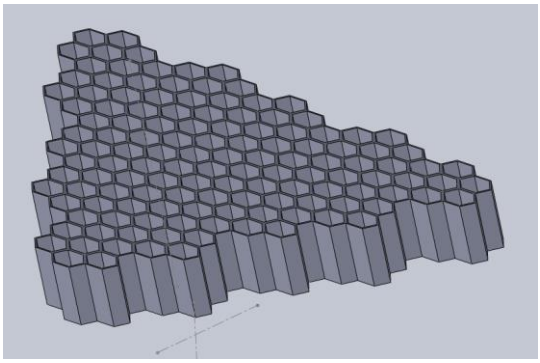




- **Outline of alveoli under construction whith SOLIDWORKS**



Lozenges



Alveoli

Upcoming Events:

- **<u>January 31, 2017:</u>** Speech of 2 LMNO scientists (laboratoire de mathématiques Nicolas Oresme de Caen) to explain the paving, the 3D shapes…..

- **<u>Printing</u>** on a accurate 3D printer because of the high precision needed to build the small alvéoli. Tests with différent material, different settings to optimize the design

- **<u>Installation and observation</u>** after the group of hives will be installed in April 2017