

Off with the training wheels

**Student centered approach to lab work
(a teacher's tale)**

Presentation outline

- 1. Objectives pursued**
- 2. Context of application**
- 3. Process and documentation provided**
- 4. Results after two semesters**
- 5. Conclusions**

1. Objectives pursued

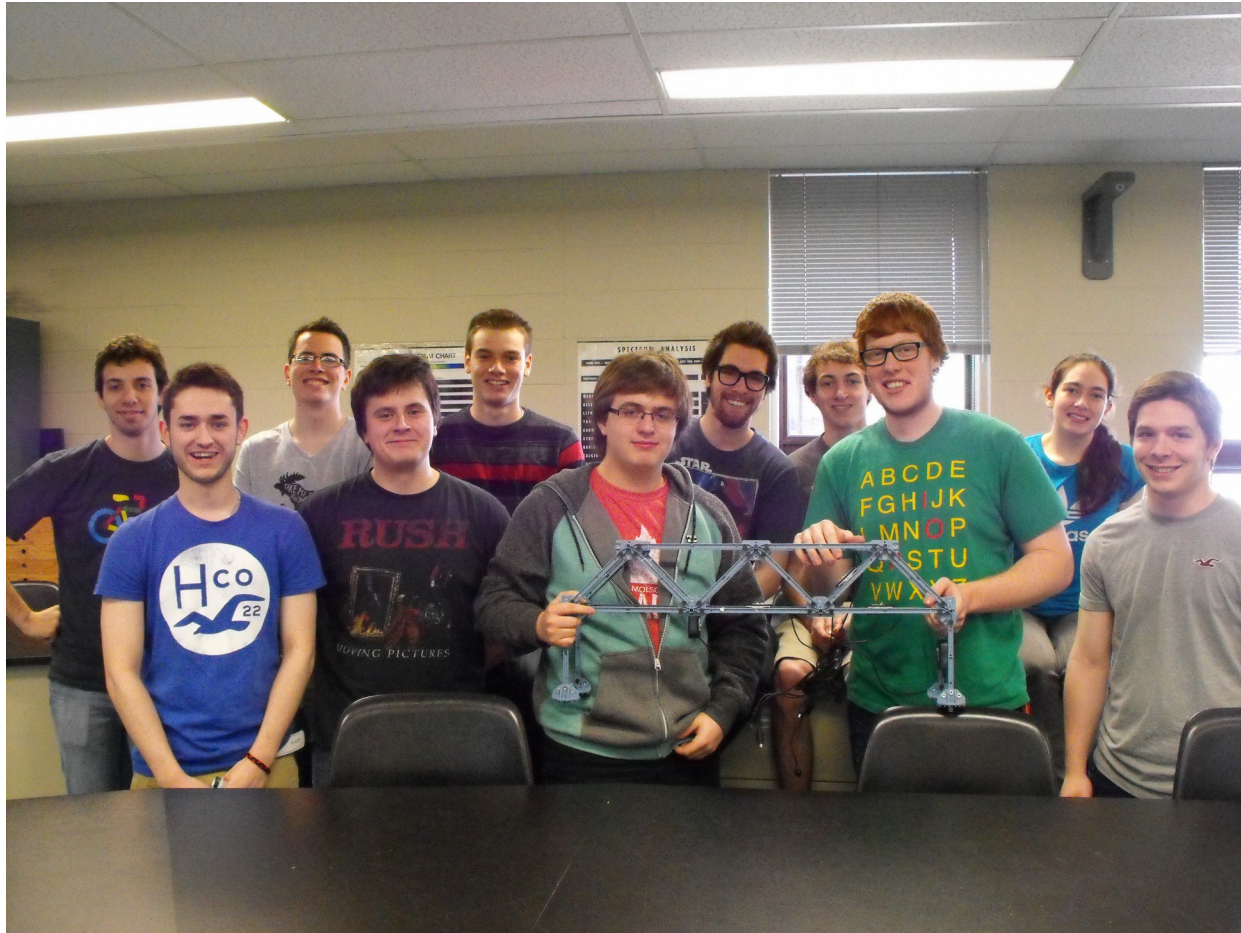
- Improve student's involvement and motivation.**
- Increase permanent learning.**
- Train students to become autonomous researchers.**

2. Context of application

2.1. Third semester



2.2. Fourth (and final) semester



3. Process and documentation provided

3.1. Students are provided with:

- Goal of the experiment (learning goal and scientific goal).
- List of material and explanation on how to use it.
- Theoretical framework.
- Detailed manipulations.
- Mathematical treatment required for analysis.

3.2. Students have preparatory work on:

- Theoretical framework.
- Hypothesis of the experiment.

3. Process and documentation provided

3.3. Students are provided only with:

- Goal of the experiment (learning goal and scientific goal).
- Detailed list of concepts to research.
- 2 hours of class time for preparatory work.

3.4. Students have to come up with their own experiment:

- Linked to the topic of the class.
- 10 hours of class time total.

4. Results after two semesters

4.1. Example of experiment

DUFOUR-FORGET DANAË

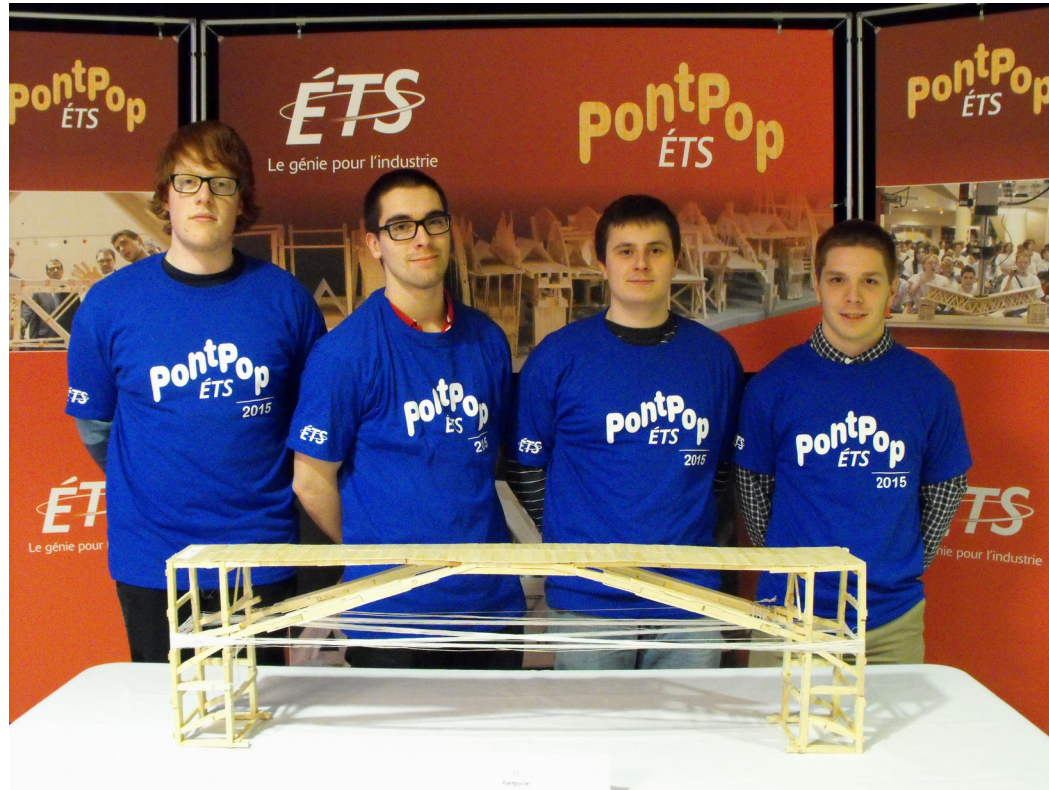
RÉSISTANCE DES MATÉRIAUX

203-034-RL

ÉVALUATION TERMINALE

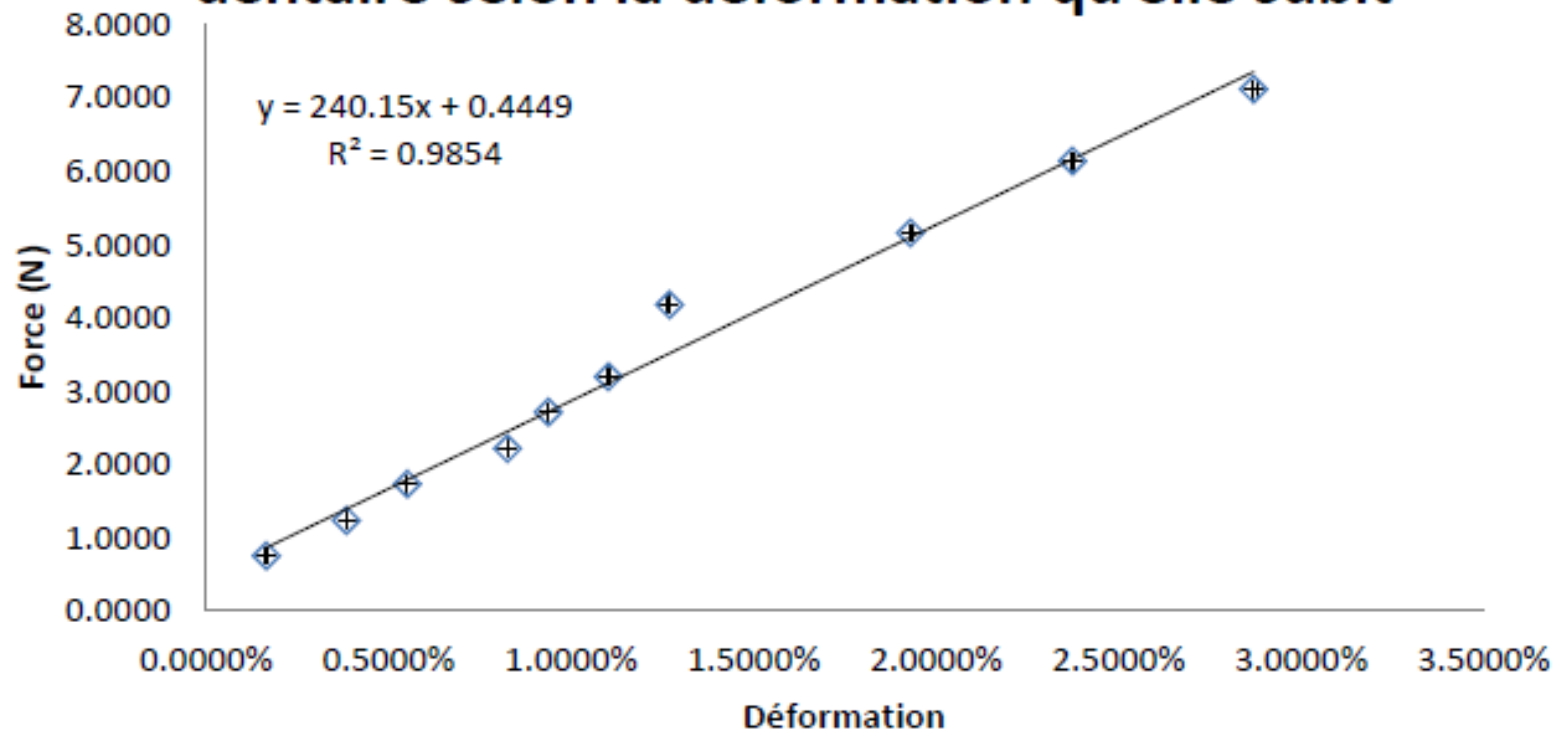
Déformation de la soie dentaire

4.2. Start of the inquiry

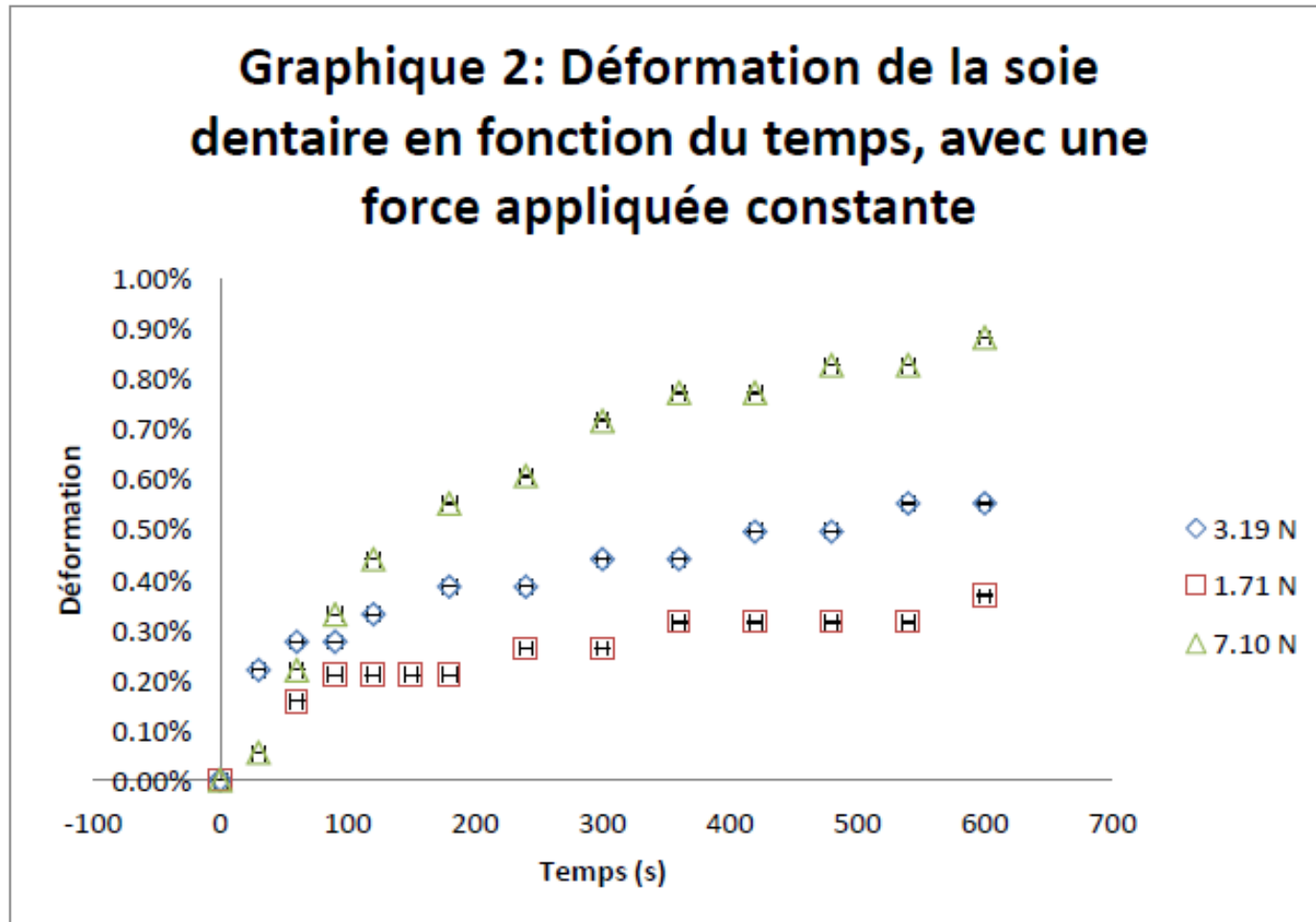


4.3. Results

Graphique 1 : Force appliquée sur la soie dentaire selon la déformation qu'elle subit



4.4. Exceeding of expectations



5. Conclusions

- **Improve student's involvement and motivation.**
 - Caused a lot of anxiety for some students.
 - Most students enjoyed this method.
 - Students that were already motivated greatly enjoyed this method.
- **Increase permanent learning.**
 - Some students exceeded my expectations.
 - Most students at least remember the labs (if not the content of the labs).
- **Train students to become autonomous researchers.**
 - No measurable change in their autonomy.