Daniel Zimmer, Laure Ninove, and Timothée Marquis
Title: **Scientific Debate in the Classroom**
Abstract: "More often than not, in the classroom, the teacher has a monopoly on truth. S/he is the one to solely bear the scientific responsibility of the statements that circulate during the course. An important part of the mathematician's activity is to discuss concepts and exchange with peers. Giving students the opportunity to do so in class, to share their own ideas and exchange conjectures and arguments more freely, is one of the goals of the so-called "scientific debate".
After a brief introduction, we will let you experience such a debate. We will then report on some of our experiments in a handful of classes comprised of students aged 15-17, and elaborate on some of the strategies they used and how they experienced the activity."

Asli Grimaud
Title : Treasure chest
Abstract: "Treasure chest" is an unplugged and fun activity to approach different computer science topics with middle and high school students.
Students are encouraged to engage in a scientific process. They can observe, manipulate, experiment on the computer science notions through the game. They can replay the scene to test several solutions. They must work as a team so they develop their communication skills between peers and learn to respect others' point of view. They have to explain their approach and their choices to the group. Throughout this activity they work on the information processing, their organization and representation. They make a connection between a pseudo-real situation and its translation into mathematical and computing language.

Els Vanlommel
Title: Abstract Q-Q-plots
Abstract: In third grade statistics classes, we often use the 68 - 95 - 99.7 rule to check whether a set of observations may be normally distributed. Q-Q plots offer another commonly used way of investigating that.
A Q-Q plot is a graph in which the quantiles of two probability distributions are plotted against each other. If both datasets come from the same distribution, the points lie on a straight line.
In this workshop, we will create our own Q-Q plot from scratch, using Excel. We will also briefly look at how to do that with large datasets found online. Then we will do an exercise on interpreting Q-Q plots. When can you decide that the points lie well enough on a straight line? In doing so, we go into more detail on any structural anomalies.

Martin Kindt and Rogier Bos
Title: Limitless local linearity
Abstract: Tapping into the theme of this year's meeting we observe that even nonlinear phenomena are often still locally linear. To make sense of this, mainstream calculus uses the notion of limit. However, well before the modern notion of limit was introduced, Euclid and Archimedes discussed matters of local linearity in the form of tangent lines. Here one finds the source of alternative ways to talk about local linearity, that in turn inspired Marsden and Weinstein to come up with an elegant way to define tangent lines and derivatives without the use of limits in the 20^{th} century. We discuss this approach, as well as the historical origins.
What approach would students choose, if they're invited to work with the notion of tangency and local linearity, before having learnt about limits? Would their approach use secant lines, ideas of zooming in, or rather something else? We present a study that investigates precisely this, based on the task to design a smooth slide.