**Sequence 3 : “Moonshot” projects**

**"How to engineer solutions when developing ground-breaking "moonshot" projects"?**

Step 1 : Discovering the project and the issue Dave Hakkens aimed to address and presenting the technology beneath it before being able to define what Moonshot thinking is

* Listen to “Phonebloks: our first year” until ’43, take notes individually before reorganizing what the project is aimed to do in work stations.

The whole class should be able to state the sustainable issue addressed by Hakkens at the end of the lesson.

HW: be able to sum up the project in writing and read the helpful document about Darpa and Ara

* Engage in a 15 minute sentence race in specialty work stations (SIN/ ITEC): use as many words as possible to state the purpose of Phonebloks, the problems it tries to solve.
* After reading a helpful document, listen to “The Verge” until ’22 and try to sum up what a moonshot project is according to the journalist and what Ara project is about.
* Watch until 3’10 to define the problems raised and how the ATAP team means to solve them and turn them into assets. To do so, take part in a specialty contest: SIN students will focus on the electronic problems Ara tries to solve and ITEC students will concentrate on the design of the phone. Each student will have to explain what problems the project raises and what could solve them, resorting to engineering principles.

Both SIN and ITEC students should be able to account for the problems encountered and how they brought about new ideas before being solved

* Watch the video “Moonshot thinking” and individually jot down the types of projects moonshots refer to and justify them. Jot down the emotional adjectives and say why they are relevant. Expand on these notions: difficulties, pioneering, decisions, means, goals, superlatives, boldness, challenges, capability, risks, will, success, fears, inspiration, drive, restrictions, imagination and reality, beliefs, confidence

The whole class should be able to define what Moonshot thinking is at the end of the lesson.

HW: Summarize the way Google considers its research sounding enthusiastic thanks to powerful adjectives and meaningful intonation.

**Sub-project: Record yourselves in MP4 and play the role of an enthusiastic engineering-oriented journalist introducing project Ara on the radio**

**Step 2: Comparing two “Moonshot projects”** “Philae/ project Loon” **in work stations, figuring out how influential the problems encountered were/ are and saying how remarkable and worth it they are**

* In specialty work stations, read a text about a moonshot project and be ready to answer friends’ questions about it and ask friends questions about their own text
* SIN: Loon project// ITEC: Philae
* Cf worksheets \*2

At the end of the lesson, the students should be able to say what makes both ground-breaking projects remarkable, stressing the difficulties overcome along the way.

**Sub-project: According to your specialty, take part in a radio show recorded on your MP4 and assess how successful the two “moonshots” are so far and how useful the problems have actually been to their developments**

**Final Project of the cross-breed lesson:**

You will **orally and visually** turn your project into “ **a kind of moonshot**”, saying what prompted you to work on your project, what sustainable goals you set yourself, the problems you came up with, the possible solutions you contemplated at first, the final solutions you chose and eventually the reasons why you came up with them instead of others.