Environmental problems at the school (12-18 years).
The case of Aragón (Spain)

1. How? This research comes from a great variety of maps as well as other research held by a group of Secondary and a High School Teachers at Zaragoza (Spain) about how to use of Geographical Information Systems (GIS) in order to achieve skill learning. At the moment, we are dealing with climate change and its repercussions on population distribution, especially with depopulation and environmental problems at Aragon (Spain): [https://arcg.is/0W588a](https://arcg.is/0W588a)

2. Content. Depopulation process is a result of a resource relocation of human resources, what it is made by the market, and it implies an important range of environmental problems: depopulate areas have long been inhabited and modified by humans until they become into “andromas”. In these kinds of biomes, survival relies on human activity. Human activity disparition may lead to an environmental collapse, due to the low availability of natural elements that are needed to rebuilt them and due to the risk of unpredictable evolution. The current global warming crisis makes this problem more relevant, if that is possible.

3. Main targets:
1.- Develop teaching strategies focused on giving students tools that allow them to answer environmental problems in this changing climate context
2.- Use of GIS and field trips in order to to build knowledge based on the inter-relationships that shape our ecosystems.
3.- Implementation of active ways of student work that generate environmental commitment and identify those behaviors that harm the environment.

4. Methodology (three levels):
1.- The collaborative work and research of the group of teachers.
2.- Students in little teams with the resources mentioned. An example can be seen at: [https://arcg.is/1Dj8HT](https://arcg.is/1Dj8HT), where students analyzed the effects of climate change on ski resorts.
3.- The evaluation of the results is done by checking the achievements of the planned goals: What have students learned? What is the quality of what they have learnt? To what extent do these lessons improve the whole process? Is there any possibility of developing learning service?

5. Conclusions and findings
After three years, the aforementioned group of teachers (http://aprendeconmapas.ftp.catedu.es/experiencias.html) has realized that:
- GIS are an efficient tool to build knowledge.
- The use of active and collaborative strategies leads to skills learning (conceptual, procedural and attitudinal).
- These strategies generate inclusive learning practices and develop capacities to respond to the problems in the context in which students live, especially, in this case, global warming.