

# CREATE 3D Virtual Living Spaces to Promote Sustainable Development

## Objectives:

- To create 3D environments that promote sustainable development using Sketchup
- To promote environmental awareness by designing 3D spaces of our surroundings like houses, schools, parks, office or buildings using Sketchup and Floorplanner.

## Activity description:

To develop a sustainable environment proposal that will boost environmental education, promoting a decrease of the compounds that cause the formation of acid rain and global warming; through the creation of 3D architectonic models for schools, transportation, houses, buildings, offices; taking advantage of natural resources.

Type of pollution	Problem	Possible solutions
Water	<ul style="list-style-type: none"> <li>• Industrial waste</li> <li>• Urban waste</li> </ul>	Rainwater collection Water treatment plants. Domestic waste water reuse (sinks, showers, bathrooms) Solar cells for heating water (reduction in the use of fossil fuels)
Air	<ul style="list-style-type: none"> <li>• Global warming: excess of greenhouse gases</li> <li>• Acid rain: smog production</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of cities with planning for bike routes.</li> <li>• Planning viable collective transportation routes (check Colombia example)</li> <li>• In factories, filters or treatments for gas emission (purification)</li> <li>• Green area planning (parks,</li> </ul>

		forests, median strips, pedestrian walkways, etc.)
Soil	<ul style="list-style-type: none"> <li>• Pesticides, fertilizers.</li> <li>• Acid rain.</li> <li>• Trash: organic and inorganic waste.</li> </ul>	<ul style="list-style-type: none"> <li>• Design of a waste separation, recycling and waste process plant.</li> <li>• Design of a strategy for waste collection and container (deposit)</li> </ul>

What do we want to achieve?

To raise awareness on the need that exists to make the most of our natural resources, not only in the aspects of environmental pollution, but in favor of a better environment from the personal perspective of each student.

In this project, students will take control in the design and construction of spaces that reflect a sustainable lifestyle, making them aware of the real need to act in order to reduce the negative effects that our current lifestyles produce.

How will we do it?

In the chemistry course, SketchUp will be used to design and build spaces which are focused towards the conservation of the environment and make it possible to take advantage of resources such as sunlight, rain water, organic waste, etc.

Using SketchUp, students will model in 3D their designs and will present their prototypes looking to make an impact through the development of an advertising campaign to promote the construction of sustainable housing.

The everyday surroundings that students design include: their school, home, business or place of work, entertainment centers, cities, etc.

SketchUp 3D modeling software is very easy to use and it is possible to learn in a virtual manner through video tutorials.

<http://www.sketchup.com/>

Using Floorplanner, students will be able to design spaces as they consider the necessary implications to build a home, office or school, taking into account the reduction of the production of chemical pollutants.

<http://www.floorplanner.com/>

## Products

### 1. Research: Theoretical Framework

- Project Justification
- Types of pollutants: water, air and soil.
- Causes and consequences
- Problems that are generated by air, water and soil pollution.
- Identification of compounds and chemicals that cause pollution, as well as their origin and reactions.
- Alternative solutions.

### 2. Architectural proposal :

- How would you design schools, offices , houses, farms , industries ... . ?

Focused on the conservation of the environment that favors the use of natural resources such as sunlight, rain water, organic waste, domestic or industrial waste water reuse... .