



### Clean City Design

**Grade:** 10-12<sup>th</sup>

**Objective:**

The purpose of this activity is to demonstrate students' knowledge of efficient and conservation practices that can be implemented to design a sustainable environment, in this case a local city.

**Materials:**

Classroom

Pen/pencil

Paper

**Key Terms:**

Urban planning

Net zero

Eco-friendly

Sustainability

Greenhouse gas

Pollution

LEED design

**Introduction:**

1. Divide the class into small groups. Explain to the groups that today they will work together as urban planners to design their own imaginary cities using their creativity and all the things they have learned about air pollution and greenhouse gases. Their goal is to design a sustainable city. Being a city planner is very much like being one of the early settlers and pioneers in our country. They came to an area and had to decide how to use the land and where to locate all the different parts of a community. They had to deal with many issues including waste disposal, food production, power production, and water supply.

2. In their groups have students brainstorm and record a list of things they would need to include or think about in their planning. Use the ideas below to guide the discussion.

- **Energy:** Non-combustion, solar, wind, hydro, biomass.
- **Product Use:** Where does food come from? Locally grown fresher and less emissions; stores close to houses.
- **Waste:** Transfer stations, composting, and recycling stations.
- **Transportation:** Reduce automobile travel with bike paths, subways, walking paths. Housing close to schools, stores, places to work, access to green space.
- **Green Space:** Plants and trees take up carbon dioxide and make your city attractive.

3. You may want to generate a set of basic map symbols, which everyone uses for common sites such as homes, schools, roads, etc. Teams may add additional symbols of their own choosing, as needed. This will help simplify reading the maps.

4. Guide students with the following instructions:

- Create a name for your city, and write it at the top of your paper
- Draw the city limits and natural landmarks such as rivers or forests
- Create symbols for homes, shopping centers, schools, parks, community gardens, farmer's markets. Make a map legend showing each symbol and its meaning.
- Mark transportation routes by type, of travel (bike routes, light rail)
- Each city plan should show:
  - Transportation means and routes
  - Energy sources
  - Food sources
  - Work places
  - Homes
  - Stores, libraries, parks, and entertainment
  - Mixed use neighborhoods
  - Waste disposal area/Recycling centers
- Create a list of choices/actions which environmentally responsible citizens can make to reduce greenhouse emissions, that cannot be shown on a map, such as taking shorter showers, using less of something, and bringing their own bags when they shop. Attach the list to your map.

5. Provide each group with a large sheet of butcher paper and pencils with erasers. Markers, colored pencils, etc. can be used later when the planning is complete.

6. Circulate around the classroom and assist as needed. Once the groups have completed their maps, have each group come to the front of the class, one group at a time, to explain their map and their list of choices/actions to the rest of the class.