Design Challenge: Biophilic Cities,
Making Urban Environments More Diverse and Sustainable

**Instructor Background:** On the left, the city of Pittsburgh, PA and on the right, the city of Vancouver, BC. Vancouver one of the “greenest cities” in the world. Pittsburgh, along with other US post-industrial cities ranks as “less green.” These photos help students see how two populous cities can differ greatly as a result of history and current policies and actions concerning the natural environment right where people live. These links give some insight into how cities are scored: 1) [Vancouver](#) and 2) [Pittsburgh](#)

**Warm up: Compare and Share**

**Part 1: Compare**
1. Show students the 2 images without context, and ask them to jot down what they notice about each individual picture. A good target would be 5-10 observations.
2. Next ask students to explicitly compare and contrast the two images and make a list of similarities and differences between the two images.
3. Ask students to write at least one question they have about the observations they made between the two images. You could remind students that their question might be a how or why question.

**Part 2: Share**
4. Now have students share their observations with a partner and record the similarities and differences between their lists and question.
5. Ask the partners to formulate a new question that came from their conversation. The question could be a modification of one of their individual questions.
6. Student pairs can share out with the larger group and a list made for further research. Both common and unusual observations can be valuable.
Nature and Biodiversity in Cities

Now that the students have started thinking about cities and nature focused on just two photos, this section digs in deeper on specific things cities have actually done to support local nature.

• **Part 1: Brainstorm** - Have students work individually or in small groups to list specific action steps cities (including suburbs) could implement to better support biodiversity and help people live in and with nature right at home. Students or groups of students can share their ideas in a whole group discussion. Students should explain why their ideas would support biodiversity and promote nature.

• **Part 2: Biophilic Cities** - Watch and listen to the four stories highlighted in the Biophilic Cities Half-Earth Day Presentation. Have students record additional ideas for protecting biodiversity and preserving nature in urban environments. Again, encourage students to discuss and explain why these ideas work to promote healthy, sustainable, and biophilic life in cities people and other species.

• **Part 3: Additional Research (optional)** - Students can research the greenest cities in the U.S. or the greenest cities in the world and dig deeper to find out what action steps and policies these cities are using to support the natural world.

**Instructor Notes:** During the brainstorming and researching sessions, student ideas could be as simple as planning trees, more parks, no outside cats or more elaborate ideas like restore native habitats, add green roofs, etc. Encourage students to use logic and reasoning aimed at long term impacts when developing ideas.

Protecting Nature in Your City

Students will select one of the four stories that was highlighted in the Biophilic Cities Half-Earth Day Presentation and zoom in on how lessons from that city could be applied to where they live. The following questions are meant to provoke thinking in students once they select the story they are going to analyze and apply to their own city or one nearby if not living right in a city:

• **Portland, Oregon** - Swifts have responded to the loss of large old-growth trees by amassing in a large dis-used chimney. Residents have learned to celebrate this, rather than evict the swifts. Is there some similar species near where you live that are losing habitat but adapting in unexpected ways? What ideas do you have to get city-dwellers to turn watching biodiversity into a party?

• **Chattahoochee, Tennessee** - Students at this school spend a lot of time outdoors engaging with living things. Do you think this helps or hinders how they learn about science, especially biodiversity? Why do you think this? Why do you think more schools don’t do this? Would you like to learn and experience science in this way? Why is it important that students be allowed to be outside engaging with living things?

• **New York Harbor, New York City** - In New York Harbor, the Billion Oyster Project is working to restore oyster reefs through public outreach and education initiatives. Think of your city (or a nearby or favorite city if you do not live in one.) Is there an ocean, lake, river, or other water source that needs cleaning up? Why is clean water important? What could your city learn from NYC? What are some strategies that your city could implement? How do you get people to know and then pull together to improve the situation?

• **Singapore, Southeast Asia** - In Singapore, the otter, like many urban species, are changing their behavior to fit into big city living. Some see it as a problem, and others are embracing the marine mammal residents. How can focusing on one species help more than just that species? If you were to pick a native species to bring back in to your area, what would it be? Why is it important to re-introduce that species? What key actions would you need to take to re-introduce that species? What other species might benefit from the re-introduction?
Supporting Resources
The following resources are helpful for students to research, learn, and get inspired about organizations and actions that are promoting biodiversity and preserving nature in urban areas.

1. **Biophilic Cities Website** - The Biophilic Cities Network was created to restore a connection between cities and nature. They feature examples of work being done in cities around the world.

2. **Biophilic Cities Journal** - The organization has a quarterly journal profiling city projects that align with their mission, as well as interviews with experts and researchers working to bring nature back to cities. The “City Profile” and “Project Profile” are great articles to expose students to creative ways cities are becoming more green. You could use the articles as guided reading and discussion or jigsaw the articles and have students discuss the various methods with each other. Here are a few of our favorites:
   - **Vancouver** - Learn about the Vancouver’s Biodiversity Strategy
   - **Chicago** - Check out the “Chicago Wheat Prairie”
   - **Milwaukee** - Find out what Milwaukee is doing with vacant lots
   - **Medellin** - See how Medellin’s River Parks are expanding nature

3. **Biophilic Cities Films** - The network has several short films featuring people doing amazing projects in cities around the world, from small-scale to really huge.

4. **The Pattern Library** - The pattern library displays an inspiring array of nature-centered projects that could be used as blueprints to create more nature-friendly cities. They provide good models for how students might present their ideas.

5. **Humans and Nature** - A curated community of storytellers sharing reflections on how cities can offer opportunities for transformation, intimacy, and connection with other species and one another.

6. **The Nature of Cities** - An international platform devoted conversations on making cities more green with a big catalog of resources including essays, roundtable discussions, podcasts, and more.

7. **Homegrown National Park** - This new project from Doug Tallamy, research scientist and author of *Nature’s Best Hope*, inspires individuals to restore biodiversity by planting native species in their own backyards and green spaces. You can get on the map [here](#)!