



# Teacher Guide

## UNIT 4 LESSON 5: GREEN SPACES

### Theme

Green spaces are essential for every community.

### Missouri Science Standards: LS2.C.2; ESS3.C.1

### Vocabulary



**Sustainable Neighborhoods for Happiness Index (SNHI)** - a means for assessing and comparing how well individual cities, towns, neighborhoods, and communities address sustainability issues associated with residential happiness.

**Urban Heat Island Effect** - Green spaces in cities mitigate the effects of pollution and can reduce a phenomenon known as the urban heat island effect, which refers to heat trapped in built-up areas. The urban heat island effect appears in towns and cities as a result of human activity. The heat generated by people, transport, shops and industry is trapped in the narrow roads and concrete structures, unable to escape to the atmosphere. This can bring the temperature in urban areas up 3-4 degrees Celsius higher than the surrounding countryside, and with that comes a vicious cycle.

### Video 1: What Happens If You Cut Down All of a City's Trees?

*Video Description: Explore what makes trees a vital part of cities, and how urban spaces throughout history have embraced the importance of trees. Video by TED-Ed.*

Video Link: <https://www.youtube.com/watch?v=zarll9bx6FI>

Teacher Notes:

- Video is about 5 min and 13 seconds long. The last 10 seconds can be skipped.

Follow-Up Questions:

1. True or False? Religious reverence in Anuradhapura slowed farmers from cutting down the Bodhi trees and led the city to plant additional trees in urban parks.
2. Fill in the blank. Uruk's irrigation system became contaminated because there were no \_\_\_\_\_ to filter the water supply.
3. Fill in the blank. Trees act like a natural \_\_\_\_\_, absorbing storm water runoff before releasing it back into the atmosphere.
4. Fill in the blanks. Research indicates that the presence of green foliage \_\_\_\_\_ attention spans and \_\_\_\_\_ stress levels.
5. What city is super committed to trees and has planted over 1.2 million trees since 1967?

## Video 2: How Can Green Spaces Create Healthier Cities & Improve Mental Health

*Video Description: Director of the Urban Planning, Environmental and Health Initiative at ISGlobal, Mark Nieuwenhuijsen is a world leading expert in environmental exposure assessment, epidemiology, and health risk/impact assessment with a strong focus on healthy urban living. In this video, he explains how the lack of green spaces in city neighborhoods can affect mental and physical health, and how we can ensure that green spaces of quality are available and easily accessible to everyone.*

Video Link: <https://www.youtube.com/watch?v=GRApAQHi7fU>

Teacher Notes:

- Video is approx. 2 min and 40 sec long.
- Will need to pause at the end so students can write down the answer to the last follow-up question.

Follow-Up Questions:

1. True or False? Life expectancy is shorter for people living in greener areas.
2. True or False? Green spaces reduce air pollution levels.
3. Fill in the blanks. Green spaces refers not only to areas like \_\_\_\_\_, but also things like having \_\_\_\_\_ in the streets.
4. List the three ways that quality green spaces can create healthier cities that are specified at the end.



## Activity 1: Sustainable Neighborhoods for Happiness

*Activity Summary: This activity was developed by the Arizona State University Walton Sustainability Solutions Initiatives. In this activity students are going to explore neighborhood systems and evaluate neighborhoods according to the Sustainable Neighborhoods for Happiness Index (SNHI). The SNHI is meant to serve as a means for assessing and comparing how well individual cities, towns, neighborhoods, and communities address sustainability issues associated with residential happiness.*

*Teacher Notes:*

- Teachers will assign neighborhood descriptions for each group to evaluate
- Original teacher outline instructions can be found online [here](#) under "Neighborhoods for Happiness"

## Activity 2: Envision a Sustainable Neighborhood

*Activity Summary: This activity was developed by the Arizona State University Walton Sustainability Solutions Initiatives. In this activity students will think about their neighborhood and how their neighborhood would score on the Sustainable Neighborhood for Happiness Index (done in the previous activity).*

*Teacher Notes:*

- This activity can be done as a class or on an individual level. We recommend the students filling out their own T-Chart, but creating a large Vision poster with the whole class and brainstorming ways to improve the community together.
- Original teacher outline instructions can be found online [here](#) under "Neighborhoods for Happiness"

## Concluding Questions/Assessment

\*Student worksheet included in packet.

1. How would you define a green space? Use examples.
2. What do you think about the idea to ensure that green spaces of quality are available to everyone? Is it important?
3. What would you say are the key components of a sustainable neighborhood?
4. Describe one change you would like to see your neighborhood or community make toward sustainability. Why do you want this change?

