

# ***SUSTAINABLE COMMUNITIES!***



## **Part 3:**

**How can we  
use our space  
to help our  
community thrive?**

**SUSTAINABLE  
DEVELOPMENT GOALS**

developed by



**Smithsonian**  
*Science Education Center*

in collaboration with

**iap** **SCIENCE  
HEALTH  
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*Find out More!*

For additional resources and activities, please visit the *Sustainable Communities!* StoryMap at <https://bit.ly/2YdHNqB>.

## Part 3 Planner

**Timing note:** The time used for investigations, observations, and actions can vary. When different options are listed within an activity, some options may take longer than others.

<u>Activity</u>	<u>Description</u>	<u>Materials and Technology</u>	<u>Additional Materials</u>	<u>Approximate Timing</u>	<u>Page Number</u>
<b>Task 1: Why does my community need space?</b>					
<b>Discover</b>	Consider your needs and how places in your community help you meet those needs.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> <li>• Computer (optional)</li> </ul>	<i>My Identity Map</i> (Part 1, Task 2)	20 minutes	3-9
<b>Understand</b>	Use a survey, interviews, focus group, or other investigation to find out about the needs of people in your community.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> <li>• Computer (optional)</li> </ul>	<i>Survey Instructions</i> (Part 2, Task 1, optional) <i>Oral History Instructions</i> (Part 2, Task 2, optional)	20 minutes + investigation time	3-10
<b>Act</b>	Identify ways the needs of people in your community are not met.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> </ul>		15 minutes	3-13
<b>Task 2: How does my community use our shared space?</b>					
<b>Discover</b>	Find and analyze shared spaces in your research area.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> </ul>	<i>My Research Area</i> (Part 1, Task 4) * StoryMap extension available	40 minutes	3-16
<b>Understand</b>	Investigate housing density and building use in your community.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> </ul>		45 minutes	3-19

<b><u>Activity</u></b>	<b><u>Description</u></b>	<b><u>Materials and Technology</u></b>	<b><u>Additional Materials</u></b>	<b><u>Approximate Timing</u></b>	<b><u>Page Number</u></b>
<b>Act</b>	Analyze the use of space in your community and decide if changes are needed by using different perspectives.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> </ul>	<u>My Research Area</u> (Part 1, Task 4)  <u>Part 3 Organizer</u> (Task 1)	25 minutes	3-21
<b>Task 3: How do green spaces meet the needs of my community?</b>					
<b>Discover</b>	Explore built spaces and green spaces in your community.	<ul style="list-style-type: none"> <li>• Small pieces of paper</li> </ul>	<u>My Research Area</u> (Part 1, Task 4)	20 minutes	3-24
<b>Understand</b>	Investigate the ecosystem services provided by green spaces.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> <li>• Water, bowl, leaf, stone (optional, Observation 1)</li> <li>• Plastic bag, tie, plant (optional, Observation 2)</li> <li>• Water container (optional, Observation 4)</li> <li>• Water cup or bottle (optional, observation 5)</li> </ul>	* StoryMap extension available	30 minutes + observation time (instructions for five observations provided, time for each varies; all are optional)	3-26
<b>Act</b>	Redesign the location and distribution of green space in your research area.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pencils</li> </ul>	<u>Part 3 Organizer</u> (Task 1)  <u>My Research Area</u> (Part 1, Task 4)	25 minutes	3-33



<b><u>Activity</u></b>	<b><u>Description</u></b>	<b><u>Materials and Technology</u></b>	<b><u>Additional Materials</u></b>	<b><u>Approximate Timing</u></b>	<b><u>Page Number</u></b>
<b>Task 4: How can we design our space for a sustainable future?</b>					
<b><i>Discover</i></b>	Identify the strengths and weaknesses of your community.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> <li>• Computer (optional)</li> </ul>	<u>Community Identity Map</u> (Part 2, Task 1)	25 minutes	3-35
<b><i>Understand</i></b>	Explore future opportunities and threats for your community.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> <li>• Topographical map of research area (optional)</li> </ul>	<u>My Research Area</u> (Part 1, Task 4) <u>SWOT Analysis</u> (Task 4)	35 minutes	3-39
<b><i>Act</i></b>	Continue redesigning your research area, adding shared spaces and considering the SWOT analysis results.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pencils</li> <li>• Items to represent shared spaces (optional)</li> </ul>	<u>Part 3 Organizer</u> (Task 1) <u>My Research Area</u> (redesigned, Task 3) <u>SWOT Analysis</u> (Task 4)	20 minutes	3-42
<b>Task 5: How can we make our community better?</b>					
<b><i>Discover</i></b>	Consider what you now know, think, and wonder about the way space is used in your local community.	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pens or pencils</li> </ul>	<u>Part 3 Organizer</u> (Task 1) <u>Thriving Community Goals</u> (Part 1, Task 3)	15 minutes	3-45
<b><i>Understand</i></b>	Decide on individual actions you will take to help your community.		<u>Part 3 Organizer</u> (Task 1)	15 minutes	3-46

<u>Activity</u>	<u>Description</u>	<u>Materials and Technology</u>	<u>Additional Materials</u>	<u>Approximate Timing</u>	<u>Page Number</u>
<b>Act</b>	Put your idea for individual change into action and reflect on it.			10 minutes + action time	3-47

\* StoryMap extension found at <https://bit.ly/2YdHNqB>



## Part 3: How can we use our space to help our community thrive?

Every **community** takes up some space. Communities can choose to use this space in different ways. Some communities may have many buildings, others may have more natural spaces. In some communities there are many spaces everyone can use, others may have more private spaces. In Part 3 you will explore **sustainable** choices for using space to help your community **thrive**.

*Remember: In this guide you and your team are in charge. You can always change the instructions in the steps to make them work better for you and your team.*

### **Your Research Mentor**

Sharing your experiences with others and learning from others' experiences is part of being a good **action researcher**. In Part 3 you will have a research **mentor** to help you understand some issues of space in your community and how to research those ideas. A mentor is someone who has experience and can help guide you.

#### *Meet Liteboho Makhele, Your Part 3 Research Mentor*



Meet Liteboho Makhele. She goes by Lite (pronounced *Dee-tay*) for short. Lite is the program manager of sustainable cities at the South African Cities Network. That means she works with cities around South Africa to help them become more sustainable. You, your team, and Lite are among the many researchers around the world trying to find ways to make local communities more sustainable. Lite will be your research mentor to help you understand space in your community.

Lite studied architectural technology and sustainable development planning and management at university. However, she also has knowledge and perspectives that came from other parts of her **identity**. Since Lite is now working with you, it is important to understand who she is.

To help you, Lite filled out an identity map, just like you did in Part 1. Lite's identity map includes the following things.

- **Sustainability** manager
- Loves singing, dancing, theater, photography, graphic design, copy editing, and swimming
- Lives in Johannesburg, South Africa
- Catholic
- Believes in taking care of the planet and other humans
- Talkative
- Happy
- Short
- Perfectionist
- Black female
- University degrees in architecture and sustainable development planning and management
- Mosotho (from Lesotho)
- Speaks Sesotho and English
- Daughter, last born of two
- Wife, since 2009
- Mother to one daughter and one son
- Aunt to many nieces and nephews

Before you begin the rest of Part 3, think quietly to yourself about Lite's identity map.

- Are there things you have in common with Lite?
- Are there ways in which you are different from Lite?
- Can you see anything about her identity, in addition to her university degrees, that would help her understand different perspectives on how to help a community thrive?

Throughout Part 3 you will notice Lite sharing ideas and experiences with you. She may help you understand better ways to research or share some of the research she has done.

## Task 1: Why does my community need space?

As a community, you decide how your space is used. Space is often divided up for different purposes to help meet community needs. In this task, you will **discover** your own needs and how they relate to the places you go. You will investigate to **understand** the needs of your community. Then you will **act** by determining how your shared spaces meet the needs of your community.

### ***Discover: What are my needs?***

Every member of a community has their own needs. You need to consider these needs when you think about how to help your community thrive. You and your team members are an important part of your community. Any research into what people in your community need should start with you. The first step is thinking about your needs. Then you will think about how you use spaces in your community to meet those needs.

1. Take out a blank piece of paper or open a new digital document. Each person in your team is going to create a chart of their needs and wants.
2. Think of the needs of your body. What do you need to survive? For example, do you need air to breathe? Use words, drawings, or another method to record the needs of your body.
3. Think of your need for safety. Are there certain things you need to be protected against? For example, maybe you need protection against the weather. Record your needs for safety.
4. Think of your needs related to other people. Is your relationship with your family, friends, or another group very important to you? Record your needs related to other people.
5. Are there other needs or wants that are important to you personally? Maybe things that make you feel good about yourself? Things that make you happy? Things you want to learn more about? You can take out your *My Identity Map* from Part 1 and look at some of the things you said were important to you to get ideas. Record any additional needs.
6. Share your list of needs and wants with your teammates. Discuss together:
  - a. Are there some needs that everyone has?
  - b. Are there some needs or wants that only some people have?

- c. If only some people have a need, does that make that need less important?

*Emotional Safety Tip: Different people can have different needs. As an action researcher, it is important to understand many different needs of people on your team and in your community. When discussing which needs are the most important, remember there is no one right answer. You should respect the opinions of your teammates and expect that they will respect yours.*

7. Now you will think of how places in your community help you meet your needs. As a team, create a list of all the places that team members have gone in the past week. Consider your homes, other homes, shops, parks, schools, museums, and any other places you can think of that you went. If it is not safe to go places right now, think of where you used to go when it was safe.
8. Compare where your team has gone to your list of needs and wants. What do you need and how do places in your community help you meet that need? Use Lite's ideas to help you with your discussion.

*Lite Says . . .*



I need some sort of ID or passport or something to identify myself, so I need a department that will help me get those documents. I need to eat, which means I need somewhere to buy my food. I need transport, somewhere to catch a bus to school or the movies or wherever I want to go. Then I need somewhere to go and play or sit around and enjoy the environment, so I need a park. I need a road that takes me from home to school and then school to basketball and then back home.

***Understand: What are the needs of my community?***

Action researchers go beyond their own experiences and find out information from other members of the community. A thriving community meets the needs of its community members. You will investigate the needs in your community and where people go to meet those needs. This can help you understand how the spaces in your community are or are not meeting community needs. Asking

people is the easiest way to find out more about the needs of people in your community and the places they go.

1. Decide how you will ask your community about their needs and the places they go. You have several options. You could:
  - a. Give out a **survey**, either in person or online. You may have used a survey to understand the people in your community better during your investigations in Part 2. You can refer back to the Survey Instructions in Part 2, Task 1 if you need more information.
  - b. Conduct interviews. Talk to individual people in your community to get more information. This is similar to the **oral histories** you may have used in Part 2, only it is getting information from people about the present, not the past. You can refer back to the Oral History Instructions in Part 2, Task 2 if you need more information.
  - c. Conduct a focus group. A focus group brings a small group of people together to discuss a certain topic. This allows you to gather information from several people at one time. It also allows the people in your focus group to think together to come up with better ideas. Read the Focus Group Instructions for more information.

### Focus Group Instructions

#### **Choosing People to Be Part of Your Focus Group**

- a. It is normal to want to do a focus group with the people you know well and feel comfortable with. But try to include people you may not know as well or people who live in other parts of your community. This will help you get a more accurate idea of your community.
- b. Think about the identities you included in your Community Identity Map. Use those identities to try to pick a diverse group of people to be part of your focus group. For example, ask people of all different ages, located in different parts of the community, and more than one gender.

#### **Ways to Hold a Focus Group**

- a. Talk to people in person at your school, a community center, in a park, or other public area.

- b. Hold a meeting online or on the phone.

### **Tips for Holding a Focus Group**

- a. Think about where you should hold the focus group. Is there a place in your community, either in-person or online, where people gather and might be willing to answer your questions? How can you stay safe while holding a focus group?
- b. Remember that you and your team members are part of your community. Think about what you already know about your community to help you choose the best way to get information. For example:
  - Will people in your community feel comfortable talking to a student?
  - Does everyone have **access** to the Internet if you want to hold a virtual meeting?
  - Do you need an interpreter to help you communicate with people in the focus group?
- c. Make sure your questions are easy to understand.
- d. Encourage people in the focus group to follow up on one another's answers. For example, maybe the first person says, "I need to exercise, so I go to a gym." Another person might say, "I also need to exercise, but I take walks outside."

### **Being Inclusive**

- a. Remember, including everyone is important. Try to pick a way to investigate that allows everyone on your team to participate.
- b. Don't forget to think about timing, comfort, location, and format to make sure everyone can take part. You can look back at Part 2, Task 1 if you need more information about making your investigation **inclusive**.

### **Safety Tips for Holding a Focus Group**

Talk to your teacher for guidelines. They will know what is safest in your community.

*Emotional Safety Tip: It can be hard to talk to other people in the community.*

*You may feel shy or nervous. Someone may tell you they don't want to talk. That's okay! It doesn't have anything to do with you. It just means they don't want to share. You can show them respect by thanking them and moving on to another community member.*

*Physical Safety Tip: Never hold a focus group alone and always be aware of your surroundings. Pay attention to local guidance on whether it is safe to interact with people outside of your home.*

2. Decide on your investigation questions. Your team needs to decide how you will ask for the information you would like to get. Think about the questions your team answered in the Discover activity. You need to find out the same information from your community to understand their needs and the places they go. As a reminder, you thought about:
  - a. Needs:
    - Of your body
    - For protection
    - For relationships with others
    - Personal needs and wants
  - b. Places: where you go in your community to meet your needs
3. Work with your team to plan how you will collect information. For example, if you decide to hold a focus group, decide who will choose the people who will be part of the focus group, where you will hold the focus group, who ask the questions, and who will record the answers.
4. Conduct your investigation with your team. Record the information you find out.

***Act:*** *Does my community's shared space meet the needs of all?*

Sometimes communities are well **designed** to meet the needs of all the people in the community. Sometimes they could be designed better. Now you will use the information you found out about the needs of people in your community to decide if the way your community space is used works well for everyone. This information can help you decide where you think there may be problems with the space in your community.



1. Work with your team. Title a sheet of paper or a digital document Part 3 Organizer. Make three columns, just like you did for your Part 2 Organizer. Write the words “Know,” “Think,” and “Wonder” at the top of the columns.
2. Use the *Know* column to list everything you found out about the needs in your community from your investigation in the Understand activity.  
Consider:
  - a. How can you record the number of people with the same idea? For example, if you surveyed 10 people and 8 of them said they needed to have a job, you could record that by listing 8 out of 10, or as a percentage (80%), or as a fraction (8/10). Use the best way for your team to remember the information you gathered.
  - b. How will you record important ideas that show that some people may have unique needs? For example, if you interviewed someone who uses a wheelchair and that person told you they need a way to get into buildings while using a wheelchair, you should find a way to record that need.
3. Now think about the places people told you they go. Record these places in the *Know* column. You will continue to use this organizer throughout this Part. The *Know* column will show all the information your team found out in your investigations.
4. Next you will think about what that information means. Record these ideas in the *Think* column. As a team, discuss:
  - a. How do places help meet the needs of the people in your community? For example, if you spoke to a person who told you they need to see their friends and one of the places they go together is to a public square, that place helps meet that need.
  - b. Are there community needs that are not being met? Think about what people told you about what they need. Are there things they mentioned that do not seem to be available in your community?
  - c. Whose needs are being met the best in your community? For example, maybe community members who are certain ages or genders or living in one part of the community are closest to having all their needs met. Why do you think that is?
  - d. How important is it to meet everyone’s needs in the community? Are some needs more important than others? Think about what you believe is fair.

*Emotional Safety Tip: In most communities there are some people whose needs are not being met. This may be true for you or your teammates. This might make you feel angry, sad, or upset. These feelings are normal. It is okay to ask to pause or move away from a discussion if you are uncomfortable or upset. When discussing which needs are the most important, remember there is no one right answer. You should respect the opinions of your teammates and expect that they will respect yours.*

5. Use the *Wonder* column to list any other questions you have about the way space can be used to meet the needs of your community.
6. Keep the *Part 3 Organizer*. You will use it throughout Part 3 and in Part 7.

## Task 2: How does my community use our shared space?

Some spaces in a community are personal, like homes. Other spaces are shared with other members of the community. Sometimes shared spaces are **public**, or owned by the community. Public spaces may include streets, government buildings, and public parks. Sometimes shared spaces are **private**, or owned by individuals, groups, or companies. Private shared spaces may include shops, places of worship, or entertainment locations. Now you will **discover** some of the shared spaces in your own community. You will **observe** to **understand** the way space is used in your community. Finally, you will **act** on this information to identify problems about the way space is used in your community.

### ***Discover: What are the shared spaces of my community?***

Communities take up space. It is up to the community to decide how the space they have will be used. People who help build a community make choices. These choices include what to build and where to build it. These choices can either help a community to thrive or not.

In this activity you will start to think about why these choices are important. You already know that places can help meet or fail to meet community needs. Thriving communities need different types of spaces that people around the community can get to. If the places you go most frequently are nearby, it saves time. It saves other **resources** as well because people do not need to use transportation. Also, since people are staying in a smaller area, they get to know each other better. This can help build a sense of belonging and trust among people in the community. Now you will think about how this works in your own community.

1. Create a list with your team of possible shared community spaces. These are spaces that are not just for one individual or family but are for the whole community. Start by listing the shared places that people told you they go when you talked to them in Task 1.
2. Consider whether there are any more possible shared spaces that no one mentioned during your Task 1 investigation. These do not have to be spaces you can find in your community. Record any shared spaces you can think of related to:
  - a. Transportation, like roads or train stations
  - b. Education, like schools, science centers, or libraries

- c. Buying things, like food or clothing
  - d. Recreation, like sports fields or community centers
  - e. Arts and culture, like historic sites, museums, or theaters
  - f. Spirituality, like churches or sacred spaces
  - g. Health, like clinics or hospitals
  - h. Natural areas, like parks or rivers
  - i. Services, like a fire station or a place to get an identification card
  - j. Shared projects, like community gardens or group gathering spaces
  - k. Other shared spaces
3. Take out your *My Research Area* map from Part 1. You may want to make a copy of it to use in this activity.
  4. Circle, mark, or place an item on the shared spaces you know of in your research area. If you are unsure whether a space is shared or personal, just leave it out.



*Figure 3.1: Sample My Research Area map with shared spaces circled*

5. Examine these shared spaces. As a team, discuss:
  - a. Is more of your community shared spaces or personal spaces?
  - b. Are more of your shared spaces public or private?
  - c. Are the shared spaces all in one place or are they spread out evenly through your research area?
  - d. How does the way space is used in your community affect the people living there?

6. Compare the shared spaces on your map with the shared spaces from your list. As a team, discuss:
  - a. Which of the possible shared spaces you listed in step 2 can you find in your research area?
  - b. Are there some types of spaces that are missing from your research area?
  - c. If so, does that create a problem?
7. Remember, having important shared spaces nearby can help people save time and money, and help build relationships with other community members. Some researchers think it would be best if all of your important needs could be met by going to places that you could get to by walking or biking 15 minutes, especially if you live in a city or town. In this activity, you will think about how similar your community is to a **15-minute community**. You can do this with a digital mapping tool, such as Google Maps, or you can use your My Research Area map. This activity can be done by yourself, in pairs, or with your team.
8. If your home is in the research area, mark it now. If not, you can either find another map that includes your home or pick the home of a teammate that is inside the research area.
9. Mark the places you and your family need to go often. For you, this may be school, a local park, or a food market. For adults, this might include their workplace and local government buildings. Remember the needs and places you thought about in Task 1. If you are using your My Research Area map you may have already marked some of these places when you marked shared spaces. If there are places outside your research area that you often go to, just draw an arrow in the direction of that place and label it with where you or your family goes.
10. Now examine how close those places are to your home. How long does it take you to walk or bike to each of these places? If you need help answering this question, you can use the directions feature on a digital map or you can measure the distance on your My Research Area map. If you have places that are off the map, estimate how long it takes you to travel there and record that information next to the arrow.



Figure 3.2: Sample *My Research Area* map with arrows pointing to places visited frequently and the number of minutes it takes to get there

11. Can you bike or walk to everywhere you need to go within 15 minutes?
  - a. If so, congratulations, you are living in a 15-minute community. This may make it easier for you to get to know other people in your community and save time and resources.
  - b. If not, don't worry. In **rural** areas it may not be possible to have a 15-minute community. If you live in a city or town that is not a 15-minute community, you will have a chance later to think about what changes you could make to your space to make it a 15-minute community.
12. Think quietly to yourself about different parts of your research area. Do people living in some parts of it have to travel much farther to get what they need? Consider whether or not you think that is a problem.

***Understand:*** How dense is the housing in my community?

Space in a community can be used in many ways. Homes can be close together or far apart. This is called **housing density**. **Housing** can be all in one area or it can be mixed up with shops and other types of shared spaces. Different areas of the community can be used for different purposes. Sometimes, if space is used in one way, like to build a shop, it cannot be used in another way, like to build a clinic. Sometimes, spaces can be used in several ways, like as a school during the day



and as a community center in the evening. In this activity, you will investigate housing density and the way different spaces in your research area are used.

1. Pick a part of your research area you can walk around or move around easily. You should pick an area along a road or path. It should be long enough that there are a number of buildings, but not so long that you cannot reach the end of it. Try to pick an area with several different types of buildings. You can go all together as a team or break into smaller groups and each cover a different area. If you cannot go in person, you may be able to use an online mapping program, such as Google Maps' street view, to move virtually along the street.

*Physical Safety Tip: Talk to your teacher or another trusted adult before you go. Never go alone and always be aware of your surroundings. Pay attention to local guidance on whether it is safe to interact with people outside of your home.*

2. Measure: Find out how big the area you picked is. You can measure it in whatever way makes sense to you. For example, you could use city blocks, kilometers, meters, miles, or you could just count your steps.
3. Go to the beginning of the area you picked and be prepared to observe closely. You will be walking or moving through this area and conducting an **observation**. You will be observing the density and use of the buildings you pass. Read through the directions in steps 4 and 5. Then start your investigation.
  - a. Bring something to write on or find another way to record your observations.
  - b. You may want to assign different jobs to team members, since you will be observing two different things. Have some people observe density and some observe how spaces are used. Or you can also move through your area twice and have everyone make both observations.
4. Calculate: You will find out how many people are living in one area.
  - a. Count the number of buildings that people live in as you pass by, to help estimate housing density.
  - b. Estimate how many people live in each building. For example, if you pass a house and most people in your community have families of around five people, you could guess five. If you happen to know how many people live in a home, then use that number. If you pass a large



- apartment building, you might want to count the number of floors and use that to help you make your guess.
- c. Record this information during your investigation.
5. Use: You will find out how people are using the spaces you pass by.
- a. If you pass buildings that are not for housing, record what they are used for. If they are used for more than one thing, record that information.
  - b. If you pass outdoor areas, make a record of how they are being used. For example, maybe you pass a bench where someone is sitting and having a snack.
  - c. Record this information during your investigation.

***Act: What are the problems with the way space is used in my community?***

The way a community uses the space it has can help determine whether the community can thrive. Spaces can be used so that everyone can meet their needs. However, in many communities the spaces do not meet everyone's needs. Each community is unique. The values of a community are also unique. You will think about how the way your community uses its space can help it become a better place to live.

1. Take out your *Part 3 Organizer*. Use the *Know* column to record the information you found out during your Understand investigation. Record:
  - a. How many people do you think are living in the area you investigated? Try to use a number, like 100 people in two city blocks.
  - b. How were people using the spaces you observed?
  - c. Were there many buildings used in the same way or were there different uses mixed together? For example, if there was only housing in one area, that would be the same use. If an area had housing and shops and outdoor spaces to play, that would be mixed use.
2. Analyze the housing density with your team. Record your answers under the *Think* column.
  - a. Does it seem like there are a lot of people living in the space you investigated or just a few?
  - b. If there were many more or many fewer people living in your research area, how do you think your community would change?

- c. What are the advantages of having many people living in one area?
  - d. What are the advantages of having few people living in one area?
3. Analyze the use of the spaces you passed. Record your answers under the *Think* column.
- a. What would be the advantages to using the space in a mixed way?  
For example, maybe there is a square that has shops, a public park, and housing on it. Why would it be good to have all of those things together?
  - b. What would be the advantages of using the space in the same way?  
For example, maybe there is a street that just has houses on it. Why might that be a good idea?
  - c. If you were trying to create a 15-minute community, would it be easier to have space used in a mixed way or the same way?
4. Mark on your *My Research Area* map how you would change things to make your research area closer to a 15-minute community.
- a. Are there better places to put shared spaces?
  - b. Are there changes you could make that would make things more equal for the people living in your community?

*Lite Says . . .*



Look at what exists in your community and think about what would make your life easier. This is actually what a professional **urban** planner does when they put communities together. These are the sort of questions they think about and these are the sort of needs they try to address. Sometimes planners get it wrong and that is one reason why your community might have problems with the space. Look at the solutions to those problems. How do you make your communities better?

- 5. Share your ideas with another team or with your teacher about how your research area could be changed.
- 6. Think about the housing density and use of the space you observed during your investigation. You can consider whether the way space is used in your community is sustainable. **Sustainable communities** use space in ways that

- are good from all four **perspectives: social, environmental, economic, and ethical**. Does the way space is used in your community seem good from a:
- a. Social perspective: For example, does the space help people interact with other people and build relationships?
  - b. Environmental perspective: For example, are there places for nature?
  - c. Economic perspective: For example, are there spaces where people are buying, selling, and making things?
  - d. Ethical perspective: For example, can everyone reach the shared spaces or are some people left out?
7. Record any problems you notice about the way space is used in your community in the *Think* column. Discuss with your team:
    - a. Are there problems you noticed from a specific perspective? For example, maybe you noticed problems from a social perspective because there were not enough spaces for people to meet together.
    - b. What would you change about the way space is used in your community, if you could? For example, maybe you think you would have different shared spaces or put them in different places.
  8. Use the *Wonder* column to list any other questions you have about shared spaces in your community.

## Task 3: How do green spaces meet the needs of my community?

Space in a community can have buildings, roads, or other things built on it. Or space can be left open and natural. Both types of spaces are important in a community. In Task 2 you thought about some shared built spaces. In this task you will think about shared open spaces. You will **discover** the proportion of built space and open space in your research area. Then you will **understand** the importance of open, natural spaces. Finally, you will prepare to **act** by using that information to make decisions about open space in your own community.

***Discover:*** *How does my community balance built space and green space?*

People take up a great deal of space. People need housing, transportation, and things like food and clothing. Buildings and roads are part of the way most people meet those needs. However, spaces that are not covered by buildings and roads, but are left as natural areas, also fill an important role. These natural areas are also called **green spaces**. Different communities leave different amounts of these green spaces. Now you will think about how your community divides space between built spaces and green spaces.

1. Take out your My Research Area map. Your team will be measuring the parts of your research area.
2. Cut or tear pieces of paper into small pieces that are all the same size and around the width of a road on your My Research Area map. If you are using a digital map of your research area, you may be able to measure using a digital tool instead.
3. Take the small pieces of paper and use them to cover all the streets in your research area.



Figure 3.3: Sample *My Research Area* map with pieces of paper over the streets

4. Remove the pieces of paper and count them. Record the count.
5. Next, take the same small pieces of paper and use them to cover all the buildings in your research area. It does not matter what the purpose of the buildings are—if a space includes a building, place a piece of paper on it.
6. Remove the pieces of paper and count them. Record the count.
7. Finally take the same small pieces of paper and use them to cover all the parks, rivers, or other green spaces in your research area. Remember, green spaces are any natural areas, even if they are not covered with green plants. Depending where you live, green spaces might be rocky, sandy, wooded, snowy, marshy, or something else. People may visit green spaces, like in a park. But green spaces usually do not have houses built on them.
8. Remove the pieces of paper and count them. Record the count.
9. Examine your three counts. You have a number for the area for streets, the area for buildings, and the area for green spaces. These three counts show you the proportion of your research area that is used for the different types of spaces. Discuss:
  - a. What takes up the most space in your community: roads, buildings, or green spaces?
  - b. Is your team happy with the way the space is divided?
  - c. Are the roads, buildings, and green spaces spread out evenly around your community? Or, for example, are there more green spaces in some areas than in others?

*Lite Says . . .*



People need proper housing. You need to have places where people go to work. People need practical things like health care. They need to go shopping. So you do need built-up spaces. At the same time, you need to balance that with the amount of natural and green spaces that you have. If you completely remove nature from a community, you have challenges related to **pollution**, **heat islands**, and **congestion**. It also is not a livable place for people. That affects people’s mental and physical well-being.

10. Think back to your investigation in Part 2 about how your community has changed over time. Based on what you found out in that investigation, do you think the proportion of buildings, roads, and green spaces in your community has changed? If so, why do you think it changed?
11. Think quietly to yourself:
  - a. What information did you find out about your community by looking at the three categories (roads, buildings, green space)? For example, maybe you found out that there was a lot of green space in your community or that roads take up a lot of space.
  - b. Why is it important to have each type of space (roads, buildings, green space)?

***Understand:*** *Why are green spaces important for my community?*

Now you will do an investigation to find out more about why green spaces in your community are important. Their importance is related to **ecosystem services**. Ecosystem services are any benefits that an ecosystem or natural area provides to people. Ecosystem services can help meet a variety of human needs. In this investigation you will find out more about the way green spaces in communities benefit people.

1. Start by thinking quietly to yourself. You may want to close your eyes. Remember a time when you were in a natural space that was beautiful to you. Think about:
  - a. What did you notice with your different senses?

- b. How did you feel?
- c. Why was the experience of being in that space valuable to you?



*Figure 3.4: Beautiful natural space*

2. Share your answers with your team, if you are comfortable doing so.
3. Discuss what ecosystem service the green space provided to you at that time. People sometimes feel a sense of awe, peace, or connection when they are in green spaces. This fills an important need for many people. It is one of the ecosystem services provided by green spaces.
4. Think about the role green spaces play in your culture. Different cultures may use green spaces in different ways. In some cultures there are ceremonies or specific events that happen in green spaces. In some cultures there are important education experiences that happen in green spaces. Discuss with your team:
  - a. In your culture, are there certain social gatherings that happen in green spaces?
  - b. In your culture, are there important events or traditions that happen in green spaces?
  - c. In your culture, are there education experiences that happen in green spaces?
5. List the personal and cultural ecosystem services you just discussed. You can do this by writing or drawing on paper, using a digital document, recording your voice, or using another method to record your observations as a team.



6. Now pick a green space to investigate further. If you have a green space in your community, like a park, it may be easiest to do this investigation there. If not, you may be able to complete this investigation somewhere else outside your school or home.
7. Decide with whom you will investigate. You can choose to observe by yourself, in pairs, or with your whole team.

*Physical Safety Tip: Talk to your teacher or another trusted adult before you go. Never go alone and always be aware of your surroundings. Pay attention to local guidance on whether it is safe to interact with people outside of your home.*

8. Observe how people use the space. Take 5 to 10 minutes and quietly observe.
  - a. What people do you notice? (Record their ages and other identifying features.)
  - b. What are they doing?
  - c. Are people doing activities alone or with others?
  - d. If you came at a different time of day or a different time of year, do you think you would notice different people or different activities?
9. Discuss with your team how people are using the space to meet their needs. How is the green space providing ecosystem services to the people you observed? Add these ecosystem services to your list. You can use Lite's ideas about green spaces to help you get started.

### *Lite Says . . .*



Green spaces make our cities and neighborhoods more attractive places to live and work. They provide us with places to exercise and improve physical and mental well-being. We can cycle, run, and play games. They are places where we can meet and celebrate with family and friends. They are inclusive, meaning they can be used by many different kinds of people. Small and medium businesses can be set up in these spaces and provide jobs.

10. Now observe how other living things, like plants and animals, use the space. Green spaces provide space for living things to grow, raise young, and get food or water. Take 5 to 10 minutes and quietly observe.

- a. What types of living things do you notice?
  - b. How are they using the green space?
11. Discuss with your team what ecosystem services you observed. Record your answers.
- a. How do other living things benefit from the green space?
  - b. How do the living things you observed help people?
  - c. What other ways do living things help people? Sometimes it can be difficult to observe how the living things in a green space help people. You will have a chance to think about these benefits next.
12. Air: Plants help clean **polluted** air and release oxygen and **water vapor**. You can observe this in action by doing the activities in *Observation 1: Plants and Oxygen* and *Observation 2: Plants and Water*, if you have time. Discuss the ecosystem services plants provide related to air with your team. Record your answers.
- a. Why would helping to clean polluted air benefit people?
  - b. Why would it be good for people when plants release oxygen?
  - c. Why would it be good for people when plants release water vapor?

### *Observation 1: Plants and Oxygen*

You may know that people breathe in oxygen and release carbon dioxide. Plants do the opposite. They take in carbon dioxide and release oxygen. Plants can also help absorb some types of air pollution. In this observation, you can see the oxygen released by a plant.

- a. Get out a clear bowl or cup and fill it with tap water.
- b. Pull a green leaf off a plant. This can be a leaf from a tree or a smaller plant. Try to find a leaf that is a size you can observe easily.
- c. Weigh the leaf down in the water with a small stone.
- d. Observe the leaf carefully.
- e. Leave the bowl of water in sunlight for an hour or two.
- f. Observe the leaf again. Do you notice any small bubbles?  
When you leave the leaf in the sunlight, it uses a process called **photosynthesis** to release oxygen. The small bubbles you see are the oxygen the plant released.

### Observation 2: Plants and Water

Plants take in water from the ground and use it as part of photosynthesis. Plants also release some of this water into the air as water vapor.

- a. Take a plastic bag and tie it around a branch of a tree or plant that is in the sun. Make sure the plant has leaves.
- b. Leave the bag tied for an hour or two.
- c. Observe the inside of the plastic bag. Do you see water droplets? That is the condensed water vapor released by the plant.

The water vapor released by plants goes into the atmosphere. This water vapor is an important part of the water cycle. It helps to form clouds and create **precipitation**.

13. Temperature: Green spaces are cooler because they do not absorb and release the sun's energy the way built spaces do. Also, water evaporating from trees and plants cools the air surrounding them. You can observe these ecosystem services in action using Observation 3: Green Space and Heat and Observation 4: Plants and Cooling, if you have time. Discuss the ecosystem services green spaces provide related to temperature with your team. Record your answers.
  - a. How do green spaces help keep communities cooler?
  - b. Why would keeping a community cooler be good for people?

### Observation 3: Green Space and Heat

Have you ever stepped on concrete in bare feet on a sunny day? It can get very hot! Many parts of the human-built environment absorb heat from the sun all day. The heat gets trapped in cities, creating heat islands. Green spaces can help.

- a. Go to a spot where plants are next to a road, sidewalk, or other similar built surface. This will work best on a sunny day.
- b. Put one hand on the built surface. Put one hand on the plants.
- c. Feel both surfaces. Which is hotter?

- d. Find a spot where a tree is shading an area. Go into the shaded area. Then move into the sun. Which is hotter?

The air around a built-up space tends to be warmer than the air around a natural space. Built spaces absorb and then release more heat from the sun. Plants reflect more heat, helping to keep the air cooler. Plants also help make the air cooler by providing shade. This prevents some of the energy from the sun from reaching that area. If you want to see an example of how green spaces can help cool down cities, you can look at the maps on found in the StoryMap website.

#### Observation 4: Plants and Cooling

Remember, plants release water vapor. Just like you, plants get hot. You cool down when you sweat. When water vapor evaporates from a plant's leaves, it cools the plant down. When water vapor evaporates from plants it also cools off the air around the plant. You can understand this using another simple observation.

- a. Put your hand about an arm's length away from you and blow on your palm.
- b. Now fill up a bowl, bucket, or pan of water all the way to the top of the container. Put it between your mouth and your palm. Blow again, but this time blow across the water.
- c. Which breath feels cooler on your palm?

When air flows over evaporating water vapor from the plants, it cools the air as it moves into the surrounding area. Plants basically act as nature's air conditioner!

14. Water: Green spaces absorb water more easily than built spaces. This helps communities with water management. You can observe these ecosystem services in action using the Observation 5: Green Space and Water activity, if you have time. Discuss the ecosystem services green spaces provide related to water with your team. Record your answers.
  - a. How do green spaces help with water management?

- b. Why would managing water be good for people?

### Observation 5: Green Space and Water

Water acts differently in green spaces and in the built environment. See if you can find out why.

- a. Take a cup or bottle of water. Pour about half on a sidewalk, road, or other built area. Observe what happens.
- b. Pour the other half on a green space. Observe what happens.

You may have seen water rolling off the built space. The water may have been absorbed into the ground in the green space. When water is absorbed, it adds to the water that is in the ground. Many communities use **groundwater** to meet their water needs using wells, bore holes, or other methods. The more water absorbed by the ground, the more groundwater there is to use.

Sometimes when there are built areas, the water flows out of the area so fast that it does not have a chance to be absorbed by the ground. This may mean the groundwater is not refilled and communities need to get water from somewhere else. When water flows out of a built area it can sometime cause floods or lead to a lot of pollution getting into rivers or lakes.

15. Keep your record of all the ecosystem services you noticed in your green space. Read Lite's ideas about green spaces to see if you missed anything.

### *Lite Says . . .*



Green spaces protect and conserve biodiversity, which means they create homes for different kinds of plants and animals, such as birds, squirrels, and butterflies. Trees play a vital role in managing pollution and keeping the air clean by producing oxygen and removing carbon dioxide and other harmful gases in the air. Green, open spaces also help manage floods by absorbing water and channeling it away from buildings.

***Act: How should we divide up space in my community?***

The ecosystem services provided by green spaces are important. So are the other possible uses of that space, such as housing or transportation infrastructure. Balancing the proportion of built spaces and green spaces can be difficult. Both can help meet human needs in your community and around the world. You will need to think about the best way to divide up space in your community.

1. Take out your Part 3 Organizer. With your team, use the *Know* column to record information about green spaces in your community. Record:
  - a. What proportion of space in my research area is used for roads?
  - b. What proportion of space in my research area is used for buildings?
  - c. What proportion of space in my research area is used for natural or green areas?
  - d. What are the important ecosystem services green spaces provide to our community?
2. Discuss how space is divided up and used in your community. Record your answers under the *Think* column. Consider:
  - a. What do you think would change about your community if there were more green spaces? What would you need to give up?
  - b. What would change about your community if there were more built spaces? What would you need to give up?
  - c. If you could, would you change the proportion of built space and green space in your community?
3. Use the *Wonder* column to list any other questions you have about green space in your community.
4. Now you will have a chance to start to redesign your research area. You can do this individually or in teams. Take out your My Research Area map and use it to help you. Take out a blank piece of paper. Draw or trace natural features on it that cannot be changed about your research area. For example, include rivers or mountains.

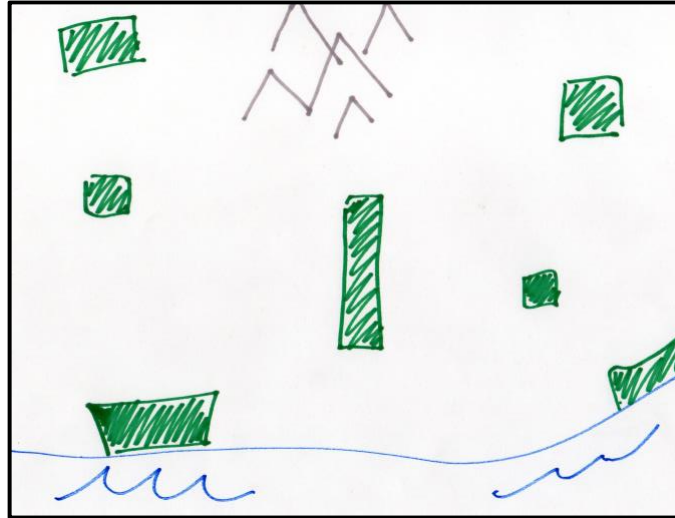


Figure 3.5: Sample redesigned area with river and green spaces

5. Next, mark the green spaces you want to have in your research area. You may want to use items to represent green spaces until you decide on your final design. Keeping the green spaces where they are is easiest. However, you may want to make changes. Consider:
  - a. Do you think more or less of your community should be green space?
  - b. Are there some parts of your research area that are far away from green spaces? Could you distribute the green spaces more evenly?
  - c. Are there important green spaces that you would not want to change?
  - d. Are there important built areas that you would not want to change?
6. Share your ideas about new green spaces with a friend or family member.
7. Keep your redesigned My Research Area map. You will add to it in Task 4.
8. Consider the global connection. Ecosystem services don't just end with your community. They extend globally. The balance between built spaces and natural spaces is also a global issue. In the past 40 years, the amount of built-up space has more than doubled around the world. Consider:
  - a. Why do you think built spaces have increased globally?
  - b. How do you think this change is affecting communities around the world?



## Task 4: How can we design our space for a sustainable future?

Each community has unique needs and unique features. In this task you will **discover** more about what makes your community unique. Then you will investigate to **understand** how you can help plan for a sustainable future. Finally, you will **act** to design a better use of space in your community.

### ***Discover: What are the strengths and weaknesses of my community?***

Community identity, natural features, **climate**, and location all help make your community unique. As action researchers these are important things to consider when thinking about space in your community. Your community has specific strengths and weaknesses. Keeping your strengths is important. Helping to make your weaknesses stronger is also important.

1. Take out your Community Identity Map from Part 2 and remind yourself of what is on it.
2. Think quietly to yourself about what makes your community identity unique. Your Community Identity Map is a list of the identities of people in your community. But there is also a collective identity that is part of your community. Consider cultural elements, social connections, places, and events in your community.
3. Discuss with your team what else is an essential part of your community identity.
  - a. Are there cultural elements that make your community unique? For example, maybe you have a food, a dance, or a language that is an essential part of your community.
  - b. Are there social connections that make your community unique? For example, maybe many people in your community grew up there and families know one another well, or maybe many people in the community connect through a shared identity, like a favorite sport or a local team.
  - c. Are there places that make your community unique? For example, maybe you have a historical site, a sacred site, a museum, or a local business that is an essential part of your community.

- d. Are there events that make your community unique? For example, maybe there is a festival or a market that is an essential part of your community.
4. Take a piece of paper or open a digital document and divide it into four boxes. Label the two boxes across the top “Strengths” and “Weaknesses.” Label the two boxes across the bottom “Threats” and “Opportunities.” This is called a SWOT Analysis. Figure 3.6 shows an example.

<i>Strengths</i>	<i>Weaknesses</i>
<i>Opportunities</i>	<i>Threats</i>

Figure 3.6 SWOT Analysis example

5. Consider your Community Identity Map and the other parts of your community identity you just discussed. Having a strong community identity can help a community thrive. Are there things about your community that help people feel a sense of pride and belonging? Write, draw, or find another way to record those things under *Strengths*.
6. Now think about weaknesses in your community. Write, draw, or find another way to record these things under *Weaknesses*. Discuss with your team:
- a. Are there ways some people in your community are left out or treated unfairly? You may want to remember what you learned about community decision-making in Part 2.
  - b. Are there places or people in your community who used to be thriving but now are struggling?
  - c. Are there past events that happened in your community that were unjust? For example, maybe in the past some people took over land

unfairly, did not treat others with respect, or harmed others. Even though these events were in the past, they may still affect your community.

*Emotional Safety Tip: It can be difficult to talk about things that have gone wrong in your community in the past. It can also be difficult to talk about things that are not right about your community now. It is okay to feel sad, angry, embarrassed, or any other way. All communities make mistakes. However, it is important to discuss those mistakes and talk about how to make things better. Make sure you listen closely and treat your team members with respect. They may have opinions that you disagree with or experiences that make you uncomfortable. It is okay to ask to pause or move away from a discussion if you are uncomfortable or upset.*

*Lite Says . . .*



Decisions that city planners have made in the past about placing certain groups of people in certain areas may have affected those people's access to economic, social, and educational opportunities. Townships in South Africa are **apartheid** residential areas that were excluded from everything. Traditionally townships only had one entrance so that security forces could control the people living there. A lot of time you find that townships were created as places you only go to sleep, instead of communities where people go to work, play, and have access to different opportunities. Townships were designed as rows and rows of matchbox houses with very small yards, with very little open space, very few schools, clinics, or any other social or economic **amenities**. Communities should not be exclusively for a certain group of people. Integrating a diversity of people from different walks of life and different income groups makes the community better from a social, economic, environmental, and ethical perspective.

7. Consider the natural features of your community. People are an important part of a community, but so is the space occupied by the community. Discuss with your team:

- a. What are the natural features of the place where your community is located? For example, is your community next to a river, mountains, a beach, good farmland, or near an earthquake fault line?
  - b. What are the strengths of your community because of those natural features? For example, if your community is near a river maybe it makes your community more beautiful and is a source of food, such as fish. Record those ideas under *Strengths*.
  - c. What are the weaknesses of your community because of those natural features? For example, maybe the river in your community floods often and damages people's homes or businesses. Record those ideas under *Weaknesses*.
8. Consider the climate of your community. Climate is what the weather is like in an area over a period of time. Discuss with your team:
- a. What is the climate like for your community? Does it change from season to season? Are you in danger from any extreme weather? For example, does it rain more at certain times of year, is it sometimes too cold to spend a lot of time outside, do you sometimes have tornadoes?
  - b. What are the strengths of your community because of your climate? For example, if your community has a lot of rain, you may have plenty of water. Record those ideas under *Strengths*.
  - c. What are the weaknesses of your community because of your climate? For example, if you have a lot of rain it may make it difficult to spend a lot of time outside or you may have flooding. Record those ideas under *Weaknesses*.

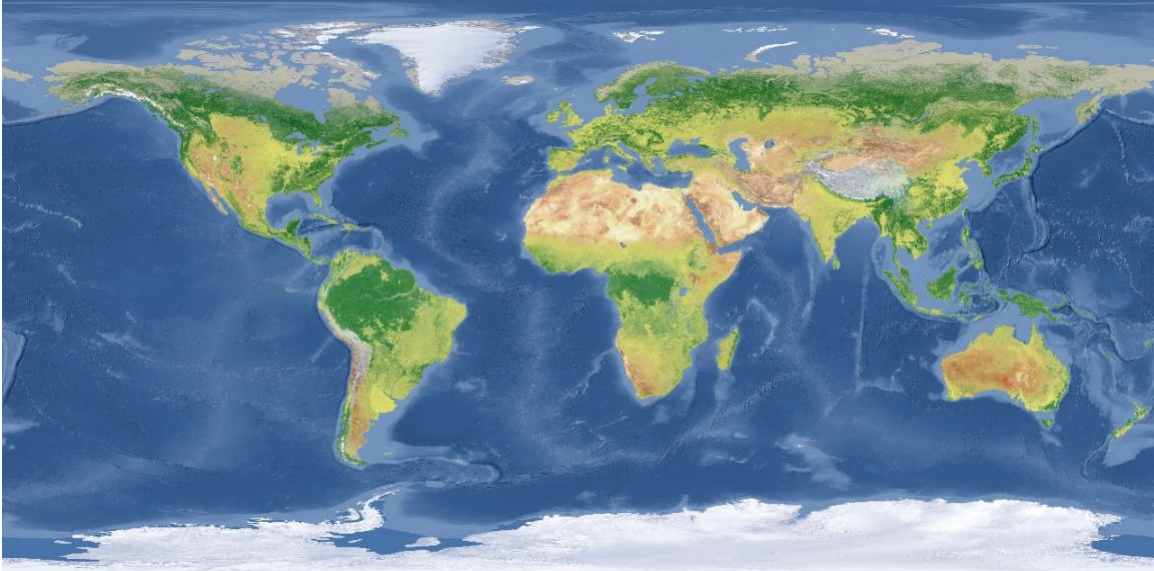


Figure 3.7: Map of the world

9. Consider the location of your community. You can use the world map in Figure 3.7 to help you. Discuss with your team:
  - a. Where in the world is your community located? What is it near? For example, is your community in a city or a small village? Is it near many other communities or far away? Is it near a border with another country?
  - b. What are the strengths of your community because of its location? For example, if your community is near many other communities, it may be easier to trade. Record those ideas under *Strengths*.
  - c. What are the weaknesses of your community because of its location? For example, maybe your community competes with many other communities for resources like land or water. Record those ideas under *Weaknesses*.
10. Keep your SWOT Analysis sheet. You will fill in the *Opportunities* and *Threats* boxes in the next activity.

***Understand:*** What are the future opportunities and threats for my community?

The strengths and weaknesses in your community show what is going on in your community right now. Next you will think about what could happen in the future. Remember in Part 2 when you found out about how your community had

changed? Although it can be difficult to realize it, your community continues to change.

**Renewable energy, climate change, artificial intelligence, migration, self-driving vehicles, better satellite Internet access, drones, and 3-D printing** are just a few examples of changes that will affect communities around the world. You can find a more information about these changes in the glossary. Changes may be opportunities to make your community better. They also may be threats to your community. When you think about the best ways to use the space in your community, you need to consider the changes happening in your community. Many opportunities and threats may come from big changes that are taking place beyond your community in your country, your region, and around the world.

1. By yourself or with your team, start thinking about national, regional, and global changes you think might affect what happens in your community. Consider:
  - a. Social changes: Is the way people interact changing? The Internet allows for virtual interactions. How does that change the way people connect in your community? Do people have different places or ways they connect with one another? Are family groups changing?
  - b. Environmental changes: Is pollution affecting your land, water, or air? Are there changes to populations of animals or plants that people depend on? Will rising sea levels, increases in extreme weather, drought, or wildfires because of the changing climate affect your community? If you want to think more about how climate change might affect your community, you can use the *Climate Change Investigation*.
  - c. Economic changes: How is your local economy changing? Are people doing different types of jobs because of new technologies? Are the places and ways in which people are buying and selling things changing?
  - d. Ethical changes: What is right and wrong may not change, but our ability to notice what is right and wrong may change. Are there people with certain needs who were previously ignored but now you are more aware of them? Are there changes that need to happen for your community to be fair to all the people in it?

## Climate Change Investigation

The local and global environment is changing in many ways. These changes are sometimes opportunities but are often threats. Right now the global climate is warming quickly. This is called climate change. A changing climate presents many threats. Considering how a warming planet will change your community is important.

- a. Take out your My Research Area map. You will be using this map to identify potential threats to spaces in your area. If you have a **topographical map** of your research area, that might be helpful.
- b. First you will think about the threat of too much water. A warmer climate will make the level of the seas rise. In many places it may also lead to increased precipitation. This makes flooding and landslides more of a threat. Examine your map to think more about the threat of flooding. Mark areas you think may be at risk of flooding using a colored pencil or another way to mark them.
  - Are there spaces in your community that are close to the ocean? If so, is the ground in those areas close to the level of the ocean? Mark those areas on your map now.
  - Are there spaces near rivers? Rising sea levels and more precipitation may mean that rivers have more water or change course in unpredictable ways. If there are spaces near a river that are close to the level of the river, they may be under threat. Areas where rivers have been rerouted into canals may also be under threat. Mark those areas on your map now.
  - There may be other spaces in your community that are under threat of flooding. These may be low-lying areas or spaces where a lot of storm water drains. One way to identify these spaces is if you have noticed water there in the past. Mark any areas you think are under threat of flooding on your map now.
  - Are there areas built near steep slopes, mountain edges, or near where water is draining or land is **eroding**? If the ground becomes wet in these types of areas there may be a landslide. Mark any areas you think are under threat of landslide on your map now.



- The areas you marked on your map may be under threat from a changing climate. Record those ideas under *Threats* on your SWOT Analysis.
- c. Next you will think about what happens when there is not enough water. A changing climate may lead to drought or dried-up lakes or riverbeds in some places. Sometimes drought leads to wildfires. Think about what you know about your community. Is there a high risk of wildfires in the surrounding area? Record any threats you identify under *Threats*.

Another climate-related threat is extreme weather events like hurricanes, cyclones, tornadoes, windstorms, and heat waves. You may have experienced these weather events yourself. If you know of any extreme weather that sometimes happens in your community, record those threats under *Threats*.

2. As a team, come up with a creative way to share your thoughts about the future changes you think will happen in your community. For example, you could act, tell a story, draw a picture, make a collage, record a podcast, or use another way to show the rest of class what you are thinking.
3. Share your ideas with the rest of your class. If other teams have good ideas about changes that may happen, you can add these ideas to your own thoughts.
4. Now think about the things that might be good about the changes. Write, draw, or find another way to record those ideas under *Opportunities* on your SWOT Analysis. For example, maybe there are new jobs being created in your community because people can sell things to people outside your local area using the Internet. That might be an opportunity.
5. The world is changing quickly in many ways. These changes from outside your local community will bring changes to your local community. If you can think of any other opportunities or threats to your community, record those now on your SWOT Analysis.

***Act: How should my community prepare for the future?***

Each community has unique strengths and weaknesses. Global changes offer both threats and opportunities. As an action researcher and a member of your

community, you can influence the way your community responds to these opportunities and challenges.

1. Take out your Part 3 Organizer. If you want, you can use the *Know* column to record the information from your SWOT Analysis. Or you can just keep that information together with your Part 3 Organizer.
2. Take out a copy of your redesigned My Research Area map from Task 3. You can now continue to improve this design.
3. Start by adding shared spaces around the community. You may want to use movable items to represent buildings until you decide on your final design. Keeping the shared spaces where they are is the easiest. However, you may want to make changes. Consider:
  - a. What did you learn about the needs of your community? Are there new types of spaces that need to be added?
  - b. How are shared spaces distributed? Can you arrange them so everyone can reach them easily?
  - c. How close was your community to being a 15-minute community? Are there changes you can make that would make it closer?
  - d. Are the buildings in your community mostly for one type of use or mixed use? Would you change that in your design?

### *Lite Says . . .*



It is important to think about what a perfect community would look like. What should it have? What does a person **holistically** need? What is missing in this community that you could add or change? People may need better opportunities, better living spaces. In turn, that impacts their health and well-being and their social cohesion as a community. What kind of spaces do people need to thrive as human beings?

4. Check your design against the *Strengths, Weaknesses, Opportunities, and Threats* you identified on your SWOT Analysis for your community.
  - a. Does the design allow your community to continue with the same strengths?
  - b. Does the design allow your community to make its weaknesses stronger?

- c. Does the design allow you to make use of the opportunities you listed?
  - d. Does the design help you minimize the threats you listed?
- 5. Keep moving pieces of your design until you are satisfied. There is no one right way to design a community. Different people may have different ideas. Record the design you decide on.
- 6. If you completed a design individually, share your design with your team members. Examine their designs. Why do you think different team members came up with different designs?

## Task 5: How can we make our community better?

Change happens on different levels. It is important to think about how you personally can make problems in your community better. It is also important to think about the way the **system** of your community needs to change to make problems better. In this task you will **discover** what you know about systemic changes needed for your community. You also will **understand** some ways you can personally change your behavior to help your community. Then you will **act** on those ideas. You and your team will also use this information to decide on your community action plan in Part 7.

### ***Discover: What are the problems with space in my community?***

The way space is divided and used can help the community thrive—or not. You have found out a lot of information about space in your community. Now you will identify problems with the way space is used and think about ways in which it could be better.

1. Take out your Part 3 Organizer.
2. Your team has already listed in the *Know* column information you found out from your investigations. Add any additional information you want to remember.
3. You have also recorded some of your thoughts in the *Think* column. Now that you have investigated space in different ways, you can think a little more. Consider:
  - a. Why do we think space is used the way it is in our community?
  - b. Do we think there are problems with the way space is used in our community?
  - c. Is the way space is used fair to everyone in the community?
4. Take out your Thriving Community Goals. Compare them to the things you *Know* and *Think*. Your Thriving Community Goals show you how your team wants your community to be. What you *Know* and *Think* shows you how your community is. When your community is not the way you want it to be, that is a problem.
5. As a team, discuss:
  - a. Did you find any information about your community that shows you are not meeting your Thriving Community Goals?
  - b. If so, did you already list that as a problem?

- c. If you spot new problems, record those now in your *Think* column.
6. List or draw what your team still wonders about space in your community under the *Wonder* column. Consider:
  - a. Are there questions listed in the *Wonder* column that you have already answered?
  - b. Are there questions you still have about the way space is used in your community?
  - c. Are there actions you could take that you think may change the way your community uses space for the better? For example, maybe you wonder if shared space could help to encourage more social interactions within your community.
7. Take out your redesigned *My Research Area* map. Are there ideas there that you would like to record under the *Wonder* column? Consider:
  - a. Are there any possible changes you thought of when you redesigned your research area?
  - b. Are there other ideas you would like to remember?
8. Keep the *Part 3 Organizer* safe. You will need it again.

### ***Understand: What can I do individually to help?***

In this Part you found out information about why space is important in your community. Space can be used in different ways. You just thought about ways your whole community might use space better. You will have a chance to put some of these ideas into action in Part 7. However, there are always ways that you could make things in your community better through your own individual actions.

1. Examine your *Part 3 Organizer*. Are there any problems you saw that you could help to change all on your own?
2. Discuss your ideas with your team. For example, maybe you could:
  - a. Share the different community needs you found out about with your family or friends.
  - b. Try to make your own 15-minute city. Can you change where you go to get what you need so you can limit the amount of time and resources you use?
  - c. Think about ways you can improve some of the ecosystem services of green spaces. For example, can you connect with your community in

- a local green space? Can you plant a tree or a smaller plant in your own space to help provide benefits to people or other living things?
  - d. Can you help your family or school get ready for the threats or opportunities you thought about for your community?
  - e. Come up with your own ideas.
3. Think quietly to yourself about a change you want to make.
- a. Why do you think this change is important?
  - b. How is it connected to problems you noticed in your community?

***Act: How will I put my ideas into action?***

Changing your own behavior is often the first step. Now that you have decided what you will do to improve your community, you can put that idea into action.

1. Make a plan for how you will put your idea into action. If you need to share information, where, when, and with whom will you share it? If you need to do something, what do you need so you can do it?
2. Put your plan into action.
3. Think quietly to yourself to **reflect** on your action.
  - a. What seemed to go well?
  - b. What was hard?
  - c. Were you able to make the changes you thought you would be able to make?
  - d. Will you keep going with your changes or are there things you would do differently in the future?

*Lite Says . . .*



It's about local action; it's about what you are able to do within your power. If you see a problem, what are you doing about it? Voice your concerns, voice what is not working, and also notice what is working. Can that be replicated in areas that are having problems? One action can set off a whole series of things, and some people are just waiting for something to support. You know how there are those people who are just

waiting to see what other people will do before they do anything? You can ignite that participation from people by starting a movement in a small way. It just requires you to be bold, have a voice, speak out, and see who you can bring on board. You can start with your own family and your friends and go from there.

**Congratulations!**

**You have finished Part 3.**

*Find out More!*

For additional resources and activities, please visit the *Sustainable Communities!* StoryMap at <https://bit.ly/2YdHNqB>.



## Glossary

This glossary can help you understand words you may not know. Feel free to add drawings, your own definitions, or anything else that will help. Add other words to the glossary if you would like.

**Access:** Able to reach a place, thing, or idea

**Action researchers:** People who use their own knowledge and information they find out from their community to make decisions and take action on important issues

**Apartheid:** A South African policy that segregated and discriminated against people based on race

**Amenities:** Places or features that make a place nicer

**Artificial intelligence:** Computer systems that are able to act with human-like intelligence

**Climate:** Weather conditions in a place over a long period

**Climate change:** Rapid warming of the global climate

**Community:** A group of people that have a place or other thing in common

**Congestion:** Crowding in an area

**Design:** The look and function of a building, space, process, or object

**Drones:** Flying device without a pilot

**Economic:** About money, income, and use of wealth

**Ecosystem services:** Benefits that an ecosystem or natural area provide to people

**Environmental:** About the natural world

**Eroding:** Soil, rock, or land wearing away because of wind, water, or other natural processes

**Ethical:** The fairness of something

**15-minute community:** A community where people can walk or bike to everything they frequently need within 15 minutes

**Green space:** Natural areas without buildings or roads

**Groundwater:** Water that stays underground in the soil or spaces between rocks

**Heat island:** Places in cities where heat gets trapped

**Holistically:** Considering all the parts together of a person, thing, or item

**Housing:** A building or other structure where people make their home

**Housing density:** How many homes are found within an area

**Identity:** Characteristics that make up each person or thing

**Inclusive:** Making sure no one is left out

**Investigate:** Find out more information

**Mentor:** Someone who has experience and can help guide you

**Migration:** Moving from one place or region to another

**Observation:** Recording what you notice without adding your own opinion

**Observe:** Use your senses to get information about something

**Oral history:** Recording information from people talking about their past

**Perspective:** A specific way of thinking about the world around us

**Photosynthesis:** The process plants use to make food, taking in carbon dioxide and releasing oxygen

**Polluted:** Water, soil, or other natural systems that have been contaminated with things that do not belong in them

**Pollution:** Things that do not belong in and can harm an environment

**Precipitation:** Water falling to the ground as rain, snow, sleet, or hail

**Private:** Owned by one person, group, or company

**Public:** Owned by the community

**Reflect:** Think carefully about something

**Renewable energy:** Electricity produced from materials that are easily replenished or ongoing natural systems

**Resources:** Materials we use to meet our needs

**Rural:** A place with low housing density, like the countryside

**Satellite Internet access:** Wireless internet connections through orbiting satellites

**Self-driving vehicles:** A car or other vehicle that is driven by a computer system

**Social:** About the interaction of people in a community

**Survey:** A list of questions that you can give to a group of people

**Sustainable:** A balanced, long-term approach to social, environmental, economic, and ethical concerns

**Sustainable community:** A group that balances the needs of living things and the resources available in a way that does not hurt future generations

**Sustainability:** An idea that requires that people do not use more resources or create more waste than the biocapacity of the Earth can meet

**System:** Something made up of parts that work together

**3-D printing:** A printing technique that produces three-dimensional objects

**Thrive:** Something that is working or growing well

**Topographical Map:** A map that shows the shape of the land

**Urban:** A city or place with high housing density

**Water vapor:** Water in a gas form

**Other words:**



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Smithsonian Science for Global Goals (SSfGG) is a freely available curriculum developed by the Smithsonian Science Education Center in collaboration with the InterAcademy Partnership. It uses the United Nations Sustainable Development Goals (SDGs) as a framework to focus on sustainable actions that are student-defined and implemented.

Attempting to empower the next generation of decision-makers capable of making the right choices about the complex socio-scientific issues facing human society, SSfGG blends together previous practices in Inquiry-Based Science Education, Social Studies Education, Global Citizenship Education, Social Emotional Learning, and Education for Sustainable Development.

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