Smithsonian | SCIENCE *for Global Goals*

CLIMATE ACTION!

Part 1: Introduction to Climate Systems

SUSTAINABLE DEVELOPMENT GOALS

developed by

Smithsonian *Science Education Center*

in collaboration with

iap SCIENCE HEALTH POLICY

the interacademy partnership

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PART 1: INTRODUCTION TO CLIMATE SYSTEMS

Find out More!

For additional resources and activities, please visit the *Climate Action!* StoryMap at bit.ly/CLIMATEACTION2030.

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Planner

Activity	Description	Materials and Technology	Additional Materials	Approximate Timing	Page Number
Task 1: What elements do humans add to systems they are in together?					
Discover	Find personal connections to the atmosphere and other team members.	• Paper • Pen or pencil • String • Tape	*Identity Map* *Team System Map*	60 minutes	6
Understand	Explore how different human senses affect how we experience the atmospheric system.	• Paper • Pen or pencil • Digital device, such as computer or phone (optional)	*Senses System Map*	40 minutes	13
Act	Identify elements of our shared future system.	• Paper • Pen or pencil	*Futures Mood Board*	25 minutes	16
Task 2: How do humans develop relationships in a system when they're working together?					
Discover	Explore the relationships humans form between elements in a system.	• Pen or pencil • Paper or board • Ball of string or yarn • Flip chart or board • Slips of paper	*Futures Mood Board* *Senses System Map*	30 minutes	19
Understand	Learn about how humans adapt relationships around shared problems.	• Long string or rope • Blindfolds (optional)		40 minutes	21
Act	Identify how you can expand who you work with in your community.	• Pen or pencil • Paper		30 minutes	25

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Climate Action! How can we mitigate human impacts on the atmosphere?

In this guide you will explore the complex human connections to the **atmosphere** and how human changes to the atmosphere connect to you and your community.

While using the guide, you will become an **action researcher** to identify and help solve problems in your community. Action researchers first ***discover*** their own existing knowledge, then they investigate to ***understand*** problems, and finally they ***act*** on what they have learned to make local and global communities better.

You will create and keep several sheets of paper or digital documents to help you record and remember information. You may want to use a notebook or folder to help organize the sheets you will use in this guide.

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.*

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Task 1: What elements do humans add to systems they are in together?

All humans on the planet are **elements** or parts of a global **system**. A system is a group of elements that, when together, exhibit behavior or **relationships** that the individual elements alone do not. Think about a chair. It consists of different elements, such as legs, arms, and a seat. When they are together, these exhibit relationships that hold up a person. For the chair system to work, all the elements must be related in a particular way. If any elements or relationships are not in the right place, the chair system will not function to hold up a person. This is what makes a system so powerful.

In this task you will first ***discover*** more about the elements you and your team add to the system. You will then ***understand*** how different human experiences can add elements to the system. Finally, you will ***act*** as a team to identify shared elements in the system.

Discover: *What elements do I add to the system?*

This guide asks the question, How can we mitigate human impacts on the atmosphere? You may have noticed elements humans add to the atmosphere, such as **emissions** from cars or factories. You may have heard about how these human impacts affect our planet in negative ways. These are indeed big issues that require immediate action. You might be ready and motivated to act today. But before you take action to solve the problem, first you need to act to understand the elements of the system we are all part of.

Humans are complex social animals. Who we are affects the way we think about and relate to other elements in the global system. This basic understanding of human systems is the foundation of all future human actions. This foundation will help support you and your team to take more effective actions together later in this guide to address global problems like climate change.

1. Choose a peaceful environment where you can sit comfortably without distractions.
2. Find a posture that is comfortable for you, whether it's on a cushion, a chair, or on the floor. Maintain a relaxed position for you.

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3. Bring awareness to yourself, the air around you, and your relationship with it. Recognize the atmosphere as a vital and interconnected part of the world around you.
4. Have one person, such as a teacher or a teammate, slowly read aloud *Mindfulness: Breathing with the Atmosphere*. Follow the instructions.

Mindfulness: Breathing with the Atmosphere

Relax your body and close your eyes. Breathe in deeply and then breathe out. As I talk, keep breathing in and out at a pace that is comfortable for you.

Bring your attention to your breath. Notice the sensation of each **inhalation** and **exhalation**. Allow your breath to flow naturally without forcing it. Breathe in, imagining the air flowing into your lungs from the space around you. Imagine oxygen from that air entering your body through your lungs. Consider the gift of a breathable atmosphere that sustains life. Express gratitude for this gift and the beauty it brings to the world. Find gratitude for the oxygen that allows your body to work. Imagine the **carbon dioxide** your body produces exiting your body through your lungs. You do not need it. Breathe it out.

Think of the nearest plant. It may be a tree, grass, a vine, or a bush. Imagine that green plant taking in your carbon dioxide, using it, and giving out oxygen. Breathe in the oxygen from the plant. Breathe out the carbon dioxide the plant uses. Take a few breaths, imagining the balance between you and the plants around you.

As you settle into your breath, expand your awareness to include the sensations of the atmosphere around you. Notice the feeling of the air on your skin, the temperature, and any movements or sounds you perceive.

Go further in your mind to the edges of your **community**. Imagine all the plants in your community producing oxygen and taking in carbon dioxide and all the people and other animals in your community breathing in oxygen and letting out carbon dioxide. In and out. In balance. The air mixing. There are no edges. There are no boundaries. Recognize that the atmosphere is constantly changing.

Now send your mind up into the atmosphere. Imagine flying in the clouds. Imagine looking down on everything humans have built in your community. Look down on the houses, markets, roads, and vehicles humans have built. Imagine you

are flying above the clouds. Breathe in the oxygen in the wind above the clouds. Delight in the life-giving oxygen. Breathe in and out a few more times. Then imagine slowly flying back to your community, then to the nearest plant, and finally to the place where you began.

Find gratitude for the balance of the system. You are part of this system. Take a moment to extend a sense of appreciation and kindness to the atmosphere and the world around you.

5. Take out a piece of paper and draw the system of Earth's air you just thought about. Include yourself, the plants and other living things in your community, the things humans have built, and the parts of the atmosphere as elements of this system.
6. Read *What Is a System?*

What Is a System?

Your drawing includes the different elements of a system. Each of the elements in your drawing has a relationship with the other elements. Some of these relationships you may understand and others you may not. For example, you, as an individual, are a complex system. All systems, such as you, are built from relationships between elements.

Elements and relationships between different experiences, backgrounds, and ideas give each of us a unique system **identity**. Your identity is the system that makes you. Each of us has a unique system identity composed of elements and relationships from our unique personal history. Your personal relationship with yourself and the atmosphere is an important place to start this guide.

7. On your drawing, identify any relationships you already understand between different elements. Draw lines between these elements to represent the relationships.
8. Take out a new piece of paper.
9. Title the paper "Identity Map." If you prefer, you can make an identity map using objects or digital tools. There are more details about how to do that in step 16.
10. An identity map is a tool to help you understand your personal system.

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11. Write your name in the center of the paper or draw a small picture of yourself.
12. Draw a circle around your name or picture.
13. Think about your answer to the question, Who am I? The list here can give you some elements to consider, but you choose the elements you think are an important part of your personal system. You can also include elements that are not on the list.
    - Age
    - School or class
    - Race and/or ethnicity
    - Gender
    - Country or place where you live
    - Country or place that is important to you or your family
    - Values or beliefs that are important to you
    - Goals that are important to you
    - Topics or subjects that interest you
    - Hobbies or things you like to do for fun
    - Physical traits (such as tall, black hair, blue eyes, wears glasses)
    - Personality traits (such as loud, funny, sad, kind)
    - Roles you have in your household (such as big sister, helper, cousin)
    - Groups you belong to
14. Write each element on the page around your name.
15. Draw a line between your name and each element. This line represents the relationship between you and each element. Figure 1.1 is an example of a written identity map. You can put your elements at the end of each line.

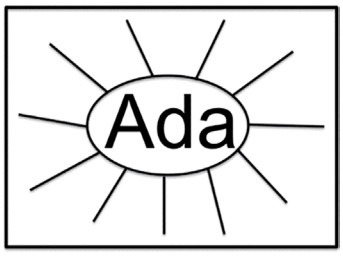

Figure 1.1: Example of a written Identity Map.

16. If you prefer, you can use physical elements around your home or classroom to create your map. To keep your map, you can take a picture or just remember it. Figure 1.2 is an example of an identity map using physical elements. You could also make a digital map using recordings or photos.

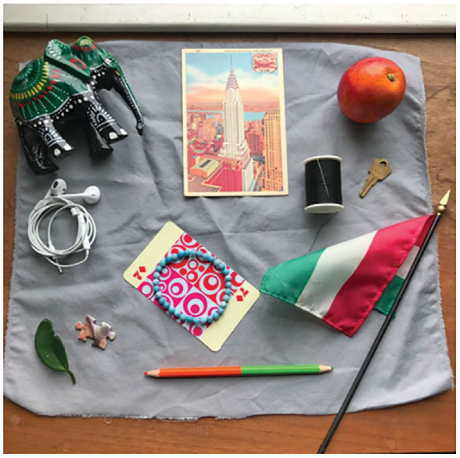

Figure 1.2: Example of an Identity Map using objects.

17. Examine your *Identity Map*. There are many different elements of your system. Do you notice any relationships between those elements? For example, you may live in a place with easy access to natural areas and you may enjoy being outside. Those two elements may have a relationship.
18. Identify three to five elements of your system that have a relationship with another element. For example, maybe being tall and playing basketball are elements that have a relationship.

> **⚠ Emotional Safety Tip**
>
> Identifying details of your personal system is helpful for understanding the entire system. But, because many of these elements are out of your control, thinking and writing about them may make you feel uncomfortable. Only write about parts of your system that you feel comfortable including.

19. Discuss your *Identity Map* with other team members. Share as much as you feel comfortable sharing.

> **⚠ Emotional Safety Tip**
>
> Sharing your Identity Map with someone else can help build trust between you and that person. But it can be hard to share your personal information with someone else. Only share parts of your Identity Map that you feel comfortable talking about.

20. Form a team. Your team may be your whole class, or it may be smaller groups of four to five people. As action researchers, you will work together with your team for the rest of this guide. You will work together to understand your local area and make it better.
21. Create a *Team System Map*.
    a. Write "The Atmosphere" on a piece of paper and place it on a wall or table.
    b. Arrange all the personal *Identity Maps* from your team around "The Atmosphere."
    c. Using string or something similar, connect each *Identity Map* to The Atmosphere. The string represents the relationship connection between all team members and the atmosphere. This represents your *Team System Map*.
22. Read *Systems*.

Systems

All systems are composed of elements and relationships. Look at the *Identity Map* you just made. It has many different elements. All the elements are connected through relationships with one another to make you unique. Systems can be simple or increasingly complex.

Simple systems: A simple system is like a basic puzzle with just a few elements that fit together easily. Imagine a bicycle. It has wheels, a frame, and pedals. Each element has a specific job. The wheels help the bicycle move, the frame gives it shape, and the pedals make it go. When all the elements work together, the bicycle rides smoothly. If they are all maintained, the bicycle system does not change much and it rides the same every time you use it.

Complex systems: A complex system is like a big, challenging puzzle with many elements that fit together in intricate ways. Think of a beehive. Inside the beehive, there are many bees working together to make honey. Each bee has a special role to play, such as collecting nectar from flowers, making beeswax, or taking care of baby bees. They all work together and create effective relationships to make the beehive function well, produce honey, and ensure the hive survives. If one element of the system changes or is affected, it can have a big impact on the relationships with other elements.

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As the number of elements and relationships in a system increases, the system gets more complex. Your team system is more complex than any personal system. As the system becomes more complex, it has more places where elements or relationships can change. This is a challenge for people when they are trying to work together to develop a shared view of a problem and shared visions for solutions. Therefore, it is important to understand the elements and relationships within the system when trying to solve a problem or take action on an issue.

23. Think quietly about your personal relationship with the atmosphere. You may want to consider:
    a. Memories you have of the atmosphere, such as the different colors, weather, storms, or temperatures—either from personal experiences or through visual art, music, stories, music, or other ways of learning about something.
    b. How do you feel when you think about the atmosphere?
24. Draw something to help you remember these ideas, either on the edge of your *Team System Map* or using a separate document.
25. Turn to a partner.
26. One at a time, have each partner tell a story about an atmosphere-related memory.
    a. For the storyteller: Try to share details about your story and why you picked it.
    b. For the listener: Pay close attention and think carefully. Why is this story important and what does it tell you about how someone else thinks and feels about the atmosphere?

⚠ Emotional Safety Tip

Sharing memories can be very personal. Remember, your partner is trusting you to respect them and their memory. Make sure you listen carefully and stay open to the story, even if it feels unfamiliar or strange to you. If you are not comfortable sharing a particular memory, pick a different one to share.

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27. Add your atmosphere memory to your *Team System Map* by writing, drawing, or using a picture or object to represent it.
28. Keep your *Identity Map* and your *Team System Map*. You will need them both later.

Understand: *How do human senses add different elements to the system?*

How you experience and process natural and human-built elements through your senses affects how you experience the atmospheric system. The system is also constantly changing. There are always new and different natural and human-built elements you are exposed to within the system. Experiences with elements in the system all start with one or more of our five senses (touch, sight, hearing, smell, and taste). But it is important to understand that different people experience natural and human-built elements in the system in different ways. It is important to understand the similarities and differences between how humans in your team system experience atmospheric elements around them before you take collective action as a team later.

1. Take out a piece of paper or open a new digital document and title it "Senses System Map."
2. Make a system map on the piece of paper or digital document, similar to Figure 1.3.

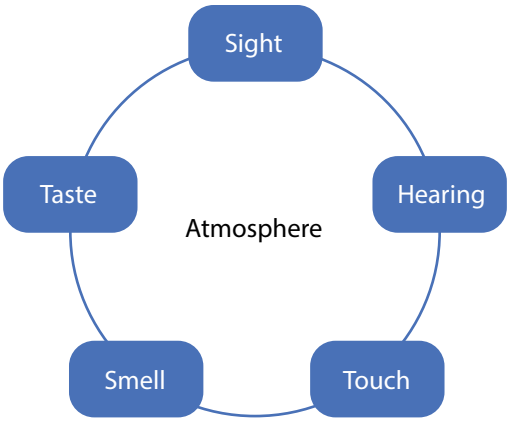

Figure 1.3: Example of a Senses System Map.

3. If possible, move to a place that gives you a clear view of the atmosphere and where you can stay still for a few minutes. For example, you can go to an open space, look out a window, or, if those are not an option, just observe the atmosphere in the space you are currently in.

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4. Follow the directions in *Using Senses to Experience the Atmosphere* to have one or more experiences within the atmospheric system.

> **⚠ Emotional Safety Tip**
>
> Remember to be an inclusive team member. Every person on your team brings different skills and perspectives. Some members of your team may not want to or be able to use all of their senses. That is fine. Talk to your teammates and find a way for everyone to participate and feel comfortable.

Using Senses to Experience the Atmosphere

If technology, such as a smartphone, camera, or computer, is available to your team, consider including the technology extensions listed here.

Sight

a. Sit or lie still. Look up at the atmosphere. Quietly observe all the things you see for one minute. If possible, look in several different directions.

> **⚠ Physical Safety Tip**
>
> If you are looking up at the sky and the sun is out, do not look directly at the sun.

b. What natural (sun, clouds, trees) and human-built (airplanes, buildings, electric lines) elements did you see during the minute?
c. Record each element you noticed in the *Sight* box on your *Senses System Map*.
d. Technology extension: Use a device, such as a camera, to record your experience.

Hearing

a. Quietly listen for one minute. Close your eyes if you would like.
b. What natural and human-built elements did you hear during the minute?

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c. Record each element you noticed in the *Hearing* box on your *Senses System Map*.
d. Technology extension: Use a device that can record audio of your experience.

Smell

a. Quietly smell through your nose for one minute. Close your eyes if you would like. If possible, turn your head to the left and right.
b. What natural and human-built elements did you smell during the minute?
c. Record each element you noticed in the *Smell* box on your *Senses System Map*.

Touch

a. Quietly observe the air around you through the skin of your uncovered hands, feet, arms, legs, face, or head for one minute. Consider observing one of the following:
   - Wave your hands, feet, arms, legs, or head back and forth through the atmosphere. Describe what you feel.
   - Make a fan out of a piece of paper. Use it to move some of the atmosphere toward your body. Have a team member help move the air in the atmosphere toward you. Describe what you feel.
   - Turn on an electric fan and point it at you. Feel the moving air in the atmosphere with the skin of different parts of your body. Describe what you feel.
b. What elements of the atmospheric system did you feel in the minute?
c. Record each element you noticed in the *Touch* box on your *Senses System Map*.

Taste

a. Sit or lie in the same location.
b. Quietly observe through your mouth for one minute. Breathe slowly in and out through just your mouth. If possible, turn your head to the left and right.
c. What elements of the atmospheric system do you feel or taste in the minute?
d. Record each element you noticed in the *Taste* box on your *Senses System Map*

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5. Compare what you noticed with the rest of your team:
    a. Were there differences in what you all observed?
    b. Which of your senses do you feel are most connected to the atmosphere?

Act: *How can we identify elements of our shared future system?*

In the Understand activity of this task, you investigated how different people in the team system use their senses to experience atmospheric elements today. Our personal systems can affect what we value and believe is important in the team system. If there is an element of a system that is important to you now, you may want it to be an element of your future system. Developing a shared team view now of these future elements is a helpful way to create a shared vision for solutions related to the problems you will learn about later in this guide.

1. Sit quietly and ask yourself whether you want your future to be the same or different than it is now. Don't worry about thinking about the atmosphere yet. Just focus on elements you want the future to have in general. You can use your own original ideas or ideas from other places. Use ideas from your experiences, books, movies, other media, or conversations you have had to help you think about these questions.
2. Take out a large piece of paper or open a shared digital document.
    a. Label it "Futures Mood Board." A mood board is a tool to help gather ideas, concepts, and styles to design something. In this case, you and your team are designing the elements of a shared future system.
    b. Divide the paper into two sections. Label one section "Hopes" and the other "Concerns."
3. Think with your team about your *Hopes* and *Concerns* and record your ideas.
    a. In the *Hopes* section record your team's ideas by writing, drawing, or using digital images to represent your hopes for the future system for you, your area, the people around you, and the whole world. Do not feel like your ideas have to be possible today—dream big!
    b. As you think about your team's hopes for the future system, you may also start to think about things that concern or worry you about the future. Record these ideas in the *Concerns* section.

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⚠ Emotional Safety Tip

When thinking about the future, you might have many different feelings. It is okay to be worried or anxious. These feelings are natural, especially when the future feels uncertain. By thinking about your fears, you can prepare yourself and make choices to try to ensure a more hopeful future.

⚠ Emotional Safety Tip

Sometimes you may want to keep hopes and concerns for the future private. Only share what you feel comfortable sharing.

4. Examine your *Futures Mood Board* and talk about the following:
   a. Do you notice elements that surprise you about the hopes and concerns of other people in your team?
   b. Do you notice any elements that many people listed? Make a list of these shared elements.
5. Read *The United Nations and the Sustainable Development Goals*.

The United Nations and the Sustainable Development Goals

Achieving a shared future system like the one you just thought about is complex. It takes many people working together in many places to create a **sustainable** shared future. When many people are working together in a system, it helps to have someone organizing. The **United Nations**, also called the UN, is a global organization designed to help governments and people around the world collaborate.

As the year 2015 approached, the UN asked countries and people around the world to imagine a better world and a better future. They worked together to come up with a list of goals. Then the countries of the UN came to **consensus** on the most important goals needed to get to a better world. These goals for the global community are called the UN **Sustainable Development Goals**, or SDGs. Figure 1.4 shows the 17 UN SDGs.

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Figure 1.4: United Nations Sustainable Development Goals.

6. Examine the 17 SDGs shown in Figure 1.4. By yourself or with your team, identify any SDGs that seem linked to elements in your *Futures Mood Board*.
7. Examine your *Team System Map* and *Senses System Map* from the Discover and Understand activities and think about different connections to the atmosphere.
    a. Could you connect elements from your *Futures Mood Board* or the SDGs to elements of your *Team System Map* or *Senses System Map*? Discuss those connections with your team.

Task 2: How do humans develop relationships in a system when they're working together?

When we identify a problem in a system, it can be tempting to try to immediately take action to solve the problem. However, the atmospheric system is complex. Sometimes when trying to solve problems in a complex system, people make changes without thinking about how these changes will affect other parts of the system. This can sometimes create **unintended consequences**—new impacts that were not the aim of the action. Sometimes these unintended consequences create new problems!

Before deciding what actions humans should take together later, it is essential to take some time to understand how people in the system experience the world and how they relate to it and one another.

In this task you will first ***discover*** more about how humans form relationships between elements in a system. You will then ***understand*** how humans adapt relationships around shared problems. Finally, you will ***act*** by identifying how you can expand relationships with your community throughout this guide.

Discover: *How do humans form relationships between elements in a system?*

In Task 1 you and your team explored how you experience elements in the atmospheric system through your senses. As a team, you may experience the elements similarly or differently. You also may view relationships between the elements similarly or differently. When working together to take future action on issues like **climate change**, it is helpful to first understand how relationships are built and can change over time.

1. Read *Web of Relationships Game* and follow the directions to play the game.

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Web of Relationships Game

Number of People

This game should include everyone on your team and can be done with any number of people.

Space

You need enough space so your team can stand in a circle nearly shoulder to shoulder.

Equipment

- Large ball of yarn or string
- Paper, Flip chart or board to write on
- Slips of paper

Setup

a. Organize the team into a circle.

b. Examine the list of concerns from your *Futures Mood Board* you created in Task 1, Act. Examples might include:

   - Increased global temperature, extreme weather events, flooding, wildfires, food supply, water shortages, air pollution

c. As a team, pick one concern you wish to discuss.

   - Write this concern on a piece of paper or board and place it in the center of the circle.

d. Examine your *Senses System Map* lists you created in Task 1, Understand. Each person should pick one element from their list.

   - Half the team should pick natural elements and half the team should pick human-built elements.
   - Write the element on a small slip of paper you can hold or wear as a name tag.

e. Choose a person who will start the game with the ball of yarn or string.

   - Have them say their element and explain how it might be related to the concern in the center of the circle.

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f. Someone else in the circle then raises their hand and says their element. Then:
   - The first person holds onto the end of the yarn and passes the ball to second person, unwinding the yarn until it reaches them.
   - The second person explains how they think their element could be related to the element of the first person.
   - Then say how their element could be related to the concern in the center of the circle.
   - They hold onto the yarn where it reached them, and pass the ball to the next person who raises their hand.

g. The next person repeats the process. Make sure everyone continues to hold onto their string or yarn.
h. The team continues to create as many connections as possible. Team members can participate as many times as they like, if they thought of a relationship.
i. When the group is done, carefully place the web of yarn or string on the floor where you are all standing, so you can examine it later.

2. As a team, discuss:
   a. How does the web of relationships shown by the yarn or string make you think and feel about the system you are part of?
   b. Examining the web of yarn or string, which elements have more relationships? Why might this be?
   c. When thinking about the concern you selected and the web of relationships you just created, where would you choose to start working toward solutions to the concern? Why there?
3. Try playing the game again with a different concern at the center and the same or different elements.

Understand: *How do humans adapt relationships around shared problems?*

You may already be aware of some human impacts on the atmosphere, such as climate change. When new problems enter a human system, elements and relationships can change. This includes our daily lives and lifestyles. If one element of the system

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changes or is affected, it can have a big impact on the relationships with other elements. When presented with a problem, such as climate change, systems such as you and your team will need to learn how to work together to adapt the system.

1. Read *Changing System Game* and follow the directions to play the game.

Changing System Game

Number of People

The minimum is eight people participating and the maximum is 30. Others can be observers. The team leader will run the game.

Space

The team members will be moving around with their eyes closed or blindfolded, so an outdoor space or an open room is needed that's large enough for people to move around freely without being too close to objects, walls, or furniture that could pose safety issues.

Equipment

- Long rope, 9 meters or longer
- Blindfolds (optional)

Setup

a. Choose one team leader to facilitate this game.
b. Line the other team members up shoulder to shoulder in a straight line, all facing the same direction.
c. Have each team member close their eyes or put on their blindfolds.
d. Put your hands in front of you, palms up.
e. Have the team leader place one end of the rope in the hands of the team member at one end of the line.
f. Have the team leader move down the line with the rope and hand it to each team member in turn. Everyone should hold the rope with both hands, if possible.

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g. At the other end of the line, have the team leader turn around and move back to the first team member in the line, but this time just lay out the rope on the floor. Now half the rope is being held by the line of team members and half is laid out on the floor.
h. Tie the two ends of the rope together.
i. Now all team members are bunched on half of the loop, as shown in Figure 1.5.

Figure 1.5: Setup of Changing Systems Game.

Rules of the Game

a. Eyes must stay closed or covered throughout the game. The team leader will monitor this. If the team leader sees you open your eyes during the game, you will be asked to let go of the rope and silently step back from the game.
b. The entire rope needs to be used.
c. You may slide along the rope, but you cannot change positions with anyone else on the rope.
d. Team members can talk with each other.

Playing the Game

a. Team leader: Start the game and keep your eyes open to make sure everyone on the team stays safe.
b. Rest of the team: With your eyes closed, work together to rearrange your team into the shape of a square, while everyone keeps their hands on the rope.

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c. If you think the rope is now in the shape of a square, call out and have the team leader ask for a vote.
   - If a majority of the team agrees that you are done, the game stops and the team can open their eyes.
   - If a majority of the team disagrees that you are done, the game continues and the team should keep their eyes shut.

d. When you get a majority, open your eyes.
e. After opening your eyes, have each person place the rope on the ground, being careful to maintain the shape.
f. Examine the shape of the rope.

⚠ Physical Safety Tip

Make sure the area is clear of any obstacles that could get in the way of team members playing the game. Consider having additional team members around the group who is playing, to ensure no one falls.

2. Consider extending the game to include one or more of the following variations.
   a. Repeat the game but change the shape the team is trying to make to a triangle, circle, or rectangle.
   b. Change the number of people playing the game.
   c. Include one person who can play with their eyes open.
3. Discuss the following questions with your team.
   a. How easy was it to complete the task and solve the problem in the team system? What were your strategies in the system?
   b. What adaptations or changes did individuals or the team make to help the system solve the problem?
   c. How did not being able to see affect the ability to adapt in the system?
   d. How were features of this task like the challenges society faces adapting to changes in the atmosphere?

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Act: *How can we expand who we work with in our community system?*

The atmospheric system is complex. It has many different elements and relationships. You have already started working with elements in your team system. But you will also need to build relationships with elements (people, places, and natural spaces) in your community system. In this activity, you will begin developing a list of community system elements you might want to connect with as you start to research the relationships between humans and the atmosphere.

1. Think about a list of elements in your community who could possibly give your team information about the atmosphere. Examples of elements that can expand relationships in your community system are:
    a. People: Family, friends, other students at school, school staff, teachers, scientists, and community members all have knowledge that could be helpful for the team during your research.
    b. Not just humans: You can observe and research plants, animals, and fungi in the community as part of your work.
    c. <u>Places:</u>
        - Human-built: Hospitals, health centers, libraries, and community centers all have information that could be helpful for your team during your research.
        - Not just humans: Places in your community where you can experience natural elements of your community, such as a park, green space, or home garden, can also be helpful for your team during your research.
    d. Community organizations and associations: Groups of people may be working together around a common goal, such as human impacts on the atmosphere.
    e. Government agencies: Various local and regional government agencies have information that could be helpful for the team during your research.
2. Have team members ask their family, friends, and people in the community to help come up with some names of people, places, organizations, or agencies.

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3. Explore online, in local lists, guidebooks, and by calling different organizations to find out what people, places, organizations, and agencies exist in your community that can help you learn more about the relationship between humans and the atmosphere in your community. Examples might include:
    a. Friends
    b. Other students at school
    c. School or community center staff
    d. Parents or family members of the team
    e. People who work at businesses in the community
    f. People who grow or raise food, such as farmers
    g. People who work at or own restaurants, such as chefs
    h. Hospitals or health centers
    i. Community centers that educate the community
    j. Libraries that have information
    k. Universities and colleges
    l. School organizations
    m. Ministry of Health or Agriculture
    n. Department of Human Services
4. Take out a piece of paper or use a class board and title it "Community System Data Table." Figure 1.6 shows an example.

Elements	**Name**	**Contact Information (address, phone, email)**	**Relationship Notes**
People			
Not just human			
Physical place (natural or human-built)			
Organization			
Government agency			

Figure 1.6: Community System Data Table.

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5. Develop a team list of elements for each category and list them in the *Name* column.
    a. Determine how the team could contact the person, place, organization, or agency to get information from them. List this in the *Contact Information* column.
    b. Determine any relationships that already exist with each community element. List this in the *Relationship Notes* column.
6. With your team, develop a strategy for reaching out or traveling to people, places, or spaces in your community. You will use this strategy in later parts of this guide.
7. Acknowledge: Take a moment and recognize that you took your first actions in this guide. Understanding yourself and your team members is an essential first action. You are part of a team—a human system. Humans are complex social animals. To effectively act on human impacts to the atmosphere, such as climate change, you first must understand and respect the system you are part of.

Congratulations!

You have finished Part 1.

Find out More!

For additional resources and activities, please visit the *Climate Action!* StoryMap at https://bit.ly/CLIMATEACTION2030.

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Glossary

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

Action researcher: A person who works with their community to discover, understand, and act on local and global problems they learn about

Atmosphere: The mixture of gases that surround Earth

Carbon dioxide: A greenhouse gas that is part of Earth's atmosphere; increasing carbon dioxide levels in the atmosphere is one of the causes of climate change

Climate change: Changes in the patterns of temperature and precipitation on Earth

Community: A group of people who share something in common, such as a space or an identity

Consensus: A balanced decision that works for everyone in the group

Elements: Parts of a system

Emissions: Greenhouse gases released into the atmosphere from burning fossil fuels

Exhalation: The flow of breath out of a living being

Identity: Characteristics that make up each person or thing

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Inhalation: The flow of breath into a living being

Relationships: How two or more elements in a system are connected to or affect one another

Sustainable Development Goals (SDGs): Seventeen goals for a better world, created by the countries of the United Nations

Sustainable: An approach that balances different perspectives and can keep working for a long time

System: A group of elements that, when together, exhibit behavior or meaning that the individual elements alone do not

United Nations: An international organization that represents almost all the countries in the world

Unintended consequences: Outcomes of a purposeful action that are not intended or foreseen

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