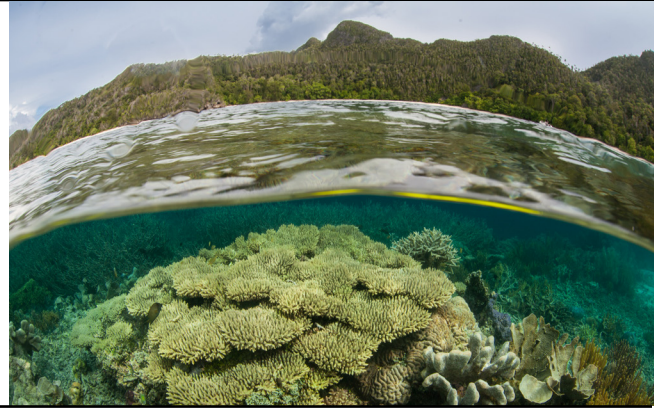


BIODIVERSITY!



Part 7:

**How will we
act to help create
a balanced
community?**

**SUSTAINABLE
DEVELOPMENT GOALS**

developed by



Smithsonian
Science Education Center

in collaboration with

iap **SCIENCE
HEALTH
POLICY**
the interacademy partnership

Copyright Notice

© 2022 Smithsonian Institution
All rights reserved. First Edition 2021.

Copyright Notice

No part of this module, or derivative works of this module, may be used or reproduced for any purpose except fair use without permission in writing from the Smithsonian Science Education Center.

Smithsonian Science Education Center greatly appreciates the efforts of all the individuals listed below in the development of *Biodiversity! How can we balance the needs of people with the needs of other living things?* Part 7. Each contributed his or her expertise to ensure this project is of the highest quality. For a full list of acknowledgments, please refer to the full acknowledgments section in the Getting Started section of *Biodiversity!*

Smithsonian Science Education Center Module Development Staff

Executive Director: Dr. Carol O'Donnell

Division Director for Curriculum, Digital Media, and
Communications: Laurie Rosatone

Science Curriculum Developer: Logan Schmidt

Research Mentor
Frederick Tutman, MA

The contributions of the Smithsonian Science Education Center: Module Support Staff and Technical Reviewers are found in the acknowledgments section.

Image Credits

Cover: Velvetfish/iStock/Getty Images Plus; metamorworks/iStock/Getty Images Plus

Figure 7.1: p_saranya/iStock/Getty Images Plus

Figure 7.2: Anton Ostapenko/iStock/Getty Images Plus

Figure 7.3: PhanuwatNandee/iStock/Getty Images Plus

Figure 7.4: Cavan Images/iStock/Getty Images Plus

Figure 7.5: picturesd/iStock/Getty Images Plus



PART 7: HOW WILL WE ACT TO HELP CREATE A BALANCED COMMUNITY?

Your Research Mentor	311
Task 1: What is the problem we want to take action on in our community?	314
Discover: What is my community doing well and what could we be doing better?	314
Understand: What are the causes of problems in my community?	316
Act: What problem will we take action on?	319
Task 2: How will we try to solve our problem?	322
Discover: What are some actions we could take?	322
Understand: How will we make our action sustainable?	324
Act: How will we take action?	326
Task 3: How will our team take action in our community?	328
Discover: What are the steps needed to take action?	328
Understand: How can we organize our action steps?	329
Act: What will we put in our action plan?	330
Task 4: Putting your plan into action	332
Task 5: What did I learn?	333
Glossary	336



Find out More!

For additional resources and activities, please visit the *Biodiversity!* StoryMap at <https://bit.ly/3zvJ2Qh>.



Planner

Activity	Description	Materials and Technology	Additional Materials	Approximate Timing	Page Number
Task 1: What is the problem we want to take action on in our community?					
Discover	Explore ways in which your community is doing well and ways in which it could be doing better.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Part 2, 3, 4, 5, 6 Organizers</u> (from Task 1 in each Part)	30 minutes	314
Understand	Report on problems in your community and consider the connections between the root causes of these problems.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Connected Problems</u> (Task 1)	25 minutes	316
Act	Come to a team consensus about which community problem you want to take action on.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Balanced Community Goals</u> (Part 1, Task 3) <u>Connected Problems</u> (Task 1)	25 minutes	319
Task 2: How will we try to solve our problem?					
Discover	Imagine different actions you could take to help address your team problem.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Part 2, 3, 4, 5, 6 Organizers</u> (from Task 1 in each Part)	25 minutes	322
Understand	Explore ways your possible actions could be more sustainable.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Team Action Plan</u> (Task 2) <u>Community Identity Map</u> (Part 2, Task 1)	20 minutes + investigation time	324
Act	Come to a team consensus on which action you will take.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Balanced Community Goals</u> (Part 1, Task 3)	20 minutes	326



Activity	Description	Materials and Technology	Additional Materials	Approximate Timing	Page Number
Task 3: How will our team take action in our community?					
Discover	List the steps needed for your action.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Community Communication</u> (Part 2, Task 5)	20 minutes	328
Understand	Organize the action steps.	<ul style="list-style-type: none"> Paper Pens or pencils 		20 minutes	329
Act	Create an inclusive team action plan.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>Team Action Plan</u> (Task 2)	25 minutes	330
Task 4: Putting your plan into action					
Task 4	Put your plan into action!	<ul style="list-style-type: none"> Varies, depends on action plan 		Varies, depends on action plan	332
Task 5: What did I learn?					
Task 5	Reflect on your action and your feelings.	<ul style="list-style-type: none"> Paper Pens or pencils 	<u>My Feelings</u> (Part 1, Task 5) <u>Team Identity Map</u> (Part 1, Task 2)	15 minutes	333

*StoryMap extension found at <https://bit.ly/3zvJ2Qh>



Part 7: How will we act to help create a balanced community?

As **action researchers** you now have a lot of information about your **community**. You discovered what is important to you and your team. You understand the science of biodiversity. You understand the way decisions are made. You understand the values of people in your community. And you understand the relationships among the living things in your community. Now you will put those ideas together. In this part you will decide how your team will act to create a balanced community. Then you will put those plans into action.

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 are parts of being a good action researcher. In Part 2, you will have a research **mentor** to help you understand some issues about making decisions in your community. A mentor is someone who has experience and can help guide you.

Meet Fred Tutman, Your Part 7 Research Mentor



Meet Fred Tutman (Frehd). Fred is the Riverkeeper for the Patuxent River. The Patuxent River is in the United States. A Riverkeeper is a person or an organization that protects a waterway, such as a river, stream, or **estuary**. If the waterway is polluted or harmed in some way the Riverkeeper does whatever they can to solve the problem. They may involve people from the community, try to get the government to take action, or even file a lawsuit. As Fred describes it, "Riverkeepers are the voice of the waterway if the waterway had a voice of its own."



Fred used to work in television and radio for 25 years but decided to become a Riverkeeper. He shares, "Riverkeeping has taken every skill I've had and pushed me to the edge. It is challenging work. I am **incrementally** making a difference. I know I'm not going to single-handedly clean the Patuxent in my lifetime. But I have to develop a lasting movement, so another Riverkeeper will take over when I'm gone."

Fred has knowledge and **perspectives** that came from his **identity**. Since Fred is now working with you, it is important to understand who he is. To help you Fred filled out an identity map, just like you did in Part 1. Fred's identity map includes the following things:

- I am 63 years old
- I started working part time in radio stations and on media projects when I was a teenager
- I am African-American with some Irish, Scottish and Native-American ancestry. One of my Virginia ancestors was reputedly the first African-American State Senator in Virginia's history during civil war reconstruction. I was named after abolitionist Frederick Douglass.
- I realized recently that while I have always been African-American, my **grassroots** work has shown me that I have not always been all that well connected to Black communities. It is an embarrassment at times and I am trying to relink, reconnect and rediscover my family history in Baltimore (on my father's side) and Southern Maryland (on my mother's side).
- I am very much at home in my skin as a male. My father trained me to be "manly" in the sense of firm handshakes, but I try not to be stuck in those roles. I try to keep an open mind and not judge others.
- I am an American citizen at a time when I feel Americans are being redefined in the world
- I am much more at home in the country rather than in cityscapes. I make my primary home in Maryland on a family farm that was settled by my great grandparents. The farm is an extraordinary gift of fields, streams, forests and various other natural treasures. They endlessly fascinate me and challenge my body as age makes my joints stiff and my muscles ache from farm duties.



- I am interested in race relations, conflict resolution, the environment, law, public policy, natural history, **metallurgy**, world history and many other areas of study and knowledge
- I am considered to be “large” with broad shoulders, very gray hair, glasses, moustache. My hair went very suddenly gray while attending the first semester of law school in my early forties.
- I think I am pretty gentle, funny, silly, compassionate, curious, and observant. I am passionate about injustice and the need for self-determination among all people.
- I like backpacking, photography, blacksmithing, creative writing, inventing and tinkering, books, road trips, and hiking
- I am a problem solver in most of what I do. I am the manager of the family farm and the CEO of a small non-profit organization. As I have gotten older, I have also been a mentor to younger people who have sought my help, advice and assistance.
- I get along well with outdoorsy folks. And I am learning there are many environmentalists and activists who are people of color. I am amazed and fascinated to meet and learn about people thinking out of the box and traveling roads less traveled.
- I also fit in well with metal workers and art craftsman from various walks and specialties

Throughout Part 7, you will notice Fred sharing ideas and experiences with you. He will share some of the work that he has done and help you find ways to take action in your community.



Task 1: What is the problem we want to take action on in our community?

In this task you will decide what problem you want to solve. Start with information from the investigations you did and questions you asked. Now you will **discover** connections between problems in your community. You will use these connections to help you **understand** the causes of problems you identified. Then you will decide what problem you will **act** to help solve.



Discover: *What is my community doing well and what could we be doing better?*

Each community has some things that it is doing well and some things it can be doing better. You probably noticed many of these things as you created your Part Organizer sheets ask you worked through each Part. Now, your team will work together to make a list of what your community is doing well and what it can be doing better. Then you will look at connections between the things that could be better in your community. These connections will help your team make a list of problems you could take action on.

1. Get out all your team's Part Organizer sheets for Parts 2–6. If you did not do all the Parts that is okay, you can just use the information you have.
2. As a team, use the information from your Part Organizer sheets to make a new list of what your community is doing well and what your community could do better. You can write this list, draw it or record your voices. You will need this list later, so be sure to record it in a way that works for your team. Look at the information you listed in all three columns, *Know*, *Think*, and *Wonder*. Your new list should have two categories: *Doing Well* and *Need to Do Better*.
 - a. For example, maybe your team knows that your community planted a new pollinator garden. Your team would list that under *Doing Well*.
 - b. Or maybe your team thinks that many trees in your community don't have enough space to grow. Your team would list that under *Need to Do Better*.





Figure 7.1: This tree does not have enough space to grow. Its roots have pushed through the street.

3. Consider the list of things in the *Doing Well* category. These things might be going well because people in your community took action to solve problems. Someday, the action your team takes could be on this list, too!
4. Now your team is going to find connections between the things in the *Need to Do Better* category. The things in this category are problems in your community. Connecting these problems will help you figure out which are most important to solve. Now you will make those connections.
5. First a team member will share a piece of information from the *Need to Do Better* category. Then a different team member will share another piece of information that connects to the first one and explain how it relates. For example, someone might say:
 - a. "I think that problem is connected to this problem because..."
 - b. "I would put these problems together in one group because..."
 - c. "I notice this problem happens over and over again in different ways..."
6. You can share ideas in several ways. You could talk out loud or sign to each other. You could pass an object from teammate to teammate to show who is talking. You could roll or pass a string between people to show that ideas are connected. Pick the best way for your team.



7. Show the connections you identified in your Need to Do Better category. For example, maybe you noticed a problem about how far some people in your community need to travel to get to green spaces. You also noticed that this same group of people needs to travel a long way to get to public transportation. If you wrote or drew your list, you might want to draw a line between those two problems to show the connection.
8. You now have a list of connected problems you could take action on in your community. You can label this list Connected Problems.



Understand: *What are the causes of problems in my community?*

In the last activity you and your team made a list of things your community could be doing better. Helping to make things better is your team's important job as action researchers. Before you decide how you will make things better, you need to think about the causes of the problems you found. Listing these causes will help you take action in your community.

1. First, read Fred's ideas about how he defines a problem. Consider his ideas as you start to think about problems in your community.

Fred says . . .



Sometimes people assume that "problems" and "issues" are the same thing. I think problems are very particular, local, and personal to us. I think of an issue as several similar problems lumped together. If an issue is a forest, the problems are the trees.

If you want to organize a community, it helps to break an issue down into the actual problems. Those problems will get your audience passionate and interested.



2. Move into a circle with the rest of your team. You are going to report on problems in your community. This will help you to start thinking about what is causing these problems.
3. Choose one team member to record your ideas.
4. Pick one team member to go first.
5. Imagine you are giving a news report to someone who knows nothing about your community. You can imagine using some of the tools shown in Figure 7.2. The first team member will say, "We are reporting from (put the name of your community in here), where there is a problem. The problem is (state your problem in here)." Examine your Connected Problems list to help you remember the problems you found.



Figure 7.2: Tools that can be used for news reports.

6. Then the second person in the circle continues the report, "Some people in the community think this problem is caused by..." and says one thing that might be causing the problem. The second person should use information from their investigations and knowledge of their community to figure out what they think the cause is.
7. The third person in the circle can add another cause by saying, "Yes, and other people think this problem is caused by..."
8. The team continues going around the circle and reporting on causes of the problem until your team shares all your ideas. You and your team are almost done with your reporting. There is one more important step.



9. Discuss with your team what you think is the **root cause** for the problem you are reporting about. What is a root cause? Like roots that are under a tree, root causes are all the way under each problem. The best news reports help people understand the root cause underneath a problem. For example,
- Imagine that the problem in your community is that animals keep getting hit by cars.
 - Your team reported that one cause might be people are driving down the road too fast to avoid animals that are crossing. Another cause might be that animals have to cross this road to reach a pond on the other side.
 - What could be the root cause? It might be that people value being able to use the roads to get around quickly and easily. They don't think about slowing down for animals.



Figure 7.3: A turtle crossing a paved road.

10. Record the root cause or root causes next to the problem your team is reporting on. How will it help your team to know the root cause? It can help you take action that is **sustainable**. Remember that **sustainable action** lasts for a long time.
- If the root cause of problems in your community is that people want to use the road the way they want to, you might decide to take action on that cause. You might try to find a way that people can keep using the road at the same time as animals. You might try to get people to slow down on the part of the road near the pond. You might ask your town to build a tunnel under the road to help animals cross safely.



11. When the team has decided the root cause of each problem, move on to doing a news report for the next problem.
12. After you finish with your news reports, discuss whether any of the root causes are the same. For example, maybe you noticed that people in your community have built roads, buildings, and other things that take space away from the other living things in your area. Perhaps the root cause for these problems is that people feel like it is more important to use the space for what they need than what other living things in their area need.
13. If you notice any root causes that are the same, be sure to record that information. Keep this information, because you will need it in the Act activity.



Act: *What problem will we take action on?*

Now you will decide what problem your team will act on. You will pick a problem that is important to you, your team, and your community.

1. Take out your Balanced Community Goals and your community, team, and individual identity maps.
2. Examine the goals and identities and remind yourself of what you and your team value.
3. Now you will use that information to pick a problem you will take action on. Before you do, read about Fred's thoughts about why it is so important for people who live in a community to choose which problems they want to solve. Explore his experience with groups that tell communities what problems they need to fix, instead of listening to the community. Consider this as you are choosing which problem to solve.

Fred says . . .



While we, Riverkeepers, want to **empower** communities, there are some conservation groups that don't follow that **paradigm** at all. Those conservation groups don't want to empower the community. They want to get the community working on the issue that the conservation group cares about. That kind of



activism will not last because it ignores the community's vision. It takes effort away from a local problem. The solution to community problems is a solution that fits the circumstances, needs, wishes, and hopes held by the community itself.

Activism owned by and controlled by the community tends to be more long lived and much more energetic. Activism should use local creativity, knowledge, and passion. Activism should involve the affected community.

We think that work that lasts a long time is better work in the long haul.

Communities with a tradition helping themselves and mentoring leadership from within are better and healthier communities.

4. Examine your *Connected Problems*. If there are problems you found that had the same root cause, you can examine those together.
5. As a team discuss what problems would be most important to take action on if you want to reach your *Balanced Community Goals*.
6. Make a mark next to any problems that everyone thinks are important.
7. There are many problems, but some are very hard for young people to change. Think about what problems you think your team would be able to act on and really make a difference.
8. Make a mark next to problems that you think your team could help to change.
9. As a team discuss who you help when you solve each problem. Think about who you would most like to help. For example, you could choose:
 - a. Helping the most people
 - b. Helping people who have often been left out in the past
 - c. Helping people who need the most help
10. Make a mark next to problems that affect the people you chose.
11. You now have a list of problems with marks next to them. One by one, for each problem, ask the team, "Is this the most important problem to take action on?" You and your teammates can say:
 - a. Yes
 - b. Maybe, if you are not sure
 - c. No



12. If everyone agrees on the same problem, record the problem. Then you can move on to Task 2.
13. If some people disagree, you need to come to **consensus** as a team. Remember the skills you used to come to consensus in Part 1? You can use those skills again. Here are some ideas. You can choose whatever works best for your team.
 - a. List the good things and bad things about taking action on each problem. Discuss as a team.
 - b. Try to find the same values. Are there some problems that have the similar root causes? Is there a way to combine those problems?
 - c. Build a sense of the group opinion. Each person can mark one problem to solve. This can help you understand which problems are most important to your team. You can discard any problems no one picked.
 - d. Find a slow consensus. Find a partner and as a pair find consensus on which problem is most important. Then in a group of two pairs (four team members) you can find consensus. Then in a group of four pairs (eight team members) you find consensus. Keep adding together groups until you have found a team consensus.
 - e. Consider your goals. Examine your *Balanced Community Goals*. Do some problems relate to many of the goals? If so, those might be more important to solve.
 - f. Consider your **impact**. Think about who benefits. Which group are you most interested in helping?
14. Keep discussing your ideas until you come to consensus about the best problem to try to help solve as a team. Record that problem.



Task 2: How will we try to solve our problem?

Action researchers and scientists seek problems, try to understand them, and then solve them. You have thought about problems in your community. You have **investigated** to understand these problems. Now you will have a chance to decide how to try and solve the problem you chose in Task 1. You will **discover** possible actions. Then you will **understand** how different actions might help solve your problem from different perspectives. Finally, you will decide how you will **act** to help solve that problem.



Discover: *What are some actions we could take?*

You have decided what problem your team will take action on to improve your community. Now you need to decide what type of action you want to take.

1. As a team take out a piece of paper or create a digital document. Title it Team Action Plan. On the first line write or draw the problem your team is going to work to make better. You can label this part "Problem."
2. On the next line write or draw the causes and root cause of the problem which you identified during your problem news report in the Task 1, Understand activity. You can label this part "Causes."
3. Next record your ideas about who is affected by your problem. Think about if it is mostly people of a specific age, or people who live in a specific place, or people who have another thing in common. You can label this part "Who is Affected."
4. Now look at some of the ideas you had under your *Wonder* columns of your Part Organizer sheets. Are there any ideas there that might help you take action to help solve your problem? If so, record those ideas. You can label this part "Actions."
5. If you can think of any other actions, then record those under Actions.
6. If you are having trouble thinking of actions you can take, here are some ideas:
 - a. Personal change: Change something in your daily life or home. For example, learning more about an endangered living thing in your area and find out if you can change your own behavior to help protect it.



- b. Change at home: Make changes with the people who live in your home. For example, finding another way to get rid of pests in your home instead of using chemicals.
- c. Class or school change: Encourage changes at your school. For example, creating a school garden with plants that are native to your area.
- d. Communicate with your community: Help the community understand the problem or change their behavior by designing posters, composing songs, recording podcasts, making public service announcements, setting up a social media campaign, or using other ways to communicate.
- e. Government change: Try to change what your local or national government is doing. For example, write letters to officials or speak at local government meetings to share your concerns about your problem.
- f. Global change: Collaborate with others around the world who are worried about the same problem. For example, join a group that works together to stop poaching of living things.
- g. Come up with your own ideas!



Figure 7.4: This garden creates food and habitat for several different living things that pollinate plants.





Understand: *How will we make our action sustainable?*

Remember there are different perspectives or ways of thinking about problems in your community. Actions may help solve a problem from one perspective, but not from another. Sustainable actions need to consider **social, environmental, economic**, and **ethical** perspectives. Considering the needs of as many people and perspectives as possible makes the actions you take more sustainable.

1. Take out your Team Action Plan.
2. Consider the actions you listed. Would each action help solve your problem from:
 - a. A social perspective? For example, helping to build relationships between people.
 - b. An environmental perspective? For example, helping to make the air cleaner.
 - c. An economic perspective? For example, making it easier for people to earn money.
 - d. An ethical perspective? For example, making your community fairer.
3. Make a mark next to each action that shows from which perspectives it helps. You can use abbreviations, symbols, or whatever works best for your team. An action may help solve the problem from one perspective or more than one perspective.
4. Think about the actions and perspectives you have written down. What can you change about your actions so they help solve the problem from more than one perspective? Make those changes now.
 - a. For example, maybe your action is picking up plastic bottles that are polluting a nearby river, like the one shown in Figure 7.5. This action mainly helps from an environmental perspective.





Figure 7.5: A polluted river.

- b. Could you add in a social perspective by encouraging community members to work together to pick up the bottles so that the shared space around the river becomes better for socializing?
 - c. Could you add in an economic perspective by clearing bottles near a tourist area so it looks nicer and people will go to the restaurants there?
 - d. Could you add in an ethical perspective by making sure that your action is fair? Maybe you pick up bottles all along the river, not just in some places.
 - e. In a perfect world each action would help from all four perspectives. That might not be possible. Just do your best.
5. Take out your Community Identity Map. Use it to remember all the different people in your community.
6. Think about how your community members might feel about your action ideas. As a team discuss for each action:
 - a. Who does this action help?
 - b. Are there people who are left out? If so, what could you change about the action so it does not leave them out?
 - c. Does this action hurt anyone? If so, what could you change about the action so that it does not hurt them?
 - d. Are there things that might happen when we take this action that we do not want to happen? If so, what could you change about the action so they don't happen?



e. Are there other ways you want to change any action so it will work better?

f. Make any changes you feel are needed.

7. Read what Fred has to say about involving the community in taking action.

Fred says . . .



How do you get people working local on a global issue but to do so in ways that increase the community's power over the issue? Be careful it doesn't empower the campaign but not the people. People tend to work on causes and issue where they can make a difference. People want to empower their own voice. People want to tell their own stories.

Conservation work is often fueled by money. Sometimes people assume that the issues that have money are the most important. But a person working on an issue because they are being paid may behave and act differently than a person who is defending their community and upholding their own values.

8. In a perfect world each action would make your whole community better. Sometimes that is not possible. Just do your best.



Act: How will we take action?

Your team is ready to decide what action you will take.

1. Think quietly to yourself about the actions you have listed. Ask yourself:
 - a. Does the action help fix the root cause of your problem?
 - b. Is this an action that your team can take? Think about your time, any costs involved, and whether everyone can participate.
 - c. Would you be excited to take this action?
2. As a team, discuss the actions you have listed. Get rid of any actions that would not be helpful or that you cannot do.



3. Take out your *Balanced Community Goals*. Discuss which of the actions will be best for helping your community move toward your goals.
4. Pick the best way to come to consensus for your group. You can use any of the ways you used in Part 1, earlier in Part 7, or come up with a new way.
5. Use your consensus-building skills to decide what action your team will take.



Task 3: How will our team take action in our community?

You and your team have picked an action that will make your community better. As action researchers, your next task is to plan exactly how to take that action. You will **discover** the steps you think are most important. Then you will **understand** the steps your team would like to take. Finally you will **act** as a team to build an action plan to carry out in Task 4.



Discover: *What are the steps needed to take action?*

The first thing to do when planning an action is to figure out the steps that are part of that action. Your action could need permission from someone. Your action could need your team to do some things one day and other things another day. Your action could take place in several areas. All of these ideas could be different steps in your action plan.

1. Think quietly to yourself about the steps that could be part of the action your team picked.
2. Write, draw, or use another way to record your ideas on small pieces of paper. Each piece of paper should have one step. You will share these pieces of paper in the Understand activity. If you would like, you can also make a list of your ideas on a computer, phone, or other device. Just make sure these ideas can be shared with others.
3. Take out your Community Communication paper from Part 2, Task 5. Use it to remember the best ways to communicate with your community.
4. Think about how you will tell the community about your action. Record the steps involved. Remember if people feel like they are a part of something they may be more likely to help. Telling the community about what you are doing can help make your action better.
5. Read Fred's ideas about why it is important to communicate with the community and help people feel involved in an action. Use these ideas when planning your action.



Fred says . . .

You have to talk to real people. You have to respect what they know or what they think they know. You have to meet people where they are. People have opinions, local knowledge, a sense of commitment and dedication. Their participation is absolutely necessary. It is not optional or an afterthought.

Change happens on a community basis. Movements that have communities on their backs have movement. A project may run out of money in ten months, but movements last on.

Riverkeepers teach these communities about how to fight and how to struggle. We are teaching skills of **advocacy**. For example, the Riverkeeper can help people learn how to file a Freedom of Information request. Or how to get their ideas or messaging on TV or radio. The people in a community may not understand the laws that are related to the particular situation they are trying to amend or change. We give them a whole toolbox of things that they can use to take action.

6. Think about how you will measure the way your action is making your community better? Record the steps involved. For example,
 - a. Could you ask people in the community if they feel like the action helped?
 - b. Could you count how many people or living things you have affected?
7. Write your name next to any steps you would like to help with.

**Understand:** *How can we organize our action steps?*

You have thought about what you think your team needs to take action. But it is also important to find out what the other people on your team are thinking. Then you will need to organize your ideas as a team.

1. Have each team member place their pieces of paper from the Discover activity on a table or another surface. This will help your team share their steps. Your team can also share their steps on a computer or other device using a program like Padlet or Google Classroom.



2. Read through the steps from your teammates.
 - a. Did you notice any steps that were similar to yours?
 - b. Do you think your team is missing any steps?
3. Start to organize your team's steps. You can move the pieces of paper around as you do this. Thinking about your team's steps will help you decide how you will take action:
 - a. Group any similar steps together.
 - b. Remove any steps that you don't think are needed to help your team take action.
 - c. Think about how each team member will help. Put their names with the steps they would like to help with.
 - d. Think about what steps might be missing. Add those steps.
4. Start putting the steps in order.
 - a. For example, what do you think the team needs to do first? Place that piece of paper before all the others.
5. Make a list of things you need to help you take action.
 - a. What materials do you need?
 - b. How much time do you need?
 - c. Do you need an adult to help you get permission?
6. Keep these steps and the list of things you need for the Act activity.



Act: *What will we put in our action plan?*

In this activity you and your team will create your action plan. You will use this plan in Task 4 when you take your action in your community. Think back to the steps you and your team organized in the Understand activity. Now you need to turn those steps into an action plan.

1. You will record your action plan so everyone on the team can use it. You may want to add it to your Team Action Plan document. Your team can record your action plan in whatever way you would like:
 - a. Write
 - b. Draw



- c. Create a storyboard that shows the steps in order
 - d. Type the plan on a computer, phone, or other device
 - e. Record your team saying the steps
2. Remember the steps and materials you chose in the Understand activity. Use that information and this checklist to help you record the following:
 - a. The steps your team would like to take
 - b. The order of those steps
 - c. Who will help with each step (it might be more than one person)
 - d. When and where you will take these steps
 - e. How you will communicate your action plan to the community.
3. Think about what you will do if your plan doesn't work or you run into another problem (for example, an adult in your community says you need permission and you don't have it yet). Record these ideas as part of your action plan.
4. Remember to create an **inclusive** action plan. Being inclusive everyone on your team can participate in some way. You may need to make changes to the plan so that everyone feels safe, comfortable, and able to help. Those changes are okay! They are part of being a good action researcher and a good teammate.



Task 4: Putting your plan into action

You finally have arrived at the most exciting part of action research. You **discovered** your own knowledge and values. You used science and **social science** investigations to **understand** the problems of your community. Now it is time to **act**!

1. Put the plan you created in Task 3 into action.



Task 5: What did I learn?

Great job! You took action to make your community better! In this task you will reflect on the action you took with your team. **Reflecting** means thinking carefully about something. You will also reflect on your role as an action researcher in this Community Research Guide. Why? Reflecting is something all action researchers do. Reflecting helps you figure out what worked and what didn't work about your action. It helps you take even better action in the future.

1. Find a place to rest that is quiet and comfortable. Start by closing your eyes if that feels comfortable for you. Breathe in slowly through your nose. Let your belly and chest expand with air. Breathe out slowly through your mouth. Push out all of the air that was in your belly and chest.
2. This exercise helps your brain get ready to reflect. Repeat it as many times as you would like so you can feel ready.
3. Gather with your team. You are going to reflect on your action together.
4. Get three large pieces of paper. You can also do this activity by talking out loud or sharing ideas online.
5. Label each piece of paper with one of the following questions:
 - a. "What went well?"
 - b. "What could have been better?"
 - c. "How did our action make our community better?"
6. Write your answers on each piece of paper. Let everyone on the team add their answers.
7. Read the answers from your teammates. Notice what you agree with. Notice what surprises you.
8. Talk with your team to answer this next question. Use what you wrote on the three pieces of paper to help you answer.
 - a. What would you do differently if your team planned another action?
9. Now you will take some time to think about how you have grown as an action researcher.
10. Take out the *My Feelings* paper from Part 1, Task 5. Remember, you thought about:
 - a. What worries me about being an action researcher?
 - b. What excites me about being an action researcher?



- c. What do I hope I will learn about my community?
 - d. What do I hope I will learn about the topic of biodiversity?
 - e. How do I think my team will work together?
 - f. Do I feel ready to take action to make my community better?
 - g. How do I hope I will feel at the end?
11. Think about your answers. Then record your thoughts about:
 - a. If I had to answer these questions now, how would my answers change?
 - b. What did I do in this guide that surprised me?
 - c. What was hard for me to do?
 - d. What are the most important things I learned?
 - e. What makes me the proudest?
 - f. How have I changed?
 12. Come back together with your team.
 13. You will create a final identity map. This identity map will help you understand how your team has changed after finishing this guide.
 14. Pick one person on the team to lead the discussion.
 15. Have the team leader write the word “Team” on the board or on a piece of paper. Circle it. You can look at Part 1 for an example.
 16. The team leader will start by sharing one way they changed while doing the *Biodiversity!* Community Research Guide.
 - a. For example, maybe the team leader says, “I feel more able to change my community.”
 17. The team leader will write their item on the team identity map.
 18. Then the team leader will ask other team members to share how they have changed.
 19. Write each item on the team identity map.
 20. Repeat until all members of the team have shared and added one item to the team identity map.
 21. Quietly consider the team identity map. It shows how your whole team has changed since the beginning of this guide. These changes are important. We hope that your changes make it easier for you to take action in the future.



Congratulations!

You finished the Biodiversity Community Research Guide!

All of us should be trying to do what we can to change ourselves and our world for the better. Maybe you took a big action. Maybe you took a smaller action. Maybe it had a big impact. Maybe it had a small impact. The most important thing is that you did something. When you take action to make your community better, you create the world you want to live in by. You and your team are changing the world, one step at a time!

*Never underestimate the power of a small group of committed
people to change the world.*

In fact, it is the only thing that ever has.

—Margaret Mead



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

Activism: Taking action in support of an idea or cause, or taking action against an idea or cause

Advocacy: Supporting an idea or cause

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

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

Economic: About money, income, and use of wealth

Empower: To give power to someone or something

Environmental: About the natural world

Estuary: A body of water where one or more rivers meet an ocean

Ethical: The fairness of something

Grassroots: the ordinary people in a community instead of the leadership or people in positions of power



Identity: Characteristics that make up each person or thing

Impact: The effect one thing has on another

Inclusive: Making sure no one is left out

Incrementally: Changing by a small amount at a time

Investigate: Find out more information

Mentor: Someone who has experience and can help guide you

Metallurgy: The science of metals and their properties

Paradigm: A way of thinking about the world

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

Reflecting: Thinking carefully about something

Root cause: The reason underlying a problem

Social: About the interaction of people in a community

Social science: Study of human communities and interactions



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

Sustainable action: Actions that can continue for a long time and take into account many perspectives

Other words:



Meet Logan Schmidt, Your Biodiversity Guide Developer



Meet Logan Schmidt. Logan (LOH-gan) was the main person writing this guide. She talked with lots of researchers to get information. However, like anyone, she has her own perspective. You have learned it is important to consider the perspectives of your teammates and research mentors.

Perspectives affect what we think and how we think. It is also important to think about the perspective of the writer. This can help you understand why the guide was written the way it was. Considering the source of information is always a good idea.

Logan has degrees in biology and education. However, she also has knowledge and perspectives that come from other parts of her identity. Since you have been reading a lot of what Logan has written, it is important to know who she is. To help you, Logan filled out an identity map, just like you did in Part 1. Logan's identity map includes the following things.

- I am 38 years old
- I identify as female and use she/her pronouns
- I am cisgender
- The only thing I love more than science is talking to other people about science
- My favorite food is mozzarella sticks
- I am from the United States but have also lived in Greece, the Turks and Caicos, and the Falkland Islands
- I am a little sister, an aunt to two nephews, and the mother of one daughter
- In my free time I like to play volleyball and soccer, do needlepoint, volunteer to help military veterans, and fly fish
- My mother is now retired but worked as a teacher, literacy specialist, assistant principal, and principal. She is my hero. She inspired me to work in education.
- My maternal grandfather had a saying, "We do what we value" and I try to live by that saying each day.



Before you finish the guide, think quietly to yourself about Logan's identity map.

- What questions do you have about the way the guide was written?
- What perspectives does Logan have that might have made her write the guide the way it is?
- Are there things you would include that were not included?

Do you want to tell Logan what you would change about the guide? Email her at scienceeducation@si.edu. She'd love to hear from you!



References

1. Dejaviso Pose, C., Mustalish, R. (2017). *Ancestral Lands of the Ese'Eja: The True People* (R. Martinez, J. Cox, R. Mustalish, Ed.) Amazon Center for Environmental Education and Research (ACEER)

Photo Credits

Cover

City- Velvetfish/iStock/Getty Images Plus

Part 1

Cover – Velvetfish/iStock/Getty Images Plus; wergodswarrior/iStock/Getty Images Plus

Figure 1.1 – Katherine Blanchard

Figure 1.2 – Katherine Blanchard

Figure 1.4 – rudiuks/iStock/Getty Images Plus

Figure 1.4 – United Nations

Figure 1.5 – Getmappingplc Info terra Ltd. Bluesky, Maxar Technologies, TheGeoInformation, Group Google Maps

Part 2

Cover – Velvetfish/iStock/Getty Images Plus; funky-data/iStock/Getty Images Plus

Figure 2.1 – Monique Avery Pipkin and Starr Audubon Sanctuary

Figure 2.2 – Jon Cox and Andrew Bale

Figure 2.3 – Courtesy of the Field Museum

Figure 2.4 – Wesley Lickus

Figure 2.5 – Therany Gonzales

Figure 2.6 – Andy Bale

Figure 2.7 – Jon Cox and Andrew Bale

Figure 2.8 – Brian Griffiths: ACEER, OnePlanet

Figure 2.9 – Logan Schmidt

Figure 2.10 – Jon Cox

Figure 2.11 – nobtis /iStock/Getty Images Plus

Part 3

Cover – Velvetfish/iStock/Getty Images Plus; Jannick Tessier/iStock/Getty Images Plus

Figure 3.1 – Ximena Velez-Zuazo headshot: Ricardo Stanoss/NZP-SCBI

Reynaldo Linares-Palomino headshot – Ricardo Stanoss/NZP-SCBI

Figure 3.1 – Ximena Velez-Zuazo

Figure 3.2 – Karim Ledesma (SCBI/CCS-BMAP)

Figure 3.3 – Logan Schmidt/SSEC

Figure 3.4 – Ultima_Gaina/iStock/Getty Images Plus

Figure 3.5 – Logan Schmidt/SSEC

Figure 3.6 – Reynaldo Linares-Palomino

Figure 3.7 – Reynaldo Linares-Palomino

Figure 3.8 – Sebastian Lozano, SCBI/CCS-BMAP

Figure 3.9 – Brian Griffiths: ACEER, OnePlanet

Part 4

Cover – Velvetfish/iStock/Getty Images Plus; Nature, food, landscape, travel/iStock/Getty Images Plus

Anish Andheria Headshot – Anish Andheria

Figure 4.1 – Anish Andheria

Figure 4.2 – Anish Andheria



Figure 4.3 – Anish Andheria
 Figure 4.4 – Anish Andheria
 Figure 4.5 – Aditya Joshi
 Figure 4.6 – Smithsonian Conservation Biology Institute
 Figure 4.7 – Logan Schmidt/SSEC
 Figure 4.8 – Logan Schmidt/SSEC
 Figure 4.9 – Wildlife Conservation Trust
 Figure 4.10 – Anish Andheria
 Figure 4.11 – Anish Andheria
 Figure 4.12 – Anish Andheria

Part 5

Cover – Velvetfish/iStock/Getty Images Plus; Katie Flenker/iStock/Getty Images Plus
 Part 5 Steve Canty Headshot – Steve Canty
 Figure 5.1 – Fundación Albatros
 Figure 5.2 – Ana Beatriz Utila, MAR Fund
 Figure 5.3 – yuelan/iStock/Getty Images Plus
 Figure 5.4 – Ulf Mehlig, Wikimedia Commons
 Figure 5.5 – weisschr/iStock/Getty Images Plus
 Figure 5.6 – Steve Canty
 Figure 5.7 – Logan Schmidt/SSEC
 Figure 5.8 – Logan Schmidt/SSEC
 Figure 5.9 – Logan Schmidt/SSEC
 Figure 5.10 – Logan Schmidt/SSEC
 Figure 5.11 – Logan Schmidt/SSEC
 Figure 5.12 – Logan Schmidt/SSEC
 Figure 5.13 – Frenetick_O/iStock/Getty Images Plus
 Figure 5.14 – Logan Schmidt/SSEC
 Figure 5.15 – Logan Schmidt/SSEC

Part 6

Cover– Velvetfish/iStock/Getty Images Plus; LesDaMore/iStock/Getty Images Plus
 Part 6 Christine Sprunger Headshot – Christine Sprunger
 Figure 6.1 – Christine Sprunger
 Figure 6.2 – Logan Schmidt/SSEC
 Figure 6.3 – Raylipscombe/iStock/Getty Images Plus
 Figure 6.4 – Michael Caterino/Caterino Arthropod Biodiversity Lab
 Figure 6.5 – Logan Schmidt/SSEC
 Figure 6.6 – Logan Schmidt/SSEC
 Figure 6.7 – Logan Schmidt/SSEC
 Figure 6.8 – Christine Sprunger
 Figure 6.9 – SolStock/E+
 Figure 6.10 – Logan Schmidt/SSEC

Part 7

Cover – Velvetfish/iStock/Getty Images Plus; metamorworks/iStock/Getty Images Plus
 Figure 7.1 – p_saranya/iStock/Getty Images Plus
 Figure 7.2 – Anton Ostapenko/iStock/Getty Images Plus
 Figure 7.3 – PhanuwatNandee/iStock/Getty Images Plus
 Figure 7.4 – Cavan Images/iStock/Getty Images Plus
 Figure 7.5 – picturesd/iStock/Getty Images Plus





SCIENCE
for Global Goals

Parents, Caregivers, and Educators
Action Plans can be shared with us by using hashtag #SSfGG!

Twitter

@SmithsonianScie

Facebook

@SmithsonianScienceEducationCenter

Instagram

@SmithsonianScie

ScienceEducation.si.edu

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.

developed by



in collaboration with

