



Smithsonian

**SCIENCE**  
*for Global Goals*

# MOSQUITO!

## COMMUNITY RESEARCH GUIDE



HOW CAN WE ENSURE HEALTH FOR ALL  
FROM MOSQUITO-BORNE DISEASES?



developed by

**Smithsonian**  
*Science Education Center*

in collaboration with

**iap** SCIENCE  
HEALTH  
POLICY  
the interacademy partnership

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# Smithsonian

**SCIENCE**  
for Global Goals

## *Mosquito!*

### How Can We Ensure Health for All from Mosquito-borne Diseases?

Community Research Guide

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### Smithsonian Science Education Center

The Smithsonian Science Education Center (SSEC) is operated by the Smithsonian Institution to improve the teaching and learning of science for students in the United States and throughout the world. The SSEC disseminates information about exemplary teaching resources, develops curriculum materials, supports the professional growth of science teachers and school leaders, and conducts outreach programs of leadership development and technical assistance to help school districts implement inquiry-centered science programs. Its mission is to transform the teaching and learning of science in a world of unprecedented scientific and technological change.

### Smithsonian Institution

The Smithsonian Institution was created by an Act of Congress in 1846 "for the increase and diffusion of knowledge..." This independent federal establishment is the world's largest museum, education, and research complex and is responsible for public and scholarly activities, exhibitions, and research projects nationwide and overseas. Among the objectives of the Smithsonian is the application of its unique resources to enhance elementary and secondary education.



**Smithsonian Science for Global Goals (SSfGG)** is a freely available curriculum developed by the Smithsonian Science Education Center (SSEC) 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 (IBSE), Social Studies Education (SSE), Global Citizenship Education (GCE), Social Emotional Learning (SEL), and Education for Sustainable Development (ESD).



## Thank You to our Curriculum Development Team



Smithsonian Tropical Research Institute



Smithsonian  
*Learning Lab*



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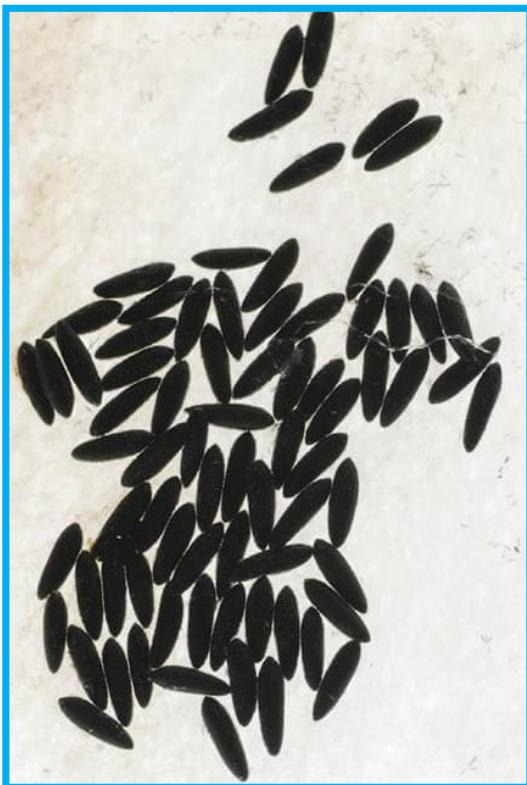


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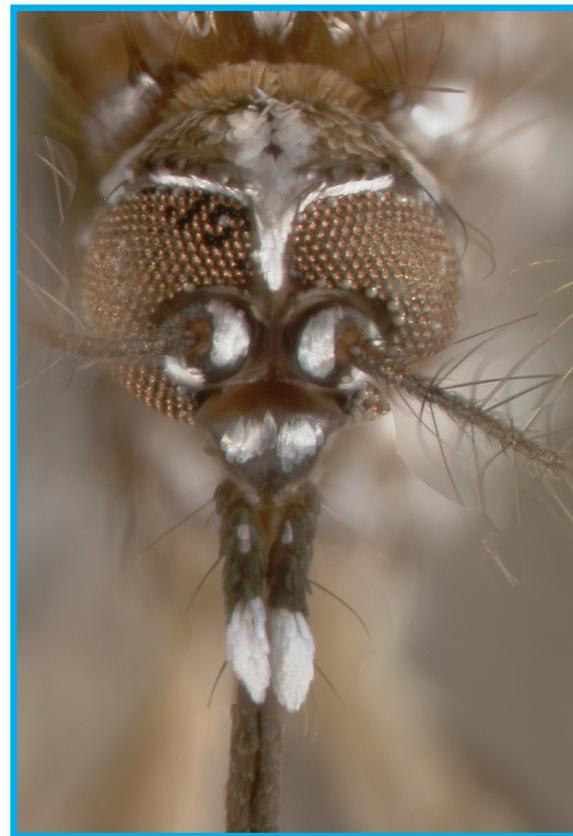
**Johnson&Johnson**



**Mosquito!**



*Look at these pictures. What do you See? Share!*



# Welcome to the Team

**Read this together as a team.**

Look into the face of the mosquito. What do you see? You might be familiar with this insect. Have you ever seen one this close? Raise your hand if you know about mosquitoes. Quickly share something you know about mosquitoes. You will have more time later to share what you know about mosquitoes.

This tiny insect is making some big problems around the world. It may be making problems with people where you live. Or it may be making problems far from your home. Or the problem might be coming to you in the future. Does anyone know about some problems caused by mosquitoes? Do not worry if you are not familiar with any problems. We will have more time to talk about those later.

Many of these problems are not easy to understand. There are many things we do not know about mosquitoes and people. There is also not a single solution to solve the problems they create. There are many possible solutions we must consider. Since there are many solutions, there are many decisions to be made. Sometimes, making decisions about what to do is difficult. What do you do when you have to make a difficult decision? Quickly share some ideas as a team.

This is why we are asking you to join a research team. We need your team to help your local community make some decisions. We need your creativity and strength as a team. Your team has a leader who will help guide the research team. Your team leader is here to help, but does not have all the answers or solutions. The team leader also does not



know all the decisions that need to be made. You will have to work as a team to figure these out together.

This may be confusing. But do not worry. The team is here to help. First we must understand some basics of this community research guide. Go over the research storyline as a team on the following pages.

Notes:



# Mosquito! Community Research Guide Storyline

The community research guide has seven customizable parts.

1

## Part 1: Problem

In this part, the team will begin defining the research problem and setting up your local research plans. To do this the team will need to learn more about the team members, different perspectives, and questions you will work to answer during your research.

2

## Part 2: Community

In this part, the team will focus on collecting evidence about what the local community thinks and knows about mosquitoes. The team will also establish their research sites and begin identifying local partners they could potentially work with throughout their research.

3

## Part 3: Life

In this part, the team will focus on learning about the life of the mosquito. Research will include collecting and comparing mosquitoes within research sites while studying the life cycle and global distribution of different mosquitoes.

4

## Part 4: Transmission

In this part, the team will focus on understanding factors that affect how mosquito-borne diseases are transmitted. Research includes identifying potential host animals, local histories, and changes in the local environment that could affect how diseases may be transmitted through your research site now and in the future.

5

## Part 5: Habitats

In this part, the team will focus on researching where mosquitoes live and breed in the community. Research of man-made and natural habitats will be conducted.

6

## Part 6: Management

In this part, the team will focus on exploring a diversity of ways to manage mosquitoes. The team will then begin to develop integrated management plans for the local community concerning mosquitoes and mosquito-borne diseases.

7

## Part 7: Action Plan

In this part, the team will focus on developing a local community action plan. This plan will outline the research that was conducted, the actions the team thinks people need to take in the community, and a communication plan to share the plan with local community members.

Notes:



## Understanding this Community Research Guide

### Read this together as a team.

Each of the seven parts has a list of **TASKS** to be completed. Some tasks have two options: Mosquito A or Mosquito B. Choose the version of the task that works best for your team. Mosquito A versions are generally easier. If you are unable to complete a task for any reason, do not worry. Talk as a team, try again, or try the Mosquito A version of the task, if it's available. It is okay to change your mind. The tasks in this guide will tell you what to do. Remember, it is okay to change between the Mosquito A and B tasks at any time.

During each task, you will need to look at task resources in the research guide task folder. The task folder will be labeled with the task number. This task folder will contain additional task resources for that task.



It will also contain the two versions (Mosquito A and B) of the task, if available. Not all tasks have two versions. These task resources will tell you what to do. The team leader will help read them if you do not understand. Just follow the guide and do not worry.

If you get stuck, talk as a team, try again, or change to the Mosquito A version of the

task. Getting stuck and trying again is part of doing research. Changing your mind is okay and normal.

When conducting research, there are many unknowns. There are also many things to figure out as a team. You will need to be creative. There will not always be a clear right and wrong answer. Sometimes the team might not agree. This is okay. Just make sure to respect your teammates. Sometimes you might not be sure what decisions you should make. This is normal. The goal of research is to help us talk and think about how to make decisions as a team.

It is normal to be confused. It is normal to get frustrated. It is normal to fail and need to try again. It is normal to change your mind as you learn more. But do not worry. This is all part of doing research. Your team leader and team are here to help one another.

### So let's begin!

Part one of your research will be focused on getting the team ready. The first step in all good team research is to understand your team better and the problem you are going to explore.

