**Vector-Borne Disease Webquest**

Have you ever been bitten by a mosquito or tick and worried that you might get sick as a result? Have you heard about zika, malaria, and dengue disease? In this webquest, you will learn how vectors- like mosquitoes and ticks- can indeed cause sickness and in some cases even death. You will explore some resources to learn more about these diseases and how you can help with efforts to reduce them.

To begin with, we refer to diseases in which you can get sick after being bitten by another animal as a “vector-borne” disease. Vectors are the animals that can transmit infectious diseases between humans or even from one animal to another animal. These diseases account for over 17% of all infectious diseases and result in the deaths of over 700,000 people annually. Read over this [fact sheet](http://www.who.int/mediacentre/factsheets/fs387/en/) from the World Health Organization to learn more. You can also find out more detailed information about these diseases [here](https://observer.globe.gov/documents/19589576/20846667/Mosquito-Borne%2BDiseases.pdf/7f9ed1b7-0478-4662-a4d9-7c17101738f5).

You probably noticed that mosquitoes are responsible for many different vector-borne diseases. Indeed, mosquitoes are the world’s most dangerous animal! Click [here](https://www.discovery.com/tv-shows/mosquito/) and scroll down a bit to find the Discovery Channel’s maps showing where many of these mosquito-borne diseases have been spreading around the world over the past few years.

The Centers for Disease Control keep updated “[travel health notices](https://wwwnc.cdc.gov/travel/notices/)” which indicate the locations in which many of these diseases are currently found.

What can we do to reduce the threat of these vector-borne diseases that mosquitoes carry? One of the most important things that all of us can do is to reduce the places where female mosquitoes lay their eggs. You might wonder why that makes such a big difference. It turns out that it is only adult female mosquitoes that bite us, and thus transmit these diseases. You can learn more about the lifecycle of mosquitoes at [this](https://www.epa.gov/mosquitocontrol/mosquito-life-cycle) EPA website.

Unfortunately, female mosquitoes are able to lay their eggs in a great many locations. They are looking for sources of standing water to protect their eggs, and even a bottle cap which has been tossed onto the ground can provide her with a perfect breeding site. Empty tires, bird baths, water storage containers, and even indoor plants can be used as places for mosquitoes to lay their eggs.

The good news is that you can make a big difference. There is an app called “[GLOBE Observer](https://observer.globe.gov/)” which allows you to identify and share potential mosquito breeding habitats with scientists and public health officials around the world. All you need is a smart phone or an IPad, and you can assist with these efforts. With this app, you simply take photographs of potential mosquito breeding habitats. If you see any mosquito larvae swimming about, you can use the information in the app to try to identify the type of mosquito you have found. Although you will want to be protecting yourself from being bitten by any adult female mosquitoes who happen to be in the area, the larvae can’t harm you at all. [Here](http://nasawavelength.org/list/1783) is a list of resources to help you ensure that you are protecting yourself from mosquito bites at all times and in all places.

There are programs worldwide to try to improve global health and reduce vector-borne disease. [This story](https://stories.usaid.gov/zanzibars-malaria-hunter/#page-2) from USAID follows a young mother in Zanzibar who assists in efforts to reduce malaria in her country. Although the deadly impact of these diseases is more likely to occur in developing countries in Asia and Africa, there is evidence that these mosquitoes and the diseases they transmit are spreading into many regions of the world. Find out why this is occurring by reading [this article](https://climatenexus.org/climate-issues/health/climate-change-and-vector-borne-diseases/) entitled “Climate Risk and the Spread of Vector-borne Diseases” which describes why climate change and increased globalization has increased the risks of vector-borne diseases.

You might be surprised to learn that NASA’s Earth-observing satellites are helping people worldwide to predict and respond to vector-borne disease. You can learn more about some of these efforts [here](https://www.nasa.gov/feature/goddard/2017/using-nasa-satellite-data-to-predict-malaria-outbreaks). Scientists and public health officials are working together to explore ways to use Earth-observing data sets to help predict, respond to, and better understand vector-borne diseases.