
Student Activity Sheet BEYOND THE BITE: MOSQUITOES & MALARIA

Name _____

Answer the following questions in complete sentences, using your own words:



Part 1

Examine the world map showing the current geographical distribution of malaria. Observe the distribution of malaria in and near the United States.



Part 2

Does the map show malaria to be present in the United States? (*NOTE: Puerto Rico is part of the United States.*) Circle your response.

Yes

No

Maybe

Part 3



Where does the presence of malaria come close to the U.S. mainland?



Part 4

On the map of the Caribbean, draw a red line to show the current limits of malaria.



Part 5

Look over the temperature data sheets. Find cities that are located in the area where malaria is known to exist based on the map showing the current geographical distribution of malaria. Circle the names of those cities, in black, on the map of the Caribbean and list them below.



NOTE: It is believed that the Plasmodium protozoa that causes malaria cannot survive where the minimum temperature falls below 16°C (61° F).

Part 6

Does the minimum temperature for any of the cities listed in Part 5 fall below 16° C (61° F)? Circle your response.

Yes No Maybe



List any cities for which your answer is Yes.

Part 7



Are there cities located north of the distribution range of malaria that have minimum temperatures that do not fall below 16° C (61° F)? Circle the names of those cities, in purple, on the map of the Caribbean and list them below.

Given that it does not get too cold for *Plasmodium* in these cities, give reasons why these cities may not have been included in the “malaria area” of the map.



NOTE: Some scientists who study global warming suggest that average temperatures may rise 2° C (3–4° F) in the next 100 years because of increased levels of greenhouse gases that are going into our atmosphere. It is believed that average minimum temperatures will rise faster than average temperatures.

**Part 8**

Assuming that the average minimum temperature will rise 3° C (5–6° F) in the next 100 years, how far north might we expect to find *Plasmodium*?

Why do you think this is so?

Check the minimum temperature data for cities to the north of the malaria zone. If the temperature effect on *Plasmodium* is the limiting factor, draw a line indicating how far north we could expect to find malaria in 100 years. Use a blue pencil to mark the line on the map of the Caribbean.

**Part 9**

Assuming a 6° C (10–11° F) increase in temperature in 200 years, how far north might we expect to find *Plasmodium* in 200 years?

Why do you think this is so?



Use a green pencil to mark the line on the map of the Caribbean.



NOTE: A recent report on locally transmitted malaria in the United States is presented on p. 18 (Appendix D), titled **Malaria**; it shows two maps that contrast locally transmitted malaria in the 1980s with that which occurred in the 1990s.



Part 10

Examine the maps of locally transmitted malaria in the United States. Compare these maps with the others you have examined. What questions should we ask and answer so we may better understand the distribution of malaria in a potentially warming world?



Part 11

Using the Internet, identify another disease affected by climate. Which climate factors affect this disease? Include Web address(es). Use the back of the page if necessary.