

# Investigating Patterns of Lactase Persistence

Name: \_\_\_\_\_

Work as a group to explore patterns of lactase persistence in people from different parts of the world. Your group will explore three patterns: (1) geographic regions, (2) the role of gender, and (3) differences between adults and infants. After exploring these patterns, work as a group to summarize what you learned. To complete this activity, you will use materials on the Evolution and Medicine Web site:

<http://science.education.nih.gov/supplements/evolution/student>

Click on “Lesson 2: Investigating Lactose Intolerance and Evolution,” then “Fill in samples from other researchers,” “View map 2,” and finally, “Add samples.” After finishing a part, you can click on the “Continue” button to access the map.

## Part A: Investigating Geographic Regions

1. Access Map 2, which shows the simulated results from analyses of over 300 people in seven geographic regions.
2. Click on “Explore Lactase Persistence by Geographic Region.” Then click on the seven geographic regions to see a summary graph for each region.
3. Estimate the percentage of people who are lactase persistent and lactase nonpersistent in each region. Write that information in Table 1 (below).

**Table 1. Investigating Geographic Patterns Summary**

<b>Region</b>	<b>Lactase persistent (%)</b>	<b>Lactase nonpersistent (%)</b>
West Africa		
East Africa		
Middle East 1		
Middle East 2		
East Asia		
Northern Europe		
Southern Europe		

4. Make a claim about whether or not lactase persistence varies geographically. Make sure your claim is linked to the evidence in the data table (Table 1).

## Part B: Investigating the Role of Gender

1. Access Map 2, which shows the simulated results from analyses of over 300 people in seven geographic regions.
2. Click on “Explore Lactase Persistence by Gender.” Then click on the “Male” and then the “Female” buttons. Record your observations of the patterns you see.
3. Use information on the map to fill in Table 2.

**Table 2. Lactase Persistence and Gender Summary**

<b>Gender</b>	<b>Lactase persistence</b>	<b>Lactase nonpersistence</b>
Male		
Female		

4. Use the data in the table to make a claim about whether or not lactase persistence is more common in males or females.

## Part C: Investigating the Differences between Adults and Infants

1. Access Map 2, which shows the simulated results from analyses of over 300 people in seven geographic regions.
2. The default map that you see shows lactase persistence or lactase nonpersistence for adults. Click on “Explore Lactase Persistence by Age,” and then the “Infants” button to see a map of the results for infants sampled for lactase activity. Describe the patterns you see in the results.
3. Use information on the map to fill in Table 3.

**Table 3. Lactase Persistence and Age Summary**

<b>Age</b>	<b>Lactase activity (for infants) or persistence (for adults)</b>	<b>No lactase activity (for infants) or lactase nonpersistence (for adults)</b>
Infants		
Adults		

4. Why do you think there is a difference between adults and infants for lactase activity?



