

# The Northeast: America's Gateway to the World

## *Living in the Shadow of the Ice*

### **a lesson on the impact of glaciation on Northeast landscapes**

#### **INTRODUCTION:**

The region we call the Northeast has a very long geologic history. It has seen at least two periods of mountain building (with plate collisions) with long "rest" periods in between. The mighty mountains have been eroded down, mostly by running water. Also smaller in height, they still remain. We know them as the Adirondacks and the Appalachians.

In very recent times the Northeast was invaded several times by huge ice sheets, or glaciers. They modified the landscape by carving deep valleys, and making deposits in the low regions. In this lesson, we will searching for evidences of glaciation.

#### **PART ONE: Vocabulary**

There are many features that are formed by moving ice. Look over the **Geovocabulary List**. Choose any five. Define them below in your own words. Include a sketch, if you think that it will help you viusalize them better.

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(2) \_\_\_\_\_

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(3) \_\_\_\_\_

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(4) \_\_\_\_\_

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(5) \_\_\_\_\_

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Make your sketches here. **Label** when appropriate.

**PART TWO:** *Topographic maps of glaciated places*

The best way to identify glacial features is to see patterns on a topographic map. They are produced by the United States Geologic Survey (USGS). You will go to the **Topozone** website (<http://www.topozone.com>), which has maps from all over the country. Enter the name of the quadrangle you wish to look at, and click on Select. After the map appears, zoom in by clicking on 1:24,000. Look at the brown lines, called contours. They show elevation. If the contours are close together, it means the land is steep; if far apart, then the land is nearly flat.

Fill in the chart on the next page:

<b>QUADRANGLE</b>	<b>Features to Look For:</b>	<b>Contour Sketch</b>	<b>Brief Description of the landscape</b>	<b>Urban or rural? Signs of human habitation?</b>
<b>Palmyra, NY</b>	<b>drumlins</b>			Homes & farms mostly in between the drumlins. Hills are forested.
<b>Barnstable, MA</b>	<b>moraine</b>  <b>outwash plain</b>			
<b>Wilmington, NY</b>	<b>cirques</b>			
<b>Crawford Notch, NH</b>	<b>trough</b>			
<b>Ithaca, NY</b>	<b>trough</b>  <b>hanging valleys</b>			
<b>Southwest Harbor, ME</b>	<b>fjords</b>  <b>glacially eroded mountains</b>			
<b>Jamestown, NY</b>	<b>spillover channels</b>			



Feature 2: \_\_\_\_\_ Location: \_\_\_\_\_


**AERIAL PHOTOGRAPHS:**

Since topographic maps are drawn while the mapmaker views an aerial photograph, it is useful for us to look at these images, too. Log into the internet and then go to Terraserver. Try to find the same images that you used to draw the profiles with earlier. Describe what you observe as you zoom in.

Feature 1:

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Feature 2:

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## **PART FOUR: 3-D MODELS**

In this final activity, you will make a model of a glacial feature using **Geodough**, a kind of homemade clay. To make it you need 1 cup of flour, 1 cup of milk, 1 tsp. of cream of tartar, 1 cup of water, and 1/4 cup of cooking oil. Mix them together and heat the mixture until thick and lumpy. When it cools down, knead the dough. It should be very elastic.

Make your model in a plastic shoe box. Show at least one of these features: drumlins, moraines, m trough, hanging valley, cirque, kettle holes.

Have your teacher check your model first, and then sketch a contour map of your "glaciated landscape." If it helps, flood your model with water 1 cm deep at a time. The shoreline shows where the contour lines should be located.

### **CONTOUR MAP OF GLACIATED LANDSCAPE:**

### **WRAP UP:**

Look at a photo of the United States at night, that shows lights of populated areas. You have looked at seven different locations in the Northeast. Can you locate them on this photo?

Do people tend to live in areas that have glacial erosional features (troughs, glacially-eroded hills, cirques), or in areas with glacial deposited features (drumlins, moraines, outwash plains)? What does this night photo show?

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