

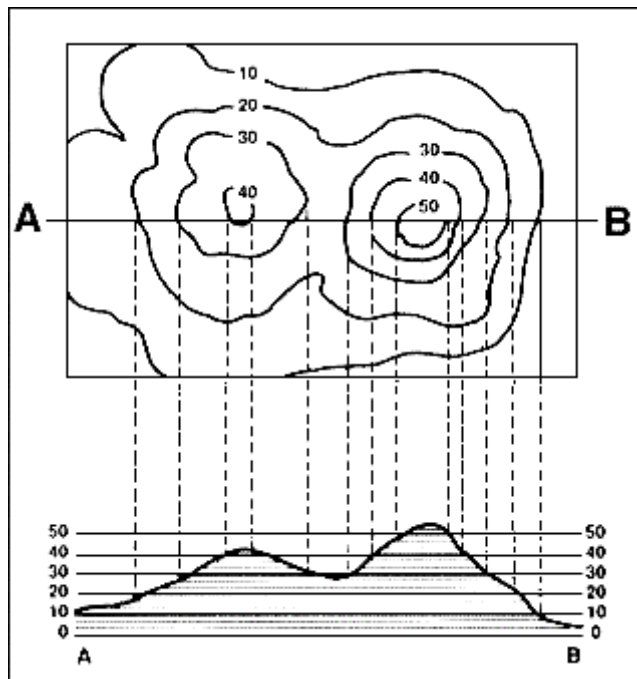
Name \_\_\_\_\_

## Topographic Maps

**Purpose:** To learn to read a topographic map.

**Background Information:** A topographic map is often a very large scale map that shows the shape of the land's surface. **Contour lines** are imaginary lines that connect places of equal elevation. If you were taking a hike along a hillside and not walking either uphill or downhill, you would be walking on a contour line. When contour lines are close together, the slope is very steep. When contour lines are far apart, the slope is very shallow. This type of map is helpful when planning a hike. It is also used when planning the site for a building or the path of a new road. Contour lines sometimes called "level lines" because they show points that are at the same level. Here's how contour lines work:

The top of this drawing is a contour map showing the hills that are illustrated at the bottom. On this map, the vertical distance between each contour line is 10 feet



1. Which is higher, hill A or hill B?

2. \_\_\_\_\_

3. How many feet of elevation are there between contour lines?

4. \_\_\_\_\_

5. How high is hill B?

6. Are the contour lines closer together on hill A or hill B?

\_\_\_\_\_

### Materials:

|                  |                         |                         |
|------------------|-------------------------|-------------------------|
| Clay or Play-Doh | 2 sheets of plain paper | 1 piece of fishing line |
|------------------|-------------------------|-------------------------|

Adapted from activities at:

<http://www.nationalgeographic.com/xpeditions/lessons/01/g68/dogstails.html>

<http://erg.usgs.gov/isb/pubs/teachers-packets/mapshow/activity4.html>

[http://www.windows.ucar.edu/tour/link=/teacher\\_resources/teach\\_taterland.htm](http://www.windows.ucar.edu/tour/link=/teacher_resources/teach_taterland.htm)

**Procedure:**

1. Put your clay on the sheet of paper.
2. Shape the clay into a mountain.
3. Mark the peak of the mountain with a dot.
4. Draw a straight line that passes through the dot while running from "north" to "south" across the mountain. Draw a second line—running "east" to "west"—perpendicular to the first. The mountain should now appear to be divided into quadrants. These *orientation lines* will be important later.
5. Draw three rings around the center dot. One should be a quarter of the way down from the peak; the next should be halfway down; and the third should be three-quarters of the way down.
6. Holding the fishing line taut, use it to slice through the clay along the lines you have just drawn. You should wind up with four layers.
7. Place the bottom layer on a fresh sheet of paper and outline it.
8. Mark where the orientation lines meet the paper.
9. Take the clay off the paper. Center the next layer within the outline, using the orientation lines to make sure the clay is in the right position. Outline this layer. Then do the same thing with the remaining two layers.
10. This is the beginning of your topographic map.
11. Color each layer and create a map key. [Note: Do not use blue, which is reserved for representing water.]
12. Your contour lines should be fairly evenly spaced because you sliced your mountain evenly.

**Questions:**

1. Look at the picture below. It shows a river valley and several nearby hills. On the illustration, locate and label the following things:

- A church
- A bridge over the river
- An oceanside cliff
- A stream that flows into the main river
- A hill that rises steeply on one side and more smoothly on the other.



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2.



Here is a **topographic map** of the same place. Find the items you located on the illustration on the topographic map.

Circle the symbol for a church.

Draw a church symbol here.

Put a square around the map symbol for a bridge.

Draw a bridge symbol here.

Put an X on the oceanside cliff.

What is the elevation of the contour line at the top of that cliff?

3. Locate a stream that flows into the main river. Draw a pencil line down that stream. Put an X where the stream joins the main river. On a real **topographic map**, streams are shown in blue and contour lines are shown in brown.

4. Find the hill that rises steeply on one side and more smoothly on the other. On the **topographic map**, draw a path up the gentler slope of the hill to the highest point. (Hint: remember that when contour lines are close together, the ground is very steep.) Draw a path showing a very steep way up the hill.

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5. Tell how you might use a **topographic map** if you were selecting:

1. A route for a hike.
  
2. The best location for an airport.
  
3. A route for a new road.

6. Use the attached **topographic map** of Salt Lake City and nearby mountains to answer the following questions.

What is the approximate elevation of the State Capitol?

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Would you be walking uphill or downhill to go from the State capitol to Pioneer Park?

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Suppose you lived by Fremont School. Find and describe at least three ways you could get from your house to the State capitol.

List things you would see along the way.

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