

Physical Features of North America

Social Studies Learning Outcome:
Students will:

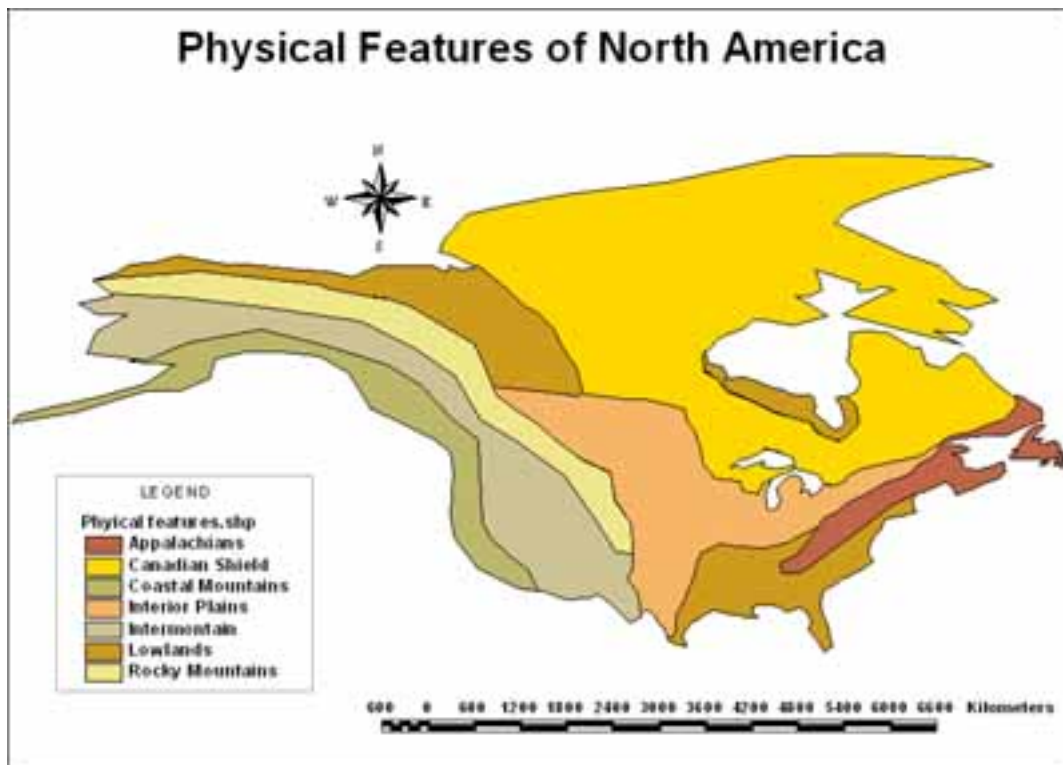
S2-KL-012 Locate major physical features on a map of North America.

Grade Level: Grade 10

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Introduction

The purpose of this activity is to give students experience using ArcView at a beginning level as well as witnessing some of North America's physical features. It is suggested that the teacher download the needed files and place them on a shared drive or on the hard drives in the individual computer drives. This activity is appropriate for the new Social Studies Senior 2 curriculum.



Required Files

Downloadable files:

Physical Features.dbf

Physical Features.shp

Physical Features.shx

From the ArcCanada 3.0 Disk 3
Continental/na/shp/cont_bnd.shp

Continental boundaries

Instructions

1. First, download the needed spatial data for this lesson (physical_features.zip), and “unzip” it to a folder of your choice.
2. Three files are included in the format used by ArcView
 - Physical Features.dbf
 - Physical Features.shp
 - Physical Features.shx
3. Start ArcView and in the small inside window, put a dot in the radio button that says, *Create a new project with a new View* (Figure 1). Push **OK**.



Figure 1 – Opening window of ArcView

You will now be asked if you want to add data to the new view, and you can answer **YES**.

4. Now, add some maps to the blank view. Go to the **Add Theme** dialog box, which was opened automatically, and on the bottom right hand corner open the drive drop down list and select the drive where the data you downloaded above is located. (Figure 2)

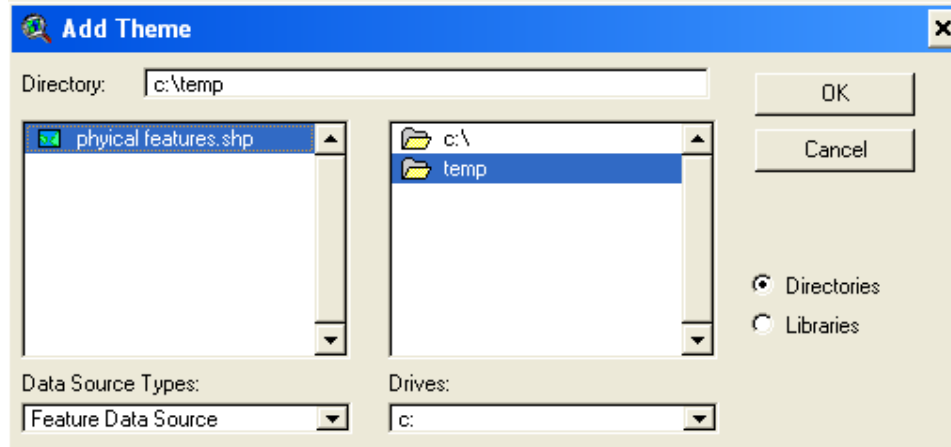


Figure 2 – Selecting drives from the Add Theme dialog box

5. Select the folder where you placed the physical feature files. When **physical features.shp** appear, select the file by double clicking on it, or single clicking and selecting **OK**.
6. For this exercise we will be using more than one theme so click on the **Add Theme** tool (📁) and find ArcCanada Disk 3. Double click on **continental**, scroll down to **na** (North America) and double click. Select **shp** by double clicking and finally choose **cont_bnd.shp** (continental boundaries) from the left column. By double clicking, you now have both themes needed for this activity.
7. To make the themes visible, click on the tiny box in the upper left by the theme names. This will put a check mark in the box. (Figure 3)

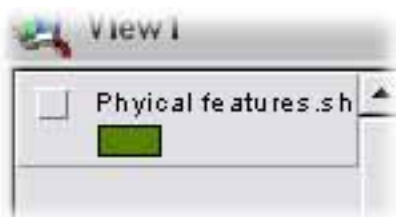


Figure 3 – Selecting the visibility of the Physical Features theme

8. In order for the physical features to appear, click on and drag the **cont_bnd.shp** theme below the **Physical Features .shp** theme. Can you

see the difference between the appearance of the two themes?

Cont_bnd.shp should have a raised appearance. This means the theme is *Active*. (Figure 4)

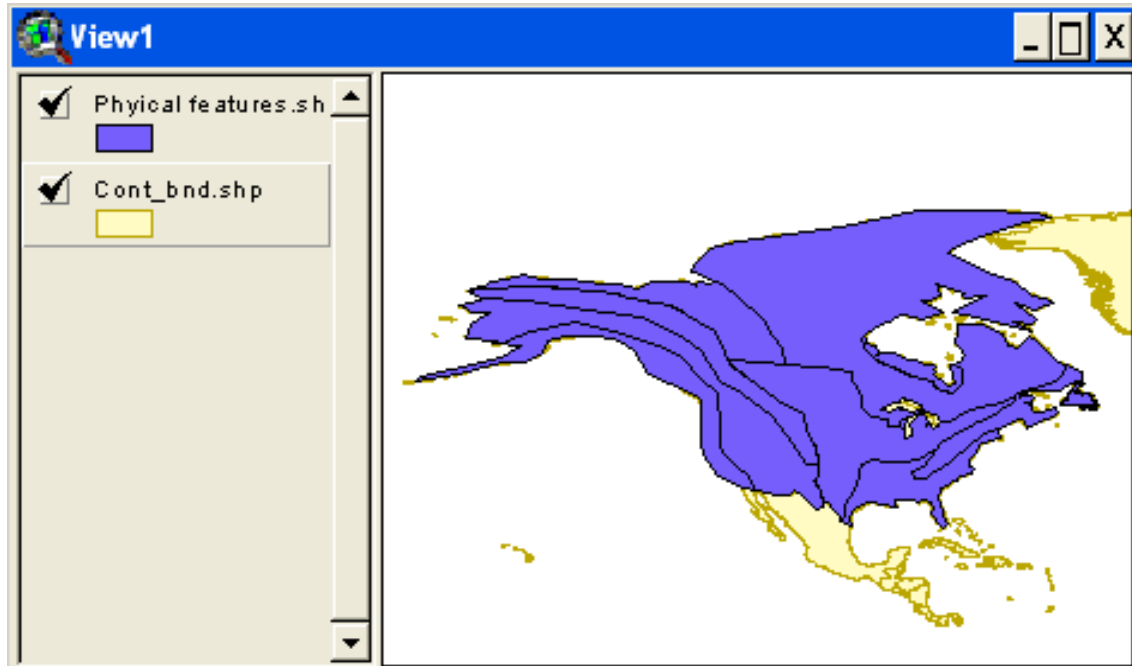



Figure 3 – Making the Cont_bnd.shp the active theme.

9. At this point the **View** looks quite plain, as all of the features are the same color. Let's change this!
10. Make the **physical features.shp** theme active by single clicking on it.
11. Go to the **Open Themes** table button () and single click on it. A table will appear showing you that there are 10 polygons drawn to create this theme. Beside each is a name given for each physical feature.
12. Give each physical feature a separate color. (Figure 4)
 - Close the theme table and double click on the **Physical Feature.shp** theme to open the **Legend Editor**.
 - At the top of the **Legend Editor**, locate *Legend Type* and change it from a single symbol (one color) to *Unique Value* (different color for each value)
 - Under the *Values* field change *none* to *physical_*.
 - You've now given default colors to seven different physical features of North America. The color scheme given is *bountiful harvest*. You can select a different color scheme if you choose.

- Click **Apply** in the bottom right of the **Legend Editor** to see your results.
- Close the **Legend Editor**.

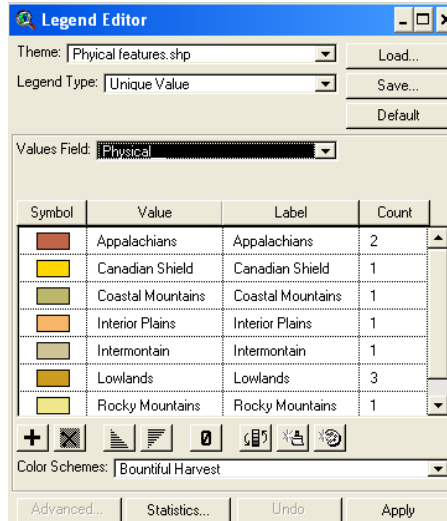


Figure 4 – Changing the colors of the physical features theme.

13. Select **Theme** on the top menu bar (single click). Select **Properties**. On the left column, select **Text Labels**. (Figure 5)
 - Under **Label Fields** make sure *Physical Features* is selected (this is the field where the names are located for these physical features).
 - Click **OK**.

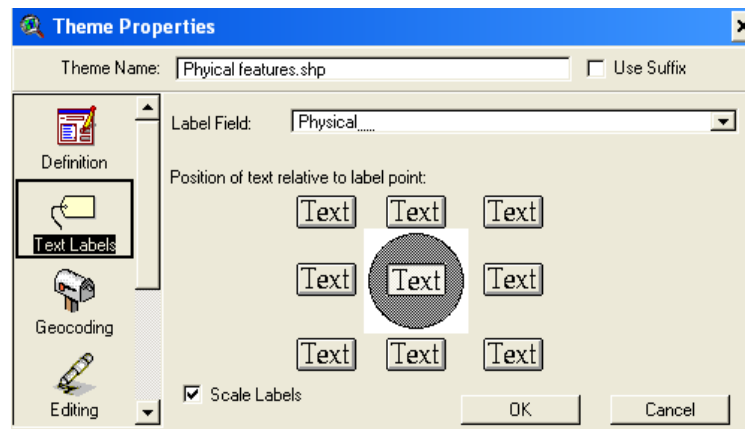




Figure 5 – Changing the labeling properties for the Physical Features theme.

14. Using the **Label Tool** ()

- Use the pull down menu to review the different label types. Select the **TL** call out label button. ()
- Now click on a area on the map that is colored (polygon) and drag a short distance (approx. 2/3 cm). Release and a label should appear. Label the entire map. If you want to delete the label, select the *pointer tool*  , select the label and press the delete key.

15. Creating a Layout

- Click on the **View** menu.
- Select **Layout**. (Figure 6)

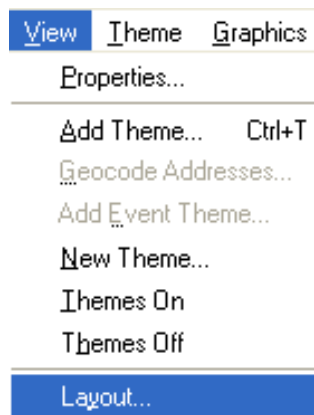




Figure 6 – Layout menu.

- Select a *Landscape* or *Portrait* layout.

16. Like magic, your map will now appear in your layout document. ArcView has automatically given your map a default title, legend, north arrow and scale bar. You will need to change these to create a proper layout. Begin by using the **black pointer arrow** button () double click on the title and replace *View 1* with a more appropriate title and click **OK**. The new title has *handles* around it, which means you can select the black pointer arrow and move or enlarge the title by dragging the handles.

17. You can make similar adjustments to the north arrow, legend, or scale bar, by selecting them with the **black pointer arrow** or by doubling clicking the feature you would like to adjust. You may wish to select a new scale bar that shows kilometers rather than miles. Be sure to select *view 1* in the **ViewFrame** box, otherwise you will have an empty scale bar.

18. Finally, add your name to the project. Select the **Text** button on the toolbar () , then click in the bottom right corner of your layout, and type your name in the **Text Properties** dialog box. Before you save your final project, make sure it meets all the cartographic requirements of good geography.