Canada, North America and the World Natural Resources

Social Studies Learning Outcomes:
Students will:

7-KL-028 Describe diverse approaches to land and natural resource use in a society of Europe or the Americas.

S2-KL-019 Identify major natural resources on a map of the world, a map of North America, and a map of Canada.
Include: water, forestry, fossil fuels, metallic and non-metallic minerals.

S2-KG-035 Identify implications of more-developed countries extracting resources from less-developed countries.
Examples: social, political, economic...

S2-KP-041 Identify ways in which competing interests and needs influence control and use of the land and natural resources in Canada.
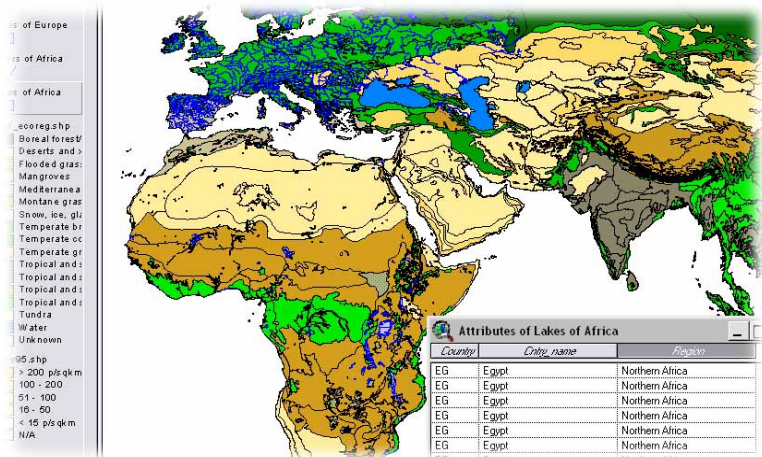*Examples: mining, forestry, water...*

S2-VI-003 Be willing to consider diverse views regarding the use of natural resources.

S2-VP-009 Be willing to consider the implications of personal choices regarding natural resources.

Author: Serge Richer, Swan Valley Regional High School

Introduction

The natural resources of the world are spread unevenly across the landscape, and it is the nature of *world trade* that levels the playing field. As needs become greater while supplies dwindle, the remaining natural resources will become even more important than they

are currently. We can, in the following project, get an accurate idea where some of the world's resources are located, and can begin to see who the large trading partners will be, and where the major trade routes will occur.

During this exercise you will learn about the location of Natural Resources of Canada, of North America, and of the world, water, forest resources, fossil fuels, metallic and non-metallic minerals. These are the building blocks of our modern world and ultimately determine the economic fate of all who continue to pursue the current technology and standard of living.

Required Files

From the ArcCanada 3.0 Disk 3:

World/shp/cntry95.shp	*Various variables for each country of the world, eg. Life expectancy, migration rate.*
World/shp/wwf_ecoreg.shp	*World Wildlife Fund Ecoregions*
World/shp/minerals.shp	*World minerals*
Continental/af/shp/lakes.shp	*Africa lakes, reservoirs and larger rivers*
Continental/af/shp/rivers.shp	*Africa major rivers*
Continental/as/shp/lakes.shp	*Asia lakes, reservoirs and larger rivers*
Continental/as/shp/rivers.shp	*Asia major rivers*
Continental/eu/shp/lakes.shp	*Europe lakes, reservoirs and larger rivers*
Continental/eu/shp/rivers.shp	*Europe major rivers*
Continental/na/shp/lakes.shp	*North America lakes, reservoirs and larger rivers*
Continental/na/shp/rivers.shp	*North America major rivers*
Continental/oc/shp/lakes.shp	*Oceania lakes, reservoirs and larger rivers*
Continental/oc/shp/rivers.shp	*Oceania major rivers*
Continental/sa/shp/lakes.shp	*South America lakes, reservoirs and larger rivers*
Continental/sa/shp/rivers.shp	*South America major rivers*

Instructions

1. 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*. Push **OK**.
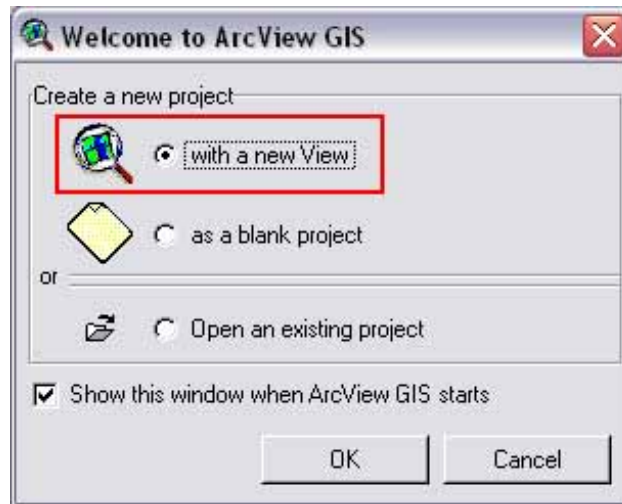
Figure 1 – Opening window of ArcView

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

2. Now, add some maps to the blank view. Go to the **Add Theme** dialog box, on the bottom right hand corner open the drive drop down list and select the drive where the data is located (Figure 2). If you don't know which drive it is in, ask your instructor.
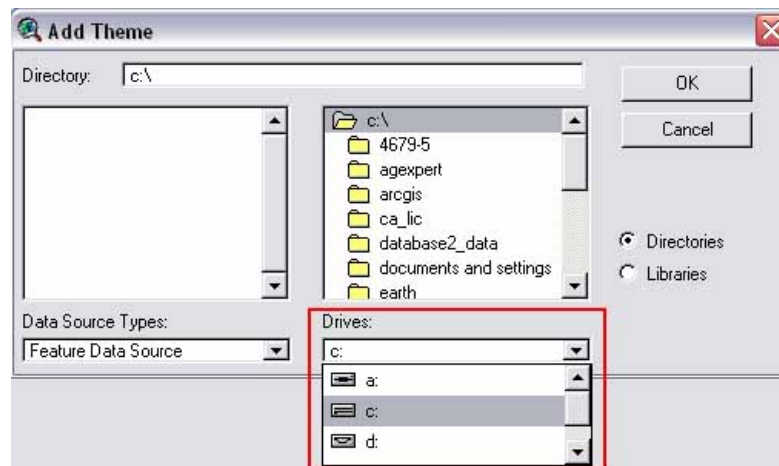

Figure 2 – Selecting drives from the Add Theme dialog box

3. Scroll down the list until you find the ArcCanada data, and then select it (highlight the name) and click **OK**.

4. Scroll down the list on the right column, select *World* and click **OK**. Choose **SHP** out of the list of sub-folders, and click **OK**.

5. A list of *themes* appears on the left column. Hold down the SHIFT key while you select the themes **cntry95.shp** and **wwf_ecoreg.shp**. Then click **OK**.

6. Maximize the View window. Two themes are listed in the table of contents on the left side of the View window.

7. Check the small boxes of each theme to *turn the themes on* (Figure 3). You will notice that the **ecoreg.shp** theme is at the top of the list, and that it is the only theme that shows. If you use your mouse to drag the **cntry.shp** theme to the top, it will cover the **ecoreg.shp** theme, and you will only see the countries. Arcview always draws the theme at the bottom of the table of contents first, and every other theme draws on top of that. The theme that is on the top always draws last, and will show on top of the other themes. Move the **cntry.shp** theme back down to the bottom so that the view represents the different forest zones of the earth.
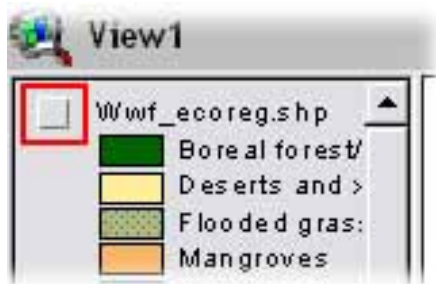

Figure 3 – Turning themes on / off

8. Since we need more themes to show minerals, fuels, etc. we will add some more themes to the view. Go to the top row of buttons, and click on the **Add theme** button ( )

9. When the **Add theme** dialog box opens, double click on the ArcCanada title again, and in the new list on the right side, select *Continental*. You will see a list of sub-folders with the abbreviated names of continents appear in alphabetical order: **af** (Africa), **an** (Antarctica), **as** (Asia), **eu** (Europe), **na** (North America), **oc** (Oceania), and **sa** (South America). Select a continent **af** (Africa) by double clicking on it, you will see the sub-folders: **layer, shp** and **tables** below. Double click on **shp.** This will open up a list on the left column. Holding down the SHIFT key, select **lakes.shp** and **rivers.shp**. Click **OK**. You should see those two themes appear in your table of contents (Figure 4). Click in the small square to put a check mark in the box and turn the theme on. Since we will do this operation for each continent to see where their water resources are, we

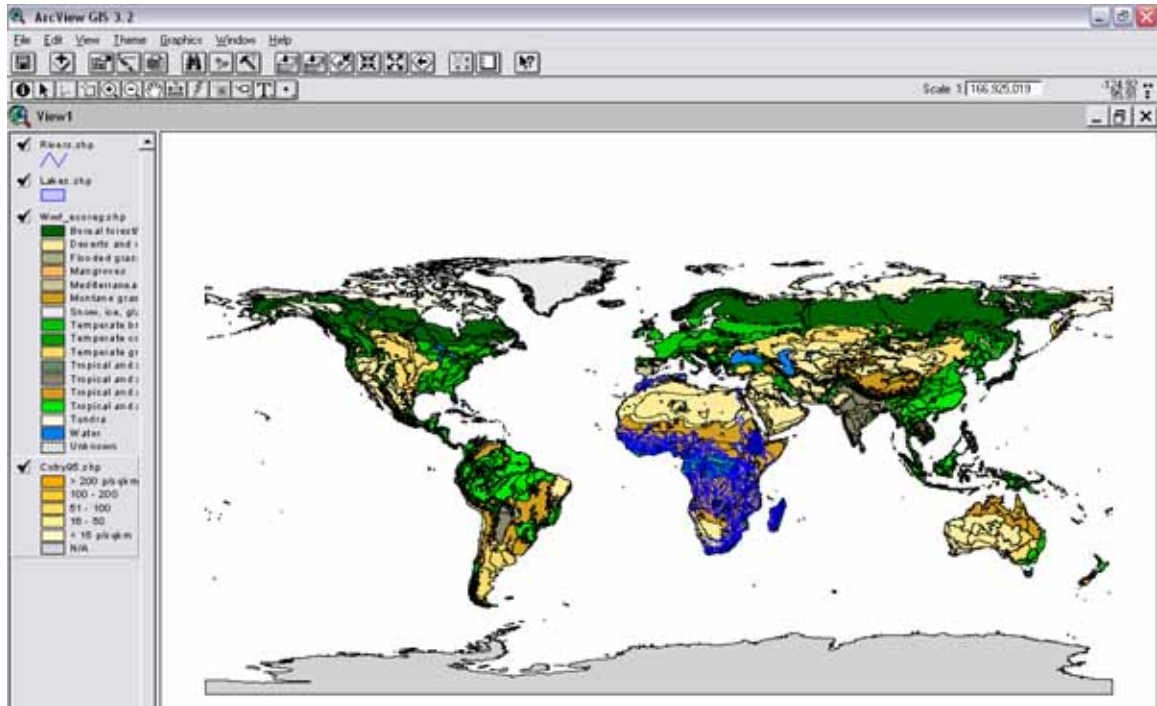will rename the themes to keep the Rivers and Lakes from becoming confused.

Figure 4 – What your view should look like after step 9.

10. When you click once right on a theme name, the theme tag seems to *pop out* higher than the other themes, this is called *making a theme active*. To rename each of the themes, we will use the following method.

11. Make the theme **lakes.shp** active. Select **Theme** from the top menu bar. Click on **Properties** and in the dialog box that opens up, highlight **lakes.shp** and type *Lakes of Africa* (Figure 5). Click **OK**. Your theme in the table of continents should now read *Lakes of Africa.* Now do the same procedure for renaming the *Rivers of Africa.*

Figure 5 – Theme properties dialog box.

12. Using the same **Add Theme** procedure go to each continent on the list that you want the water resources for, and add the themes *rivers and lakes* and rename them each time so that you can see the correct theme names in the table of contents.

13. Using the **Add Theme** button (⊞), return to the **Add Theme** dialog box, and double click *World*. Then, double click the sub-folder **shp.** In the list of themes that opens up on the left, select **minerals.shp.** Click **OK.** You should now have the new theme **minerals.shp** in your table of contents. By clicking the small box in the theme name, the mineral deposits of the world will be visible. Remember that the order of your table of contents will determine which theme shows above the others. Sometimes you do not want all your themes showing simultaneously, as it just becomes a jumble of color. To clearly view your mineral deposits, turn off (*uncheck*) all themes except for **cntry.shp** and **minerals.shp**. For water themes to show, uncheck all themes except **cntry.shp** and **rivers and lakes**.

14. Now that you have all the themes added in to your project, save the project so that you will not loose all your hard work by accident. Select *File* from the menu (top left hand corner). Choose *Save Project as.* On the bottom of the **Save As** dialog box select the drive where you want to save your project. Then choose the folder where you would like to place the file, and give your project a name that you will recognize. Click **OK**.

15. If you choose to do some exploration, and find out what kind of information is associated with any of the themes, e.g., **Minerals**. Make the theme active (pop it out) and then click on the **Open Theme Table** button . It is the button on the top row, fifth from the left end. (▦)

16. The table that opens has seven fields that give information on the *name of the deposit*, the *type of mineral*, *its group*, *contents*, *country where found* and *the size of the deposit.* There are a total of 363 records in the table and these records can be used to give other information as well. To go back to the view (map), click on the **x** on the top right side of the table to close this view (not the project window) and the map view will return.

17. To view the contents of any theme, first *make it active*, then open its table the same way as above. Scroll down or across the table to find what kind of information is present. Try that with the **ecoreg.shp** theme, and see the types of regions and vegetation that cover the earth.

18. To identify a feature on your map, first select the theme where your feature of interest is, and **make it active**. Choose the **identify tool** (🛈) and click the feature that you want to identify. Scroll down the table that appears, and see what kind of information it displays. (Figure 6)
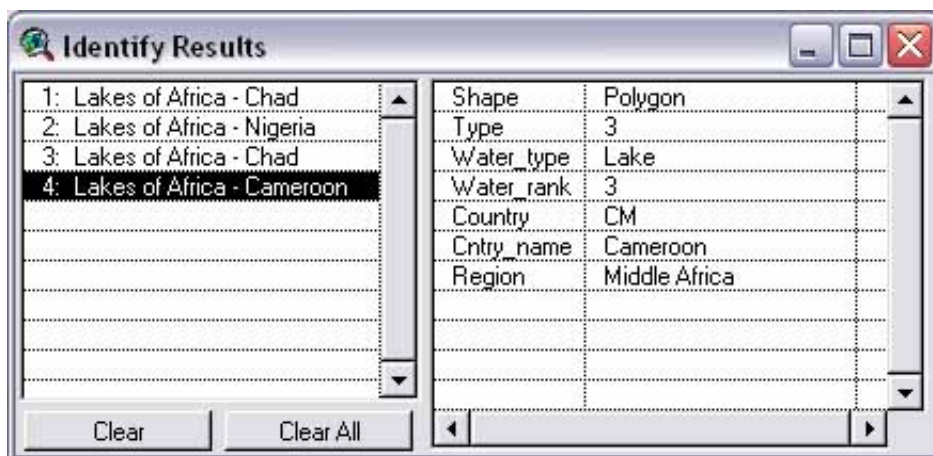

Figure 6 – Identify results.

Summary

These instructions are just the beginning of the acquisition of many GIS skills that one can learn to explore the planet and extract limitless information about resources, populations, land features, and other topics. Geographers and others seek to organize their world and offer important solutions to real problems that

plague us. These skills give students the tools to become valuable contributors to industry and business in their future, and to be part of the solution to the many problems that we face in our world.