

# Labeling Features

ISTC Topic:

3.4

## In this Chapter you will learn

- How to label points, lines and polygons.
- How to set visibility scales on labels
- How to create and move around annotation

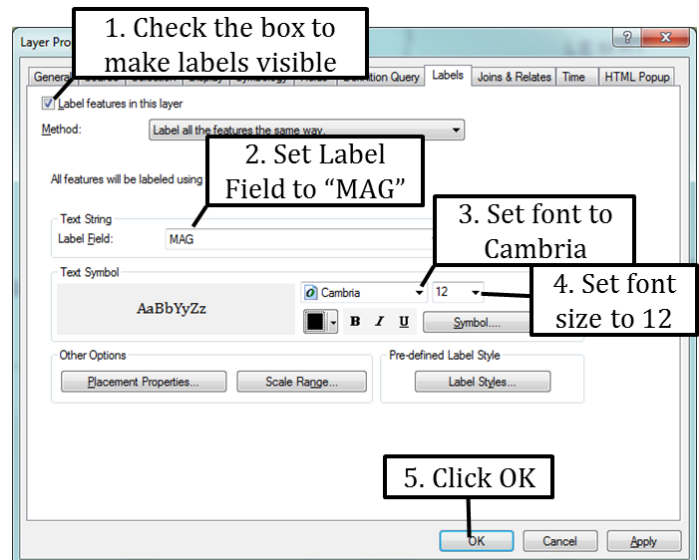


3.4 Labeling Points

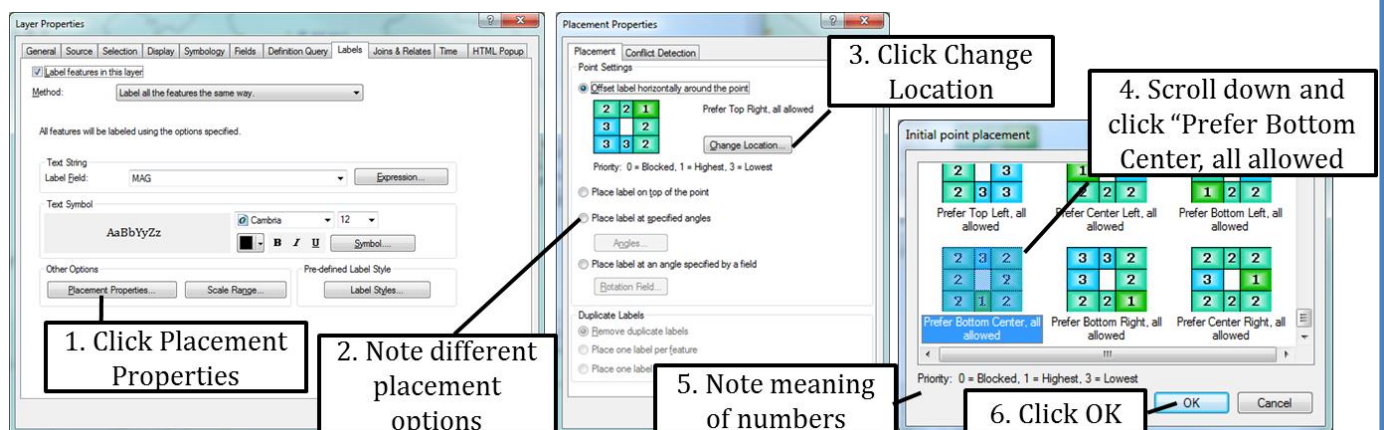
## 1. Creating labels for points, lines and polygons

### Exercise 1: Labeling points

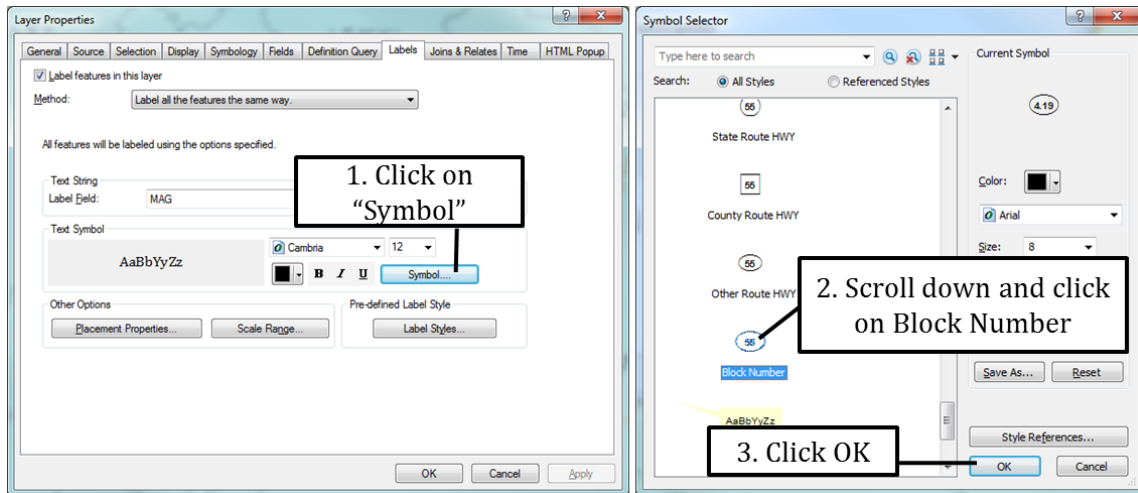
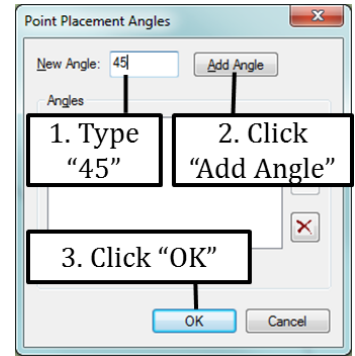
1. Open Exercise1\_Labeling\_Points.mxd in the Topic3\_4 folder. You will see a map of Idaho showing historical earthquakes. In this exercise we will label those points in a number of different ways.
2. Click Bookmarks near the top of your screen and go to Custer County.
3. Open the properties for the Earthquakes layer and go to the Labels tab. Set up labeling as shown on the right. Examine the labels on your map. Do you like your labels?
4. Next we will ensure that the labels are placed below the points. Open the Layer Properties again and go back to the Labels tab.



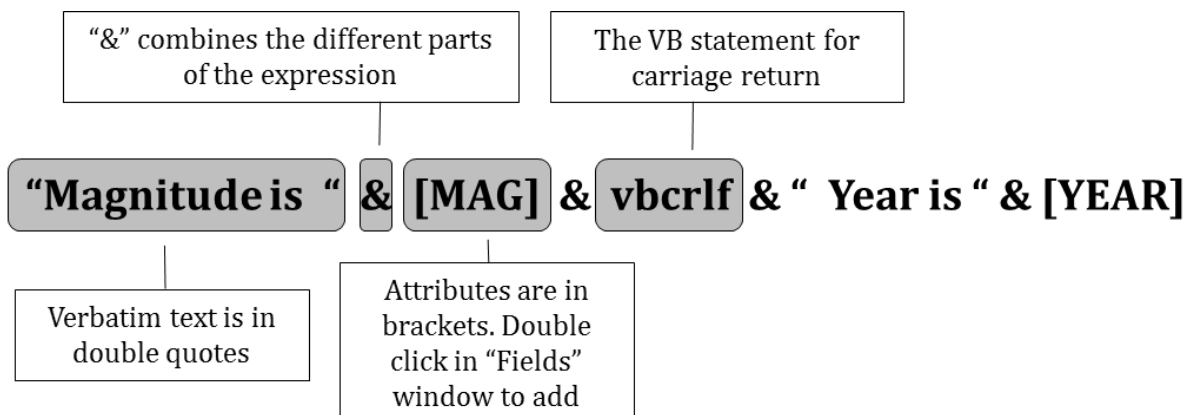
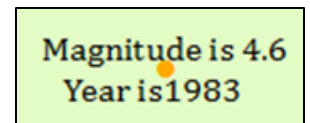
5. Follow the instructions below to specify the placement of the labels as bottom center.

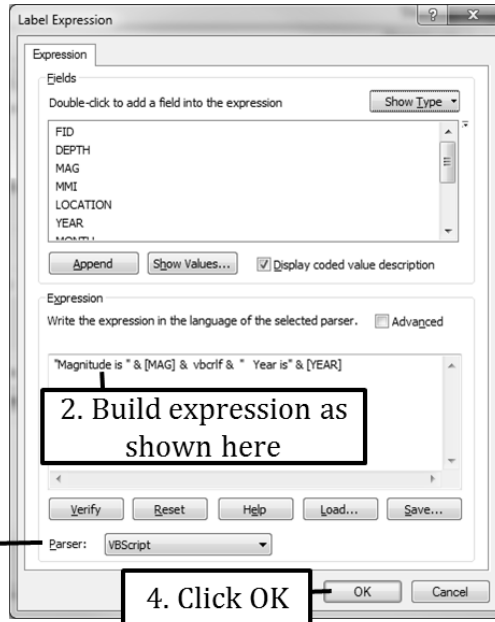
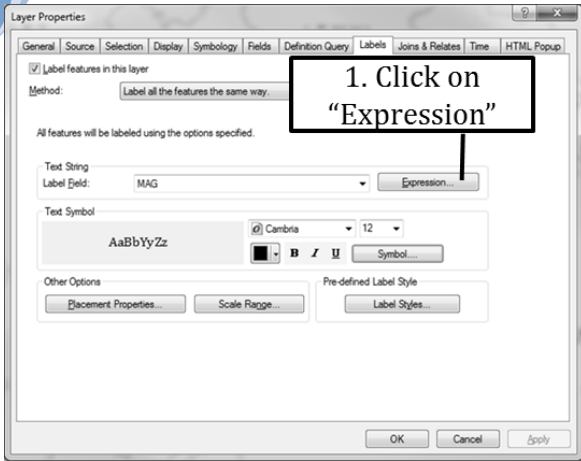


- Click OK and OK again to view the labels on your map.
- Go back to the Label tab of the Earthquakes Layer Properties. Click on Placement Properties and then on "Place the labels at specified angles". Complete the Point Placement Angles as shown on the right.
- Finally place the labels on top of the point by choosing "Place label on top of the point". Experiment more with the placement of a label if you wish.
- There are a number of predefined Symbols and Label Styles. Click "Symbol" on the Labels tab in the Layer Properties. Follow the directions in the figure below.



- Click the Placement Properties and make sure the label is placed on top of the point. If you like this type of symbology you may consider setting the symbol to "No Color" (on the Symbology tab) so that only the labels are visible.
- This shapefile has information on both Earthquake magnitudes as well as the time this Earthquake took place. Next we will label each earth quake with both the magnitude and the year as shown on the right.
- Open the Labels tab in the Layer Properties. Follow the directions below to set up the following VB Expression:

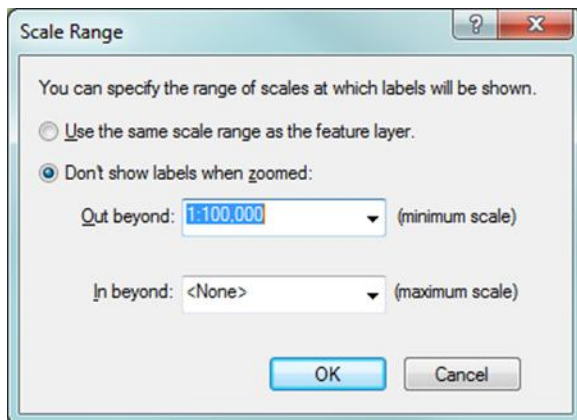
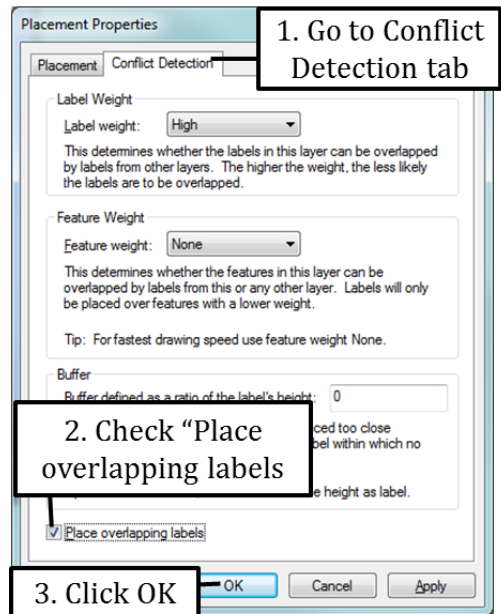




3. Ensure Parser is VBScript. Then click Verify

4. Click OK

13. Click OK and view your labels on the map. When you are zoomed out you may notice that many of the labels are not placed to avoid overlaps. Go back to the Labels tab in the Layer Properties and click on Placement Properties. Follow the direction on the right to place overlapping labels.
14. Zoom in and out to experiment with this label setting. You will probably find that the labels work best when you are fairly closely zoomed in, for example to a scale greater than 1:100,000.
15. To make labels only visible when you are zoomed in closer than 1:100,000, click on "Scale Range" and set the Scale Range as shown below.

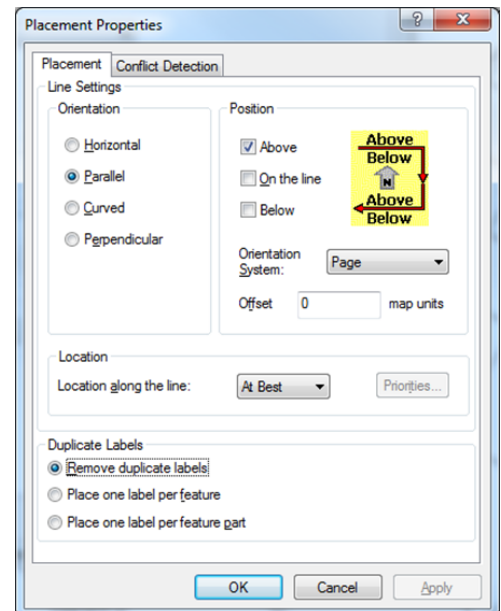
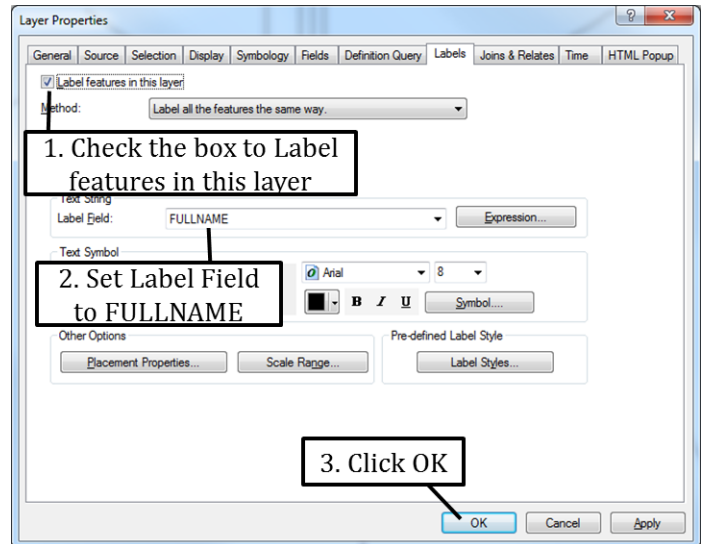




### 3.4 Labeling Lines

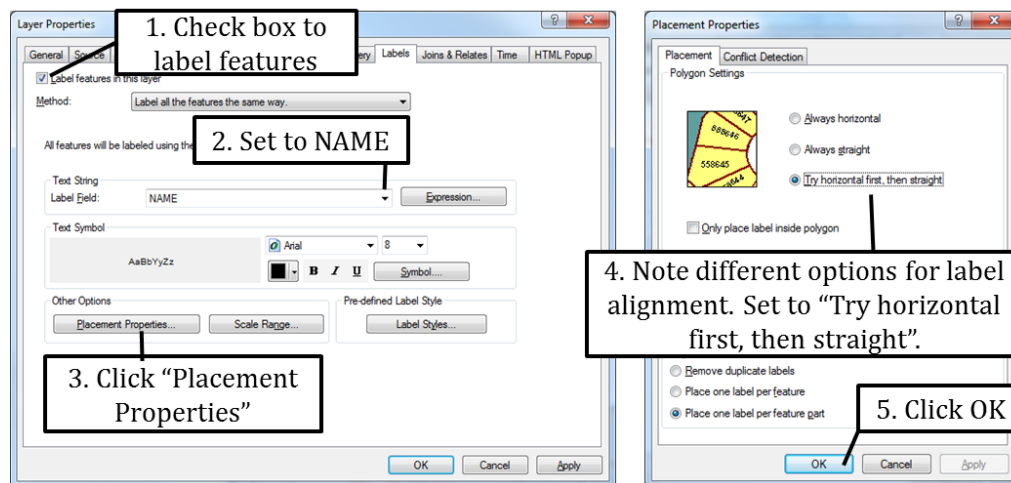
## Exercise 2: Labeling lines

1. Open a new map document and add the Roads shapefile from the Topic3\_4 folder.
2. Open the attribute table and note that the roads names can be found in the FULLNAME attribute.
3. Open the Layer Properties and go to the Labels tab. Use the instructions on the right to label the roads with their names.
4. There are a number of options for aligning labels along lines. Open the Layer Properties again and go to the Labels tab.
5. Click on Placement options.
6. Go to the Placement tab. Notice that you have different options to orient your labels (i.e. Horizontal, Parallel, Curved and Perpendicular) as well as a choice to place your labels above, on or below the lines. Experiment with different combinations of Orientation and Position, for example Curved and Below the line.

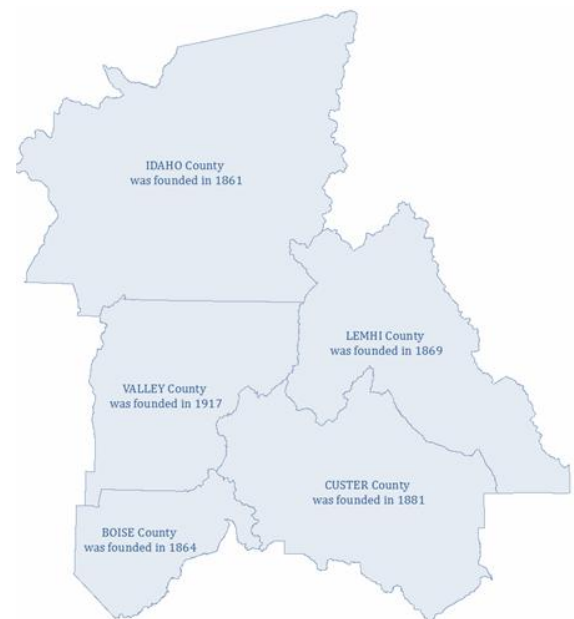


### Exercise 3: Labeling polygons

1. Start ArcMap and open a new map document. Add the Countied\_2008\_Pop\_Founded shapefile from the Topic3\_4 folder.
2. Open the attribute table and note the attributes for the name of the county (NAME) and the year it was founded (FOUNDED). We will use both attributes to label your map.
3. First let's take a look at the options available to you when you symbolize polygons. Follow the instructions below to display the name for each county.



4. Click Apply in the Layer Properties dialog box and view the orientation of the labels on your map.
5. Next we want to label each County with their name and founding date in the following format: "Ada County was founded in 1864".
  - a. Go to labels tab and click "Expression"
  - b. Set expression to: [NAME] & " County" & vbCrLf & " was founded in " & [FOUNDED]
  - c. Click OK and OK again to view you map.
6. Change the placement properties of your labels so labels are always displayed horizontally.





### 3.4 Using different labels for different classes

#### Exercise 4: Using different labels for different classes

1. Open the Exercise4\_Labeling\_Categories map document. Notice that there are two different road types displayed on the map: "M" for the minor roads and "U" for the major roads. We want to apply different labels to each group.
2. Open the Layer Properties and go to the Labels tab. Follow the instructions below to set up labeling

1. Check "Label features in this Layer"

2. Use drop-down box and select "Define classes of features and label each class differently".

3. Uncheck this box since we do not want to see the labels for "Default"

4. Click "Add..."

5. Type "M" for Class Name

6. Click OK

7. Click "SQL Query..."

8. Build "RTTYP" = "M"

9. Click OK

10. Notice that "M" has been added

11. Accept default font and font size (i.e. do nothing)

12. Click "Add..." to set up Class for "U" roads.

13. Type "U" for Class Name

14. Click OK

15. Click "SQL Query..."

16. Build "RTTYP" = "U"

17. Click OK

18. Set font size to 14 and make font bold.

19. Click OK



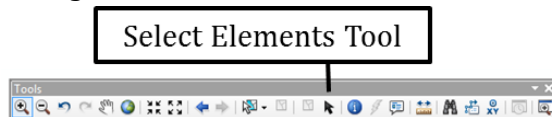


### 3.4 Creating and using annotation

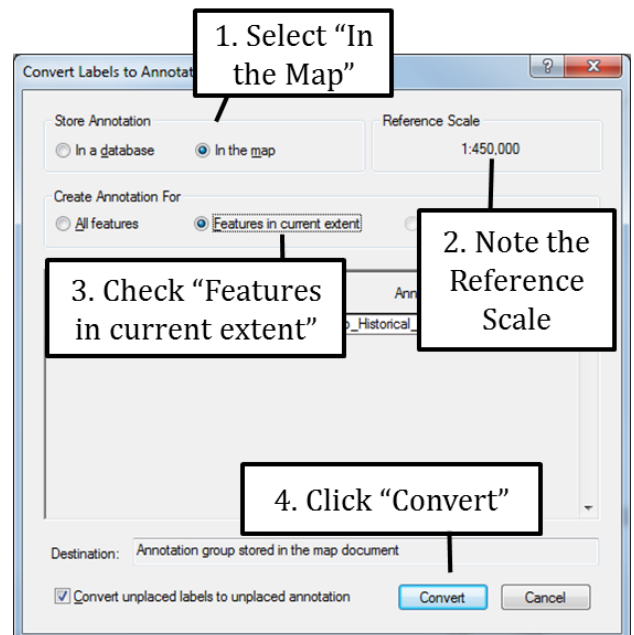
## Exercise 5: Creating and using annotation

1. Open the Exercise5\_Using\_Annotation map document in the Topic3\_4 folder.
2. Open the properties for the Earthquakes layer and go to the Labels tab. Label each earthquake with the MAG (for magnitude) attribute. While on the Labels tab, click on Placement Properties and go to the Conflict Detection tab. Check the box in front of “Place overlapping labels”.
3. Take a look at your map. While the placement of the labels is not bad, you may want to click and drag some of the labels to a better location on your map. Unfortunately, your labels are currently in a format that does not allow you to do that. Annotation does give you that flexibility.

4. Right-click on the Earthquakes layer in your table of contents and select “Convert Labels to Annotation”. Complete the dialog box as shown on the right.



5. In ArcMap click on the Select Elements Tool and then click on a label. You should be able to grab that label and move it around. (Hint: you need to be in Data View since you cannot select labels in Layout View).
6. Double click on one label with the Select Element Tool to open up its properties. Note that you can change the Text as well as the Symbol (i.e. font type and size) for your label. Close the Properties box.



7. You can turn annotation on and off by right-clicking on the word “Layers” in the table of contents and going to the Data Frame Properties > Annotation Groups tab. By checking or unchecking the box in front of the annotation layer you just created you can turn the annotation on or off.
8. Creating an annotation layer as we did in this exercise works well when you need to produce a one-time map, or if you are working with static data. A drawback of the annotation we just created is that any future changes made to the earthquakes attribute table, for example an updated magnitude value, is not automatically updated in the annotation layer you just created. If you are using ArcGIS Standard (formerly ArcEditor) or ArcGIS Advanced (formerly ArcInfo) you can consult ISTC topic 3.5 titled “Intermediate labeling” to learn about feature linked annotation that does update every time a change to the underlying attribute table is made.