Introduction to Raster GIS

In Lab today, you will learn how to:

(1) store geographic information with a **Raster Data Model**
(2) organize a workspace with **ArcCatalog**
(3) work with three tools in **ArcToolbox** and **ArcMap**
(4) work with layers in **ArcMap**

You'll learn these things by solving a problem with a GIS. We'll take the instructions outlined in the reading from *A Pattern Language* (Figure 1) and apply them to a portion of the Middlebury Campus (Figure 2).

Your goal is to create a table that reports the percentage of land that is devoted to parking cars in each parking zone. To do this, you must complete the workflow outlined below. Instructions for the first step are attached. After you complete this step, you should then follow along with the YouTube playlist to complete the rest of the workflow.

When you are done, you must show your results to an instructor before you are excused from lab.

Step	Task
1	Classify image by hand
2	Create a raster model with a text file
3	Set up a place to work on a project
4	Convert text file into an ArcGIS Raster
5	Multiply parking locations and zones
6	Calculate area of parking for each zone
7	Calculate percent area of parking in each zone

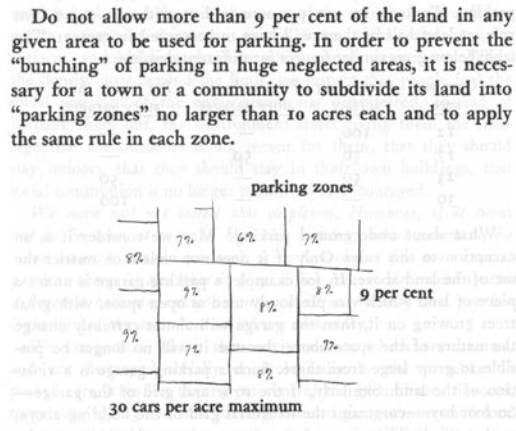
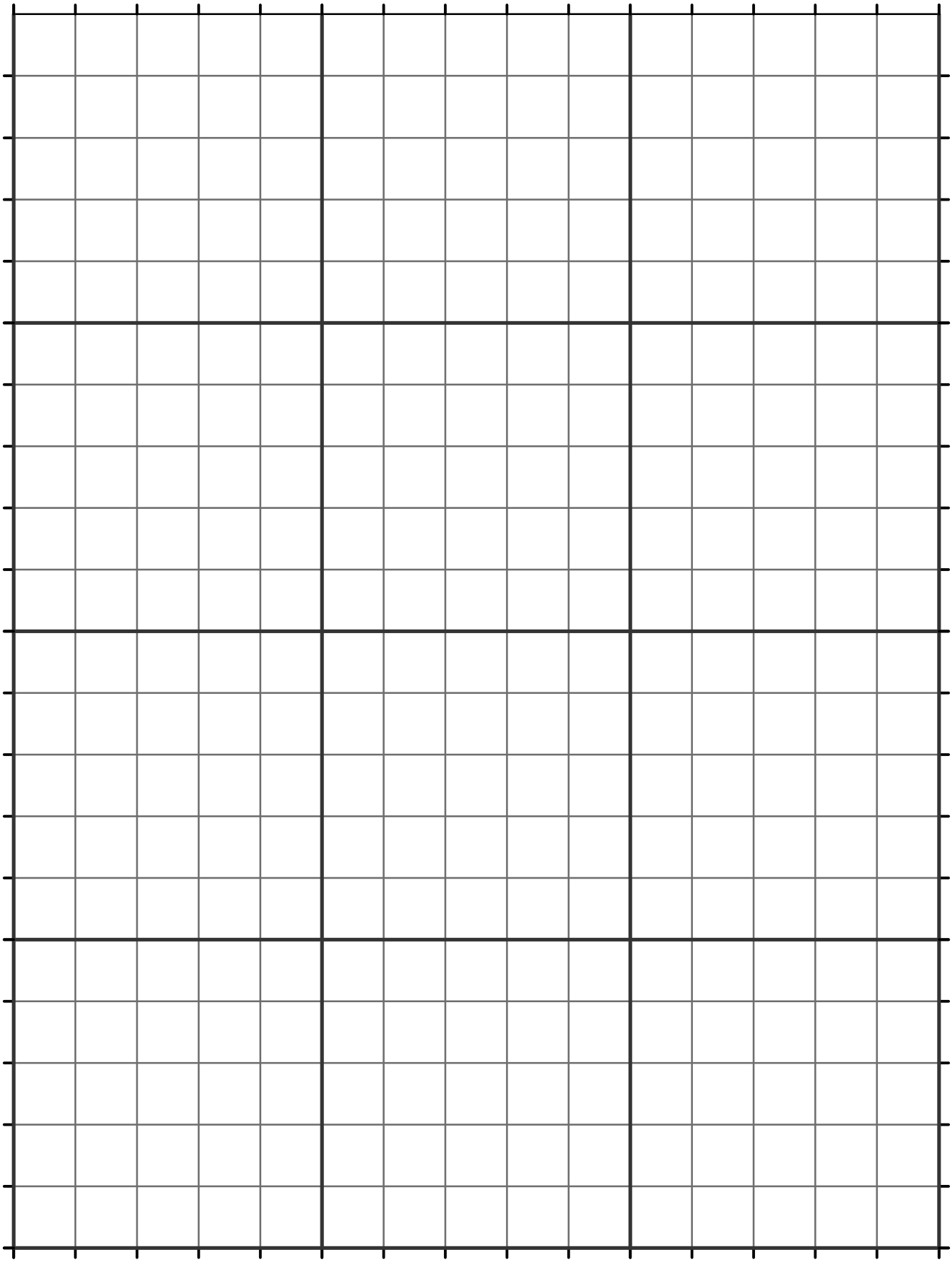

Do not allow more than 9 per cent of the land in any given area to be used for parking. In order to prevent the "bunching" of parking in huge neglected areas, it is necessary for a town or a community to subdivide its land into "parking zones" no larger than 10 acres each and to apply the same rule in each zone.

Figure 1. "Nine Percent Parking" instructions from *A Pattern Language* (1977)

Figure 2. Study Site



(445345 m, 168000 m)

Solving Problem 1

<u>Step 1: classify an image by hand</u>

(1) You need to put a number in each little square. Each little square is called a **pixel**. The number you put in it is called the Pixel's **Value**.
(2) Use "1" for any pixel that is used for parking. Use "0" for any pixel that is not used for parking. To be consistent in how you classify, you will need to stick to a rule for deciding how you decide to classify the pixel in situations where it the pixel may be part parking and part not parking. The rule might be:
    a. If the majority of area in the pixel is for parking, then it's classified as parking
    b. If the center point of the pixel hits parking, then it's classified as parking
    c. Something else that you can apply consistently

(445345 m, 168000 m)