Unsupervised Classification Activity

In this activity you will simulate an unsupervised classification of remotely sensed image data to create a land cover map.

1. **Plot the reflectance values.**
   The two grids on the top of the second page represent reflectance values in the visible red and near infrared wavelength bands measured by a remote sensing instrument for a parcel of land. Plot the reflectance values for each pixel on the graph below and write the number of each pixel (1-36) next to its location in the graph. Pixel 1 has been plotted for you (Visible Red band = 22, Near Infrared band = 6).
2. **Identify four land cover classes.**
   Looking at the completed plot from step one, identify and circle four clusters (classes) of pixels. Label these four classes A, B, C, and D.
3. **Complete the landcover map grid.**
   Using the clusters you identified in the previous step, fill in the land cover map grid with the letter that represents the land use class in which each pixel belongs. The result is a classified image.
4. **Complete a legend that explains the association.**
   Using the spectral response data provided on the bottom of the second page, associate each of the four classes with a land use class.

Land Cover Map

3

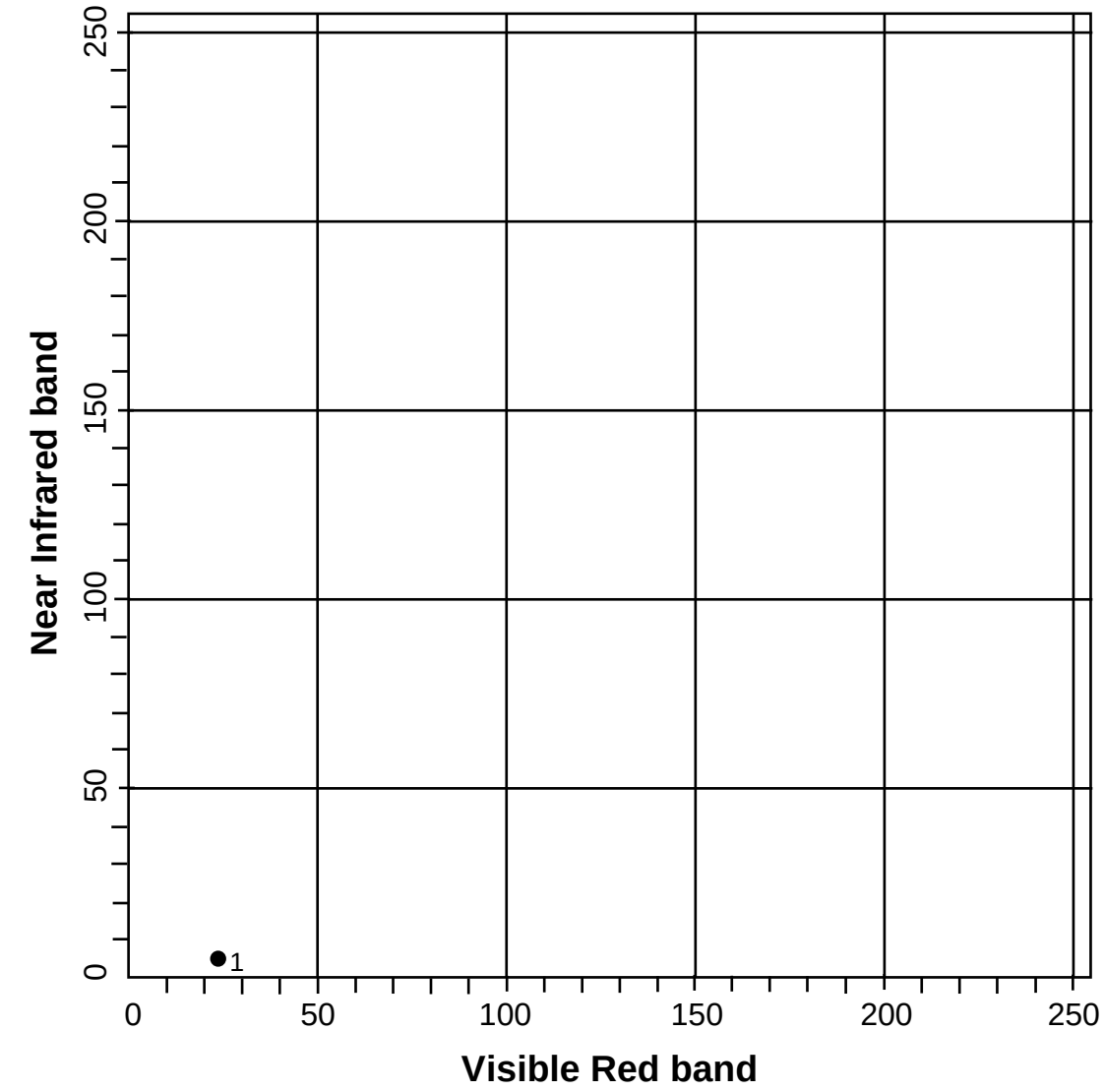
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

4

A = B =

C = D =

1, 2



Reflectance Values

Visible Red band

1	2	3	4	5	6
22	31	18	40	54	140
14	29	76	131	80	109
38	93	156	40	63	159
54	170	158	125	59	164
110	163	173	207	180	153
146	225	190	163	114	50

Near Infrared band

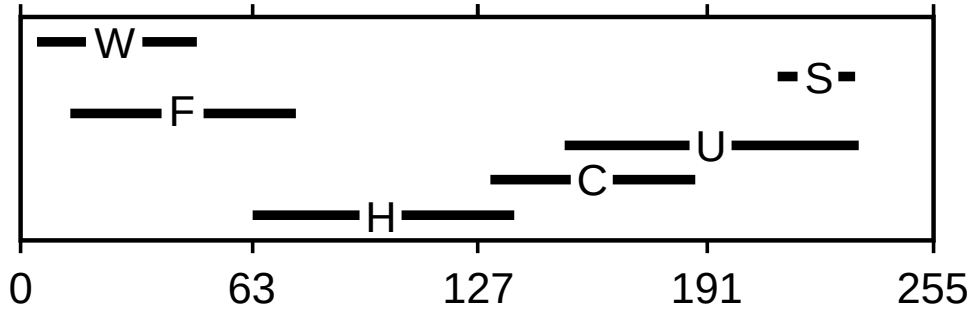
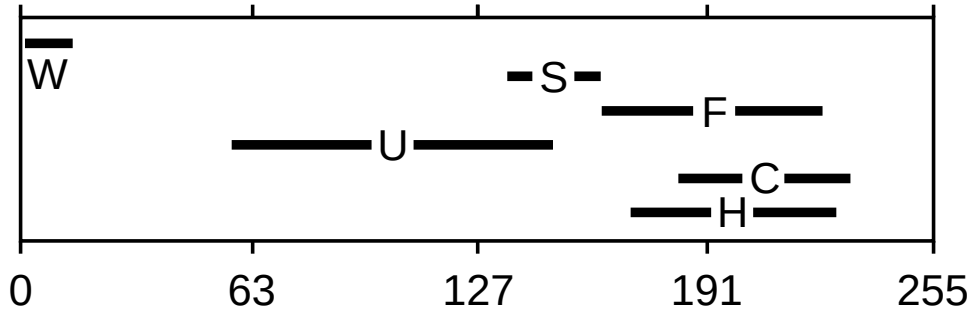
1	2	3	4	5	6
6	11	14	49	147	191
3	4	8	100	159	202
7	51	77	166	182	207
4	70	116	128	170	195
39	49	92	76	146	177
66	107	109	96	107	190

Spectral Response Data in Visible Red and Near Infrared for 6 cover types.

W = water F = forest U = urban

C = corn H = hay S = sand

Visible Red (Band 3)



Near Infrared (Band 4)