

USPLS Sections

The United States Public Land Survey (USPLS) is a system that divides land into smaller parcels. Not all of the United States uses this system. It was originally proposed and developed for the survey and sale of federal lands in the old Northwest Territory (Ohio, Indiana, Michigan, Illinois, Wisconsin, and parts of Minnesota), and was eventually extended to most of the continental United States west of the Mississippi river purchase of the Northwest Territory and later used for all subsequent land gained by the U.S. Most of the lands in the original thirteen colonies, as well as large parts of Florida, California, Louisiana, Texas) already had a different system in place. The USPLS is a system of dividing the land into smaller and smaller fractional pieces. It was based on the English system of measurement, so it used acres and miles as its basic units of measurement. Today these same divisions and terminology are used in legal descriptions of property.

As each new territory was opened to settlement, a line running due north-south for as much as several hundred miles, called a *principal meridian*, was carefully measured and marked on the ground. (There are actually several principal meridians. Initially, these were identified as the First Principal Meridian, the Second Principal Meridian, and so on, each one farther west than the previous one.) Next an east-west line, called a *base line*, was carefully measured perpendicular to the principal meridian. In effect these two lines serves as the axes of a huge imaginary piece of graph paper laid over the landscape. The lands within a hundred miles or of each principal meridian-base line pair were subdivided into townships, each of which was usually a 6x6 mile square (36 square miles). Townships north and south of the base line were identified as “township 1 North,” “township 2 North,” or “township 1 South,” “township 2 South,” and so on. Townships were also given range numbers that identified how far they were east and west of the principal meridian. Hence a typical township might be identified numerically as Township 10 North, Range 7 East. Each township was further divided into 36 1 mile x 1 mile sections. The sections were numbered, with Section 16 typically set aside for a school. Each section was typically divided into four quarters; quarter sections might also be further into quarters.

For further details about the USPLS system, see the nineteenth-century description of the system excerpted in the Understanding Township and Range handout.

Activity

Follow the instructions below to see how the land in a 1 mile x 1 mile section is sub-divided and described.

1. Outline 16 squares by 16 squares on a sheet of graph paper using a black colored pencil (or draw a 16 cm x 16 cm square on a sheet of unlined paper).
2. Create a legend. In the legend identify the black line as a section.
3. Under the square put a caption: Section = 1 mile x 1 mile and contains 640 acres.
4. Divide the square equally into four quadrants using a blue pencil. Color in the upper right quadrant with the blue color. This is a quarter section; it is $\frac{1}{4}$ of the whole square. Add the blue color to the legend and name it Quarter Section.

Think of the blue lines as mini Equator and Prime Meridian lines. The horizontal line divides the square into north and south; the vertical line divides the square into east and west. The square which is colored in is the northeast quarter of the square.

Label the blue square as the NE $\frac{1}{4}$ Section (160 acres).

5. Use a red pencil to divide the lower right quadrant (SE quadrant) into four additional quadrants. Color the lower right smaller square red. Add the label of Quarter-Quarter Section and the color to your legend.

Again, think of the red lines as mini Equator and Prime Meridian lines. The horizontal line divides the square into north and south; the vertical line divides the square into east and west. The square that is colored is the southeast quarter (of the southeast quarter) of the section.

Label the red square as the SE $\frac{1}{4}$ of the SE $\frac{1}{4}$ (40 acres).

6. In the upper left (blue-outlined) NW Quarter Section, using a green pencil, divide the section into four quadrants. (It will look like the one you did in red.) Divide the upper right quadrant into four quadrants with the green color. Color the upper left square of this quadrant green. Add the color and the label of Quarter-Quarter-Quarter Section to the legend.

Now think of the green lines as mini Equator and Prime Meridian lines. The horizontal line divides the square into north and south; the vertical line divides the square into east and west. The square which was further divided is the northwest quarter of the northeast quarter of the northwest quarter of the section.

Label the green square as the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ (10 acres).

7. In the green-outlined quadrant, go to the southwest quarter. With a yellow pencil draw a horizontal line (like an Equator) through the square, dividing it in half. Color the lower half in yellow. Put the yellow color in your legend, labeling it as a Half Quarter-Quarter.

This is the south half of the southwest quarter of the northwest quarter of the section. Label it as the S 1/2 of SW 1/4 of NW 1/4 (20 acres).

8. a. What would you label each sub-section of a Quarter-Quarter-Quarter which was divided into four quadrants? _____
b. How many acres would each sub-section be? _____
9. Now compare your drawing with the answer key supplied by your teacher. How accurate were you in following directions and labeling?
10. Remember that the section you just divided is part of a township. A sample description of a parcel of land might read:

The SW 1/4 of the NW 1/4 of Section 6 in Township 5 North and Range 7 East of the 3rd principal meridian.

Notice how the description of the location reads from smallest parcel to largest, like your home address (number, street, city, state, country).

11. Divide the remaining SW section on your diagram into four quadrants using an orange pencil. Put an orange X in the lower right quarter. Write the entire description of the location of the X. Assume the black square is Section 13 in Township 2 North and Range 2 West of the 5th principal meridian.

CHALLENGE

On graph paper, sketch the township and range diagram that would show the location in No. 11. Referring to Diagram 2 in the Understanding Township and Range handout, determine which state this parcel would be in.