

## **Introduction to Boundary Surveying**

### Objectives

1. Introduce the concept of land surveying for boundary determination.
2. Students will learn how to read and plot a boundary description.
3. Students will work together in small groups to map a parcel boundary.

### Materials

1. 1ft rulers
2. Blue masking tape
3. 11"x17" or 17"x22" blank white paper
4. Packs of assorted color markers/colored pencils

### Procedure

#### **Lesson hook**

1. Have a picture on the Smart Board of the U.S showing the state boundaries.
2. Pick 10 students' name out of a hat and have them share with the class what state is their favorite.
3. Choose the two top states chosen and outline their state boundary lines with a highlighter on the Smart Board.
4. Ask students if they know what the highlighted line represents.
5. Proceed to explain the definition of a boundary line to the class and the people to recreate these lines are called Land Surveyors.

#### **Core Lesson**

1. Break the class up into groups of two students based on alphabetical order (last or first name)
  - a. Have the students move all of their desks to the outside of the classroom
2. Distribute parcel descriptions to each group of students.
  - a. Parcel descriptions of 5 lines with a cardinal direction and lengths to the nearest inch.
3. Have one student from each group come to the front of the class to get the required materials.
4. Display a simplified cardinal cross on the Smart Board with N,E,S,W & NE,SE,SW, and NW.
5. Explain and demonstrate on the board how to plot their parcel using the ruler, cardinal cross and blue masking tape.

New York State Associate of Professional Land Surveyors  
Introduction to Boundary Surveying Lesson Plan  
Elementary grade levels

- a. Using an example parcel description, read through with the class and plot the first bearing and distance by measuring a length of tape with the ruler and place the tape on the board in the proper cardinal direction.
  - b. Complete the parcel by placing all 5 pieces of tape on the board to complete the parcel boundary.
6. Have the groups of students read and plot their parcels on the floor of the classroom.
  - a. One student can measure and cut the blue masking tape one at a time and the other student can place the tape on the floor in the cardinal direction.
  - b. Have each group raise their hand when they have the parcel completed.
    - i. Check each parcel for any mistakes and provide help as needed.
7. As the groups finish and have their parcels checked, have them go to the front of the classroom and get a piece of blank white paper and return to their working area.
  - a. If groups finish earlier than others, hand out a short reading article about the U.S presidents that were land surveyors to read until all groups have finished their parcels.
8. When all of the groups have finished their parcels, tape a piece of blank paper to the classroom board.
  - a. Explain to the students that the next step is to create a map on the paper of the same parcel they laid out on the floor.
  - b. Show them the simplified requirements for the map
    - i. map title, parcel name, north arrow, date, scale, and drawers names
9. Proceed to plot the example parcel on the paper with a chosen color.
  - a. Inside the parcel identify the parcel name
  - b. Draw a north arrow that corresponds with the arrow displayed on the board.
  - c. Write out the scale of the map (Any chosen scale matching the parcel description)
  - d. Write out the map title, date and drawer's name to complete the map.
10. Using the required supplies have each group plot a map of their parcel on the blank paper
  - a. Explain that they should use a unique color other than black for the boundary line of their parcel.
11. As groups are working on their map, move around the room and help groups as needed.
  - a. Have groups raise their hand when completed for their maps to be checked.
  - b. If groups finish early, have them read/finish the U.S presidents article.
12. When groups have finished have them hang their maps with tape around the room to be displayed.

Wrap up/Reflection

1. Ask students the following reflection questions.

New York State Associate of Professional Land Surveyors  
Introduction to Boundary Surveying Lesson Plan  
Elementary grade levels

- a. What was the hardest part of the project?
- b. Did your parcel look similar or different than other groups?
  - i. Explain how nearly all parcels in the U.S are unique in their shape and size.
- c. Did your maps look similar or different than the other groups?
  - i. Explain how each surveyor can create unique looking maps to show the same parcel.
- d. What do you think the importance of having a boundary line is?
  - i. Explain the importance of boundary lines between countries, states, towns and individuals.

Homework

1. Students that did not finish the short reading on the U.S presidents should finish reading for homework and be prepared for a short quiz at the beginning of the next class.