

LESSON PLAN: INTRODUCTION TO BOUNDARY SURVEYING

This lesson plan was developed to introduce the profession of Land Surveying to students at the middle school level. The lesson plan could be taught in conjunction with a history unit about the creation of states that make up our country and the boundaries of the United States. In addition, this lesson plan would be a great foundation of knowledge for students prior to a career day with a visiting professional land surveyor.



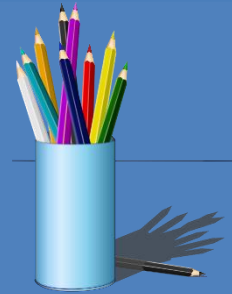
Introduction to Boundary Surveying

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. 1 foot rulers
2. Blue masking tape
3. 11"x17" or 17"x22" blank white paper
4. Packs of assorted colored 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' names 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. Explain the definition of a boundary line and the people to recreate these lines are called Land Surveyors.

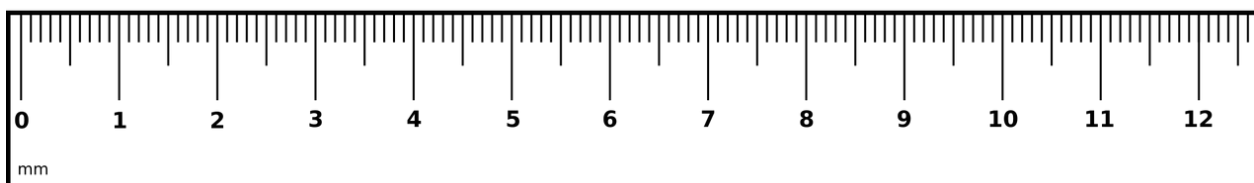


Core Lesson

United States of America

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1. Break the class into groups of two students based on alphabetical order (last or first name). Have them move desks to the outside of the classroom.
2. Distribute parcel descriptions to each group of students.
 - a. Parcel descriptions consist of five boundary 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. On the Smart Board, demonstrate to students how to plot their parcel using the ruler, cardinal cross and blue masking tape.
 - 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 partners read and plot their assigned parcels on the floor of the classroom.
 - a. One student can measure and cut the blue masking tape and the other student can place the tape on the floor in the cardinal direction.
 - b. Have partners raise their hands when they have the parcel completed in order to have it checked and allow the teacher to offer assistance as needed.
7. Once a set of partners is finished, have them go to the front of the classroom and get a piece of blank white paper and return to their working area.
8. When all of the groups have finished their parcels, tape a piece of blank paper to the wall.
 - 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. These include:
 - i. Map title, parcel name, north arrow, date, scale, and drawers' names.
9. Proceed to plot the example parcel on the paper with a color of choice.
 - a. Identify the parcel name within the parcel itself.



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- 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 drawers' names to complete the map.
10. Have each group plot a map of their parcel on the blank paper.
 - a. Ensure that each partnership uses a unique color (excluding 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. Check students' maps when they are finished.
 - a. Have groups raise their hand when completed for their maps to be checked.
12. When groups have finished have them hang their maps with tape around the room to be displayed.
13. When all students have completed their maps, have them walk around the room to view maps created by their peers.

Wrap Up/Reflection

1. Ask students to reflect on the following questions. Students should write their answers on a separate sheet of paper.
 - a. What was the hardest part of the project?
 - b. Did your maps look similar or different than the other groups?
 - c. What do you think the importance of having a boundary line is?
 - d. How are boundary lines applicable in your everyday life?

2. Teacher will lead a whole class discussion based on students' answers. As students share be sure to explain/discuss the following:

- a. How nearly all parcels in the U.S are unique in their shape and size. And how each surveyor can create unique looking maps to show the same parcel.
- b. The importance of boundary lines between countries, states, towns and individuals.

3. Before students leave class for the day, they should turn in their written responses to the teacher for review.

