

AREA: Agriculture Mechanics

UNIT: Surveying

COMPETENCIES:

1. Measure and describe legal location.
2. Determine the difference in elevation by using a level.
3. Locate the field status in land leveling from contour data.

JOB: #1 Becoming Familiar with the Land Survey System

SITUATION:

Students have little knowledge of land survey system. The Lions Club is putting in a park-the acreage around the park needs to be calculated. Students can use surveying skills in State Agricultural Mechanics contest. Students can figure acreage in planting crops.

OBJECTIVES:

1. To describe the public land survey system.
2. Given a legal description, to locate the described property on the map.

Motivation:

Review the last unit and test.
Tell story about a piece of property a man wants to sell me, but I can't figure out where it is.
Where can I get in for information, that will help me figure this out?
Why do I need to know where the land is located?
How do I read the legal description on the map?
Develop the objectives by drawing them from the class.
Write on board the legal description of the land.
Hold up a legal map of the county. Ask how do I figure out where it is on map.
Draw the questions from the class.

STUDY GUIDES:

1. Why are land surveys made?
2. What are three general sources from which the description of the boundaries of real property may be found?
3. What is the system of land description called that is used in the United States and what are its components?
4. What two lines form the initial point?
5. How are standard parallels of latitude established?
6. How are guide meridians established?
7. What are tracts, townships, range, tiers, and sections?
8. What are the five steps for describing land in the Rectangular System of land Description?
9. Given four legal descriptions, locate the described property on a map.

REFERENCES:

Student Resource on Leveling and Land Measuring Practices
Transparency on legal description-handout.

ANALYSIS:

1. Locate and relocate boundary lines of property. To provide legal evidence of land boundaries. Deeds contain legal description of property boundaries.
2. Deeds, official plots, notes of the original survey. These documents are kept in the town or city clerks office or in the county registry of deeds.
3. The Rectangular System of land survey. Townships, sections, quarter sections.
4. The principle meridian-true north - south line and an east - west line of true parallel of latitude called the base line. Where they cross is called the initial point.
5. 24 mile intervals north and south from the base line Designated as first second etc. North or south of the base line.
6. Spaced at intervals of 24 miles east and west of the principle meridian. Designated first, second, and etc. guide meridian east or west of the principle meridian.
7. The 24 square mile area formed by the standard parallels and the guide meridians are called tracts. A town slip is 1/16 of a tract. A series of adjacent townships running east and west is know as a tier. An adjacent series of township running north and south is known as a range. Sections are 1 square mile section of land in a township. There are 36 sections in a township.
8.
 - I. Locate the initial point.
 - II. Locate standard parallel and guide meridians forming tracts.
 - III. Divide each 24-mile tract into 16 equal sized townships.
 - IV. Divide each 6-mile township into 36 equal sized sections.
 - V. Divide up the sections and give each field or plot of land a description. Half-quarter sections etc. Legal description always begins with the smallest unit.
9. Handout. (To be developed by the teacher.)

SUPERVISED STUDY:

Students write questions in notebook.
Pass out reference material.

Divide class into two groups-each group answer half the questions.
Students write answers on scratch paper to all but question #9.

DISCUSSION:

Students answer questions.
Write answers on the board.
Students copy answers into notebooks.
Pass out question #9.
Students locate descriptions on map as a class.

SUMMARY:

1. Legal descriptions are necessary to locate property on a map and for deeding purposes.
2. Legal descriptions originate from the initial point.
3. Even the smallest amount of land can be described by a legal descriptions.
4. Legal descriptions always begin with the smallest unit.

APPLICATION:

Students locate land from a legal description.
Material for use on the unit exam at the end of unit.

EVALUATION:

Included in unit exam.
Included in notebook evaluation at the end of unit.

ACTIVITY Legal Land Description

A. Objectives

1. To describe the rectangular system of public land survey.
2. To describe the location of a land area by legal description.

B. Introduction

The Rectangular System of land survey was implemented in the United States as a means of identifying the location of land boundaries. When agricultural land is sold the official deed contains a legal description of the land using the Rectangular System. In this activity you will use the information provided in the Reference Unit pp. 1-10 to assist in identifying legal descriptions of land parcels.

C. Reference

1. Student Reference, Leveling & Land Measurement Practices for Agriculture, February 1974, pp. 1-10.

D. Questions for Study

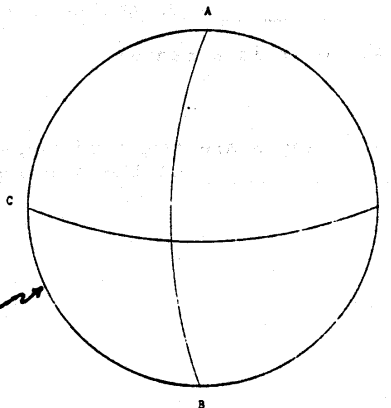
1. What country is credited with originating the science of surveying and land measurement?
2. What is the purpose of the Rectangular System of land survey?
3. What is a principle meridian? A base line?

4. Using the space provided identify lines AB and CD with respect to the Rectangular System of land survey.

AB _____

CD _____

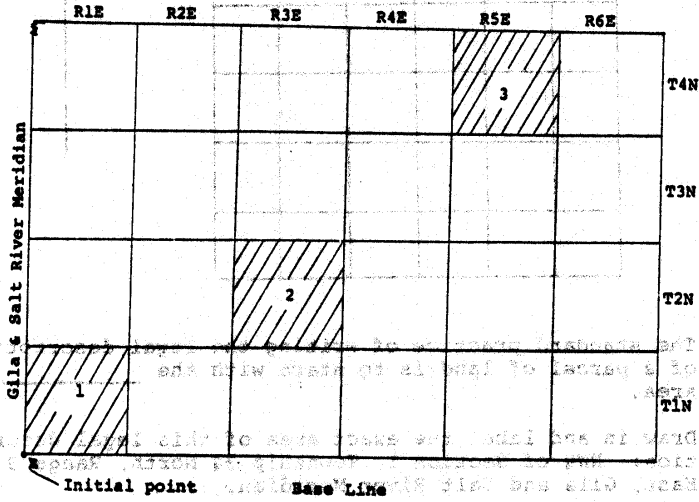
The Earth



5. The position where the earth's principle meridian crosses the earth's base line is known as the _____.
6. The United States is divided into _____ regions for survey purposes. Colorado is part of _____ regions.
7. Each region is named after its principle meridian. What are the names of the principle meridians for Colorado?
8. Lines of latitude located north and south of the base line are called _____. The lines are located at _____ mile intervals.
9. Secondary meridian lines are established every _____ miles east and west of the primary meridian. These meridians are called _____.
10. How large is a tract of land?
11. What is a township? How many townships are located in a tract of land?
12. What is a tier?
13. Townships are numbered consecutively _____ or _____ of the base line.
14. What is a range?
15. Ranges are numbered consecutively _____ or _____ of the principle meridian.

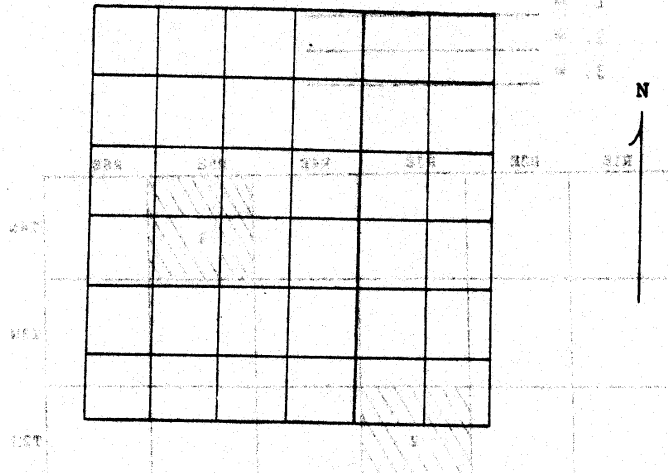
16. Identify the "range" and "tier" of the shaded townships.

- 1. = _____
- 2. = _____
- 3. = _____

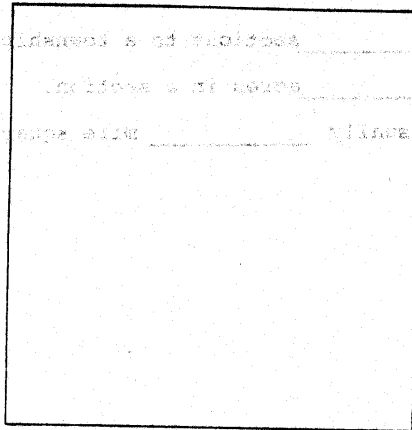


- 17. There are _____ sections to a township.
- 18. There are _____ acres in a section.
- 19. A section is usually _____ mile square.

20. Number the sections in the following township:



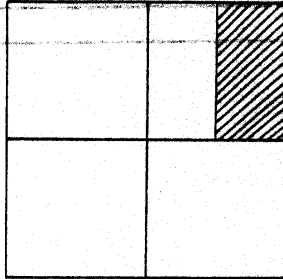
21. The standard practice of writing the legal description of a parcel of land is to start with the area.
22. Draw in and label the exact area of this legal description: NW 1/4 of Section 1, Township 34 North, Range 3 East, Gila and Salt River Meridian.



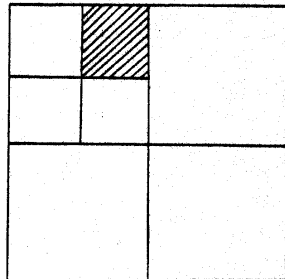
Section 1

23. Write the legal description of the cross-sectioned area in each of the following sections and provide the number of acres in each.

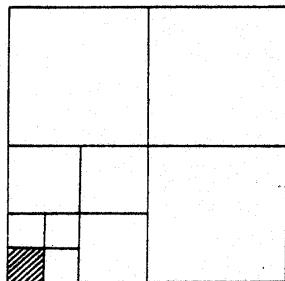
Section 16
 Township 33 North
 Range 10 West
 Gila and Salt River Meridian



Acres _____



Acres _____



Acres _____