



Surveying Methods

There are two main methods of surveying: **geodetic surveying** and **plane surveying**. Geodetic surveying requires a lot of time and advanced instruments. Plane surveying can be done using a chain and **measuring tape**. It is faster and **accurate** enough for everyday uses. The following steps will guide you through the process.

Chain Surveying

Chain surveying relies on the principle of **triangulation**. Always begin with larger distances to minimize **accumulated errors**.

- Preliminary survey - Review the layout of the area before beginning the survey. Locate and sketch the **positions** of all major features.
- Marking station - Decide on the locations of stations and place **station pegs**.
- Measuring survey line AB - Place **ranging rods** at end of line to be measured. Walk towards **point B** with the chain and markers. At the end of the chain push marker into ground. Survey line is the length between point A and the marker.
- Taking offsets - Measure distance from marker to each feature using measuring tape.

Get ready!

- 1 Before you read the passage, talk about these questions.

- What is one method of surveying land?
- What is some equipment used when surveying land?

Reading

- 2 Read the surveying guide. Then, mark the following statements as true (T) or false (F).

- ___ Geodetic surveying takes longer than plane surveying.
- ___ Using triangulation helps avoid accumulated errors.
- ___ Ranging rods should be placed before station pegs.

Vocabulary

- 3 Match the words or phrases (1-6) with the definitions (A-F).

- | | |
|-------------------|-------------------------|
| 1 ___ ranging rod | 4 ___ point |
| 2 ___ station peg | 5 ___ accumulated error |
| 3 ___ accurate | 6 ___ triangulation |

- A something precise in measurement
 B a miscalculation made worse by repeated use
 C a tall pole used to mark intermediate points in chain surveying
 D a defined position
 E a short wooden pin used to mark stations in chain surveying
 F a process of determining a distance to a point from an already established line

- 4 Read the sentence pairs. Choose which word or phrase best fits each blank.

- 1 **geodetic surveying / plane surveying**

- A _____ can be done with simple tools.
 B _____ accounts for the curve of the Earth.

- 2 **surveying / position**

- A The _____ of the obstruction is marked on the map.
 B When will the _____ be complete?

- 5 Listen and read the surveying guide again. How can surveyors avoid accumulated errors?

Listening

- 6 Listen to a conversation between a supervisor and a surveyor. Choose the correct answers.

- What is the conversation mainly about?
A the steps of plane surveying
B tasks for a preliminary survey
C the benefits of geodetic surveying
D equipment needed to complete a survey
- What is true of the site?
A It is flat.
B It is rather large.
C Its station locations are set.
D It will require a team to survey.

- 7 Listen again and complete the conversation.

Supervisor: Ms. Norris, do you have the instruments ready for this afternoon's survey?

Surveyor: I think so. Am I going 1 _____?

Supervisor: I think that's best. Today you can do preliminary 2 _____.

Surveyor: Oh? But that won't 3 _____ the whole day.

Supervisor: It might. The site is fairly big. It'll take you a while to note the 4 _____ of all the features.

Surveyor: Is there anything special I should 5 _____?

Supervisor: Yes. Thanks for asking. Watch out for the slope of the field. It seemed 6 _____.

Surveyor: Okay, will do.

Speaking

- 8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

Today you can ...

It'll take you a while to ...

Then, decide ...

Student A: You are a supervisor. Talk to Student B about:

- a survey
- how long it will take
- tasks to accomplish

Student B: You are a surveyor. Talk to Student A about a survey.

Writing

- 9 Use the conversation from Task 8 to fill out the site survey.



Jackson Construction

Site Survey

Employees/Crew: _____

Tasks

- 1 _____
- 2 _____
- 3 _____

Estimated time needed: _____