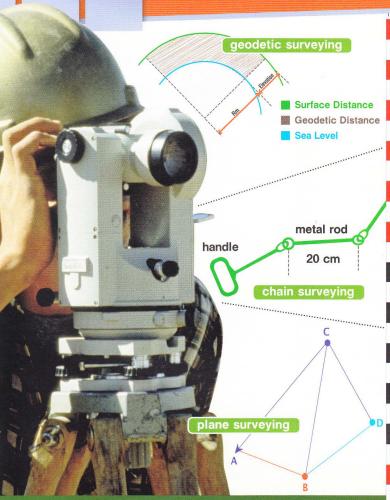
1 Surveying



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**.

- a Preliminary survey Review the layout of the area before beginning the survey. Locate and sketch the **positions** of all major features.
- b Marking station Decide on the locations of stations and place station pegs.
- c 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.
- d Taking offsets Measure distance from marker to each feature using measuring tape.

Get ready!

- Before you read the passage, talk about these questions.
 - 1 What is one method of surveying land?
 - 2 What is some equipment used when surveying land?

Reading

- Read the surveying guide. Then, mark the following statements as true (T) or false (F).
 - Geodetic surveying takes longer than plane surveying.
 - 2 __ Using triangulation helps avoid accumulated errors.
 - 3 __ 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

- ⑤ Listen to a conversation between a supervisor and a surveyor. Choose the correct answers.
 - 1 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
 - 2 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.
- 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

(3) 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

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



Jackson Construction

Site Survey

Employees/Crew: _____

Tasks

2 _____

3 _____

Estimated time needed: _____