

Puerto Viejo Technical High School
Conversational English 10th
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Scenario 3: Georeferencing and Forage_Theme 3.1: Georeferencing-
Theme. 3.2 Forage

Why Georeferencing is Important?

Georeferencing means that the internal coordinate system of a map or aerial photo image can be related to a ground system of geographic coordinates.

Global Positioning System (GPS):

An [electronic](#) system using
a [network](#) of [satellites](#) to indicate on a computerized
[receiver](#) the position of a vehicle, ship, person, etc.

How is GPS used in agriculture?

GPS-based applications in precision farming are being used for farm planning, field mapping, soil sampling, tractor guidance, crop scouting, variable rate applications, and yield mapping. GPS allows farmers to work during low visibility field conditions such as rain, dust, fog, and darkness.



GPS in our lives

Write situations where you have used GPS (e.g., finding a restaurant, using Google Maps, tracking deliveries, farming machines).

Draw a machine or appliance that uses GPS to work.

GPS Video

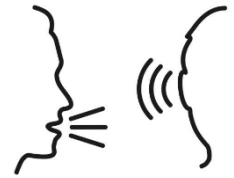
Vocabulary Matching

1. Georeferencing 2. Global Positioning	()	The degree of accuracy or exactness of a measurement or result.
3. System (GPS)	()	A set of numbers (usually latitude and longitude) that show a specific position on Earth.
4. Satellite	()	Following the movement or position of something over time, often using GPS.
5. Coordinates	()	The process of linking data, images, or maps to real-world locations using coordinates.
6. Precision	()	A system of satellites that helps people find their exact location anywhere on Earth.
7. Mapping	()	The process of creating maps that show the features of an area, such as roads, rivers, or buildings.
8. Tracking	()	The act of finding your way from one place to another, using maps, directions, or GPS.
9. Navigation	()	An object that orbits around a planet. Some satellites are natural (like the Moon), and others are man-made and used for communication, weather, or GPS

Listening Task

[Live worksheet practice.](#)

Video



Write 5 original sentences using vocabulary (e.g., “GPS coordinates help farmers know where to plant seeds.”) based on what you saw in the videos and learned in the listening task.

Pronunciation Practice

Key Words for Drilling:

- Georeferencing /ˌdʒiː.əʊˈrɛf.ər.əns.ɪŋ/
- Coordinates /kəʊˈɔː.dɪ.nəts/
- Precision /pɹɪˈsɪʒ.ən/
- Navigation /ˌnæv.ɪˈgeɪ.ʃən/
- Satellite /ˈsæt.ə.laɪt/

Speaking Poster Task

- Groups of 3–4 create a mini-poster comparing **two GPS applications** (e.g., livestock tracking vs. soil mapping).
- They must use contrast connectors: **however, whereas, although.**
- Example sentence: “*GPS is very accurate for soil sampling, whereas it is less useful for predicting weather.*”

- Groups present briefly to the class.
- *Purpose:* Use discourse markers for contrast in speaking.

Speaking: Role-play

Activity: Farmer-Technician

A dialogue between a farmer and a technician talking about one of the GPS apps they learned in the videos.



Forage

Video

Forage means food for farm animals, especially **grasses, legumes, and other plants** they eat in the field or as stored feed (like hay or silage).

Main Types of Forage

1. **Pasture** – fresh plants that animals eat directly while grazing in the field.
2. **Hay** – dried grasses or legumes stored and used as feed later.
3. **Silage** – green plants preserved by fermentation in a silo or plastic wrap.
4. **Green chop** – freshly cut forage given directly to animals.
5. **Crop residues** – remains of harvested crops, like corn stalks or rice straw, used as feed.

Multiple-Choice Questions

1. What does the word **forage** mean?
 - A. Food for farm animals
 - B. A type of fertilizer
 - C. A machine for cutting grass
 - D. An irrigation system
2. Which type of forage is **dried** before being stored?
 - A. Silage
 - B. Hay



- C. Green chop
 - D. Pasture
3. What is **silage**?
- A. Dried forage
 - B. Fermented or preserved forage stored in a silo
 - C. A type of grain
 - D. Fresh grass from the field
4. Animals eat **pasture** when they:
- A. Are in the field grazing
 - B. Are inside eating stored feed
 - C. Drink water
 - D. Sleep in the barn
5. Which of the following is an example of **crop residue** used as forage?
- A. Corn stalks
 - B. Fresh grass
 - C. Clover hay
 - D. Silage maize

Table 1. Forage types and definitions.

Vegetation Terms	Definitions
Forage	Edible parts of plants, other than separated grain, that can provide feed for grazing animals, or that can be harvested for feeding. Includes browse, herbage, and mast.
Browse	Leaf and twig growth of shrubs, woody vines, trees, cacti, and other non-herbaceous vegetation available for animal consumption.
Herbage	The biomass of herbaceous plants, other than separated grain, generally above ground but including edible roots and tubers.
Forb	Any herbaceous broadleaf plant that is not a grass and is not grass-like.
Legume	Members of the plant family Fabaceae.
Grass	Members of the plant family Poaceae.

Grass-like	Vegetation that is similar to grass in appearance and is usually a member of the plant family Cyperaceae (sedges) or Juncaceae (rushes).
Pasturage	Not a recommended term. The recommended definition of pasture refers to a specific kind of grazing management unit, not that which is consumed, which is forage. Thus, pasturage is not a useful term.
Mast	Fruits and seeds of shrubs, woody vines, trees, cacti, and other non-herbaceous vegetation available for animal consumption.
Forage crop	A crop of cultivated plants or plant parts, other than separated grain, produced to be grazed or harvested for use as feed for animals.
Aftermath	Forage grown following a harvest.
Residue	Forage remaining on the land as a consequence of harvest.
Silage	Forage preserved in a succulent condition by partial anaerobic, acid fermentation.
Hay	Grass or other plants, such as clover or alfalfa, cut and dried for fodder.
Haylage	Product resulting from ensiling forage with around 45% moisture, in the absence of oxygen.
Fodder	Coarse grasses such as corn and sorghum harvested with the seed and leaves green or alive, then cured and fed in their entirety as forage.
Green chop	Fresh cut forages.

What Are State Verbs?

State verbs (also called *stative verbs*) describe a **condition or state** rather than an action.

They show what someone **feels, thinks, likes, or possesses**, not what they're *doing*.

Important: We usually **don't use state verbs in continuous (-ing) form**.

Five Common State Verbs

1. **Like** – to enjoy or have a good feeling about something.
 - o  I **like** pizza.
 - o  I'm **liking** pizza.
2. **Love** – to have strong positive feelings for someone or something.
 - o  She **loves** her cat.
 - o  She's **loving** her cat.

3. **Hate** – to dislike something very much.
 - o ☒ He **hates** waking up early.
 - o ☒ He's **hating** waking up early.
4. **Know** – to have information or be aware of something.
 - o ☒ I **know** the answer.
 - o ☒ I'm **knowing** the answer.
5. **Believe** – to think that something is true or real.
 - o ☒ We **believe** in education.
 - o ☒ We're **believing** in education.

Other common state verbs include: **understand, want, need, remember, prefer, think (for opinions), and belong.**

Complete the Sentences

Fill in the blanks with the correct form of the verbs (**like, love, hate, know, believe**).

Use **simple present**, not continuous.

1. I _____ that this exercise is easy.
2. Maria _____ chocolate ice cream.
3. We _____ in hard work and honesty.
4. My brother _____ cleaning his room.
5. They _____ their dog very much.



Speaking

Ask and answer with a partner. Use state verbs correctly.

Example:

 A: What kind of food do you like?

 B: I like Italian food. What about you?

Prompts:

1. What kind of movies do you like?
2. Who do you love the most in your family?

3. What subject do you hate at school?
4. What do you know about Costa Rica's nature?
5. What do you believe is important for a happy life?



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Scenario 4: Greenhouse Coverings, Fruit and Vegetable Growing and Floriculture Theme 4.1: Greenhouse and Controlled Environments



Controlled-environment agriculture

Controlled environment agriculture (CEA) is the process of growing plants inside a greenhouse or grow room. The controlled environment allows the grower to maintain the proper light, carbon dioxide, temperature, humidity, water, pH levels, and nutrients to produce crops year-round.

In many cases, hydroponic growing systems are used for controlled environment agriculture to ensure that the plants receive optimal nutrients and water needed to produce an ample crop.

A **greenhouse** (also called a **glasshouse**, or, if with sufficient heating, a **hothouse**) is a structure with walls and roof made chiefly of transparent material, such as glass, plastic, in which plants requiring regulated climatic conditions are grown. These structures range in size from small sheds to industrial-sized buildings. The interior of a greenhouse exposed to sunlight becomes significantly warmer than the external ambient temperature, protecting its contents in cold weather.

Controllable variables:

- ☐ Temperature (air, nutrient solution, root-zone, leaf)
- ☐ Humidity (%RH)
- ☐ Carbon dioxide (CO₂)
- ☐ Light (intensity, spectrum, duration and intervals)
- ☐ Nutrient concentration (PPM, EC)
- ☐ Nutrient pH (acidity)
- ☐ Pests

[Video](#)

[How do greenhouses work?](#)

Take Notes:

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Theme 4.2: Fruit, Vegetables, and Ornamental Plants

Types of fruit [Crops Video](#)

Fruit is the sweet, fleshy, edible part of a plant. It generally contains seeds. Fruits are usually eaten raw, although some varieties can be cooked. They come in a wide variety of colors, shapes and flavors. Common types of fruits are:

- o **Apples and pears**
- o **Citrus** –oranges, grapefruits, mandarins and limes
- o **Stone fruit** nectarines, apricots, peaches and plums
- o **Tropical and exotic** bananas and mangoes
- o **Berries** strawberries, raspberries, blueberries, kiwifruit and passionfruit
- o **Melons** watermelons, rockmelons and honeydew melons
- o **Tomatoes and avocados.**



Types of vegetables

Vegetables are available in many varieties and can be classified into biological groups or 'families', including:

- ☐ Leafy green: lettuce, spinach and silver beet
- ☐ Cruciferous cabbage, cauliflower, Brussels sprouts and broccoli
- ☐ Marrow pumpkin, cucumber and zucchini
- ☐ Root potato, sweet potato and yam
- ☐ **Edible plant stem** [celery](#) and [asparagus](#)

Legumes

Legumes need to be cooked before they are eaten – this improves their nutritional quality, aids digestion and eliminates any harmful toxins. Legumes come in many forms including:

- ❖ Soy products tofu (bean curd) and soybeans
- ❖ Legume flours chickpea flour (besan), lentil flour and soy flour
- ❖ Dried beans and peas haricot beans, red kidney beans, chickpeas and lentils
- ❖ Fresh beans and peas green peas, green beans, butter beans, broad beans and snow peas.

Some other common examples of fruits that are mistaken for vegetables include:

- ☐ Winter squash
- ☐ Avocados
- ☐ Cucumbers
- ☐ Peppers
- ☐ Eggplants

- ☐ Olives
- ☐ Pumpkins
- ☐ Pea pods

[Types of plants](#), listen and take notes

Simple Past

Complete the sentences using the correct form of the verbs in parentheses.

1. I _____ (visit) my grandparents last weekend.
 2. She _____ (not / go) to the party because she was sick.
 3. _____ you _____ (watch) the new movie yesterday?
 4. We _____ (study) hard for the English test.
 5. He _____ (not / call) me after school.
 6. _____ they _____ (travel) to San José last month?
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Past Perfect

Complete the sentences using the correct form of the verbs in parentheses.

1. I _____ (already / finish) my homework before dinner.
2. She _____ (not / see) that movie before last night.
3. _____ you ever _____ (eat) sushi before you went to Japan?
4. We _____ (live) in that town for ten years before we moved.
5. He _____ (not / meet) the new teacher before the class started.
6. _____ they _____ (travel) abroad before they got married?

Wh- questions in the Past Perfect Continuous

- ✓ What had he been cooking?
- ✓ Who had been cooking?
- ✓ Why had John been answering questions about vegetables?
- ✓ What is your favorite fruit?
- ✓ What is your favorite vegetable?
- ✓ What kind of nutrients do fruit and vegetables give to human beings?

PAST PERFECT CONTINUOUS

Past Perfect Continuous Tense indicates a past action which started in the past and continued to happen after another action and time in the past.

Forms

- + S + had been + V-ing + O.
- S + hadn't been + V-ing + O.
- ? Had + S + been + V-ing + O?



Affirmative (+)

Negative (-)

Interrogative (?)

You had been running.	You hadn't been running.	Had you been running?
He had been running.	He hadn't been running.	Had he been running?
She had been running.	She hadn't been running.	Had she been running?
It had been running.	It hadn't been running.	Had It been running?
They had been running.	They hadn't been running.	Had they been running?
We had been running.	We hadn't been running.	Had we been running?

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Questions

Affirmative Sentences

1. She _____ (study) English for two years before she moved to Canada.
2. They _____ (work) on the farm all morning when it started to rain.
3. I _____ (wait) for you for an hour before you arrived.

◆ Negative Sentences

4. He _____ (not / sleep) well because of the noise outside.
5. We _____ (not / practice) enough before the presentation.
6. The students _____ (not / pay) attention before the teacher called their names.

◆ Questions

7. _____ you _____ (exercise) regularly before you got sick?

8. What _____ she _____ (do)
before the guests arrived?
9. How long _____ they _____
(travel) before they reached San José