

UNIT 25

GPS SYSTEMS

Objectives: at the end of the lesson, students will be able to:

1. use key GPS-related vocabulary such as "longitude," "latitude," "coordinates," and "cartography";
2. understand how GPS technology works, including concepts like satellites and signals;
3. give and receive directions using prepositions of place.

Lead-in: Lost and Found



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Tell the students that they need to find small objects that are lost on the map. They should use simple location-related language and directions which will be written on sticky notes.

Divide the class into small groups. Give each group a set of directions (e.g., “The object is near the restaurant” or “It is to the north of the park”) and ask them to use the map to figure out where the object might be.

Have each group share their guesses and explain how they used the map to find the object.

Vocabulary Building

Key Terms

Waypoints – are locations that you can mark or record in your GPS

GPS – (Global Positioning System) is a collection of 24 satellites that give accurate position and navigation data to people all over the Earth

Navigation – is the act of creating a route to a destination

Latitude – is an object’s location north or south of the Equator

Longitude – is an object's location east or west of the Prime Meridian

Cartography – is the art of mapmaking

Coordinates – are groups of numbers that describe a location

Acquisition time – is how long a GPS takes to determine location

Accuracy – is how correct a GPS's measurement is

Integrity – is a device's ability to perform consistently without error

Elevation – the height of something above sea level

Activity: Fill in the blanks with the correct words and phrases from the word bank.

Waypoints, GPS, Navigation, Cartography, Coordinates, Acquisition time

1. _____ refers to the process of determining the best route or path from one place to another using tools like maps or digital devices.

2. The science of designing and creating maps is known as _____.

3. _____ is a system that uses satellites to help you find your location and get directions.

4. _____ are specific locations or points on a map or route that can be used to mark important places or guide travel.

5. _____ are numerical values used to specify a location on the Earth's surface, typically given in latitude and longitude.

6. The term _____ refers to the amount of time it takes for a GPS device to connect to satellites and determine your location.

Grammar Focus: Prepositions of Place - Describing locations and positions on a map.

Different prepositions can be used to describe the places: **in, on, near, next to, opposite, in front of, behind, at the bottom, and on the top.**

Example: The first waypoint is next to the river.

Explanation: Here, "next to" indicates the position of the waypoint about the river.

Example: The GPS device is on the dashboard of the car.

Explanation: "On" describes the location of the GPS device relative to the dashboard.

Example: The navigation screen is in front of the driver's seat.

Explanation: "In front of" describes where the navigation screen is positioned relative to the driver's seat.

Example: Cartography is behind the scenes when you use a map.

Explanation: "Behind" indicates that cartography is the background work involved in map-making, not visible when using a map.

Example: The coordinates are at the bottom of the map.

Explanation: "At" specifies the exact location where coordinates are listed on the map.

Example: The acquisition time is before the GPS can give accurate directions.

Explanation: "Before" indicates the temporal relationship between the acquisition time and the moment when accurate directions are available.

Activity: Role-Play

Have students role-play a scenario where one student is giving directions using GPS terms, and the other follows. For example, "Turn left at the gas station and then continue straight until you reach the waypoint next to the library."

Reading

MapSources offers GPS products for all your navigation needs. Fast acquisition time means you won't wait to find out your position. Make your own maps with cartography modes.

Our most affordable unit, the Mapsources Traveler is designed to meet the needs of every traveler. You'll never get lost in a city again. Save your favourite locations with up to 500 waypoints. Know where you are with latitude and longitude readings. Download new maps for international navigation. Annual updates make sure you have the latest maps.

The MapSources Pro series has the highest accuracy and integrity. Rescue teams and civilian pilots who need accurate readings in any conditions can depend on MapSources Pro. The Pro series works at almost any elevation.

We don't just help with navigation. Keep track of what's important with the TrackStar series. This product shows the coordinates of your goods, your car or even your pets.

Activity: Read the advertisement about GPS products. Then, choose the correct answers.

1. What feature ensures you won't have to wait to find out your position?

- a) Cartography modes
- b) Fast acquisition time
- c) Latitude and longitude readings
- d) Annual updates

2. Which product is described as the most affordable unit?

- a) MapSources Pro series
- b) TrackStar series
- c) Mapsources Traveler
- d) International navigation maps

3. What can you save with up to 500 of in the Mapsources Traveler?

- a) Coordinates
- b) Latitude and longitude readings
- c) Waypoints
- d) International maps

Speaking

Activity: GPS Instructions Game

Hide 3-4 objects in the classroom before the class starts. Divide students into 3-4 groups and provide a set of instructions using prepositions of place to guide them through a series of tasks and obstacles set up in the classroom. The winner group will be who finds the hidden object first.

Example of Instruction Cards:

1. From the entrance, walk straight ahead and turn left at the first desk. The teacher's desk is at the front of the classroom.

2. Walk to the back of the classroom. The window is next to the bookshelf.

3. From the whiteboard, head towards the far end of the classroom. The door is on the right side of the room.

4. Walk towards the center of the room. The trash bin is behind the last row of desks.

5. From the teacher's desk, walk towards the back and turn right. The bookshelf is alongside the wall.

6. From the window, walk towards the front of the classroom. The computer station is near the teacher's desk.

7. From the door, walk to the right. The picture on the wall is to the left of the window.

8. Walk to the front of the classroom and look up. The clock is above the whiteboard.

Home assignment

Record a short video (1-2 minutes) where you explain one of the places to get by giving directions aloud. Use the prepositions of place and topic-related vocabulary.