

UNIT

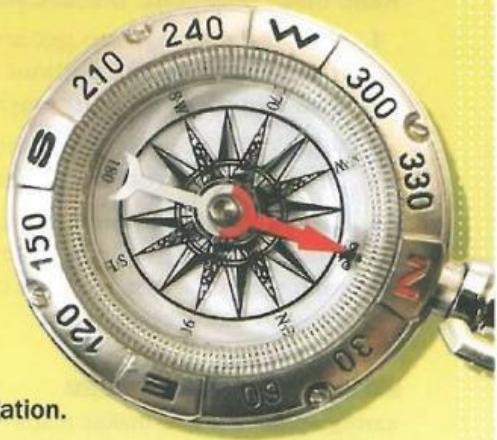
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Getting There

In this unit, you will

- read about the latest developments in global navigation.
- review understanding time signals.
- utilize online encyclopedias.
- increase your understanding of the target academic words for this unit.

READING SKILLS Identifying and Understanding Metaphors



Self-Assessment

Think about how well you know each target word, and check (✓) the appropriate column. I have...

TARGET WORDS

AWL

- assemble
- attribute
- chart
- crucial
- enable
- equivalent
- incidence
- item
- manual
- precise
- prohibit
- significant
- target
- vary

never seen the word before	seen the word but am not sure what it means	seen the word and understand what it means	used the word, but am not sure if correctly	used the word confidently in either speaking or writing	used the word confidently in both speaking and writing



Outside the Reading What do you know about location tracking?
Watch the video on the student website to find out more.

Oxford 3000™ keywords

READING 1

Before You Read

Read these questions. Discuss your answers in a small group.

1. How did you learn to get around on your own in your city? When did you first go somewhere without an adult to lead the way? Where did you go? How did you find your way?
2. What's the hardest thing about finding your way around a new city? In a new place, do you find it more difficult to drive or take mass transit? Why?
3. Are you good at reading maps? Give an example to support your answer. Would you like to have a device that showed you or told you where to go each step of the way? Why or why not? If you already have a GPS device, how do you like it?

MORE WORDS YOU'LL NEED

cartographer: one who makes maps

cartography: the science or art of making maps

GPS: Global Positioning System: a navigational system using satellites to identify locations

navigate: to decide on and steer a course, to make one's way over or through something

READING SKILL

LEARN

A *metaphor* is a descriptive expression. It is a word or phrase from another context that replaces a more ordinary word or phrase in a text. This change of context suggests a comparison of the two things. Metaphors are more symbolic than direct comparisons and usually evoke an image for the reader.

The cow stood grazing alongside the lunar landscape of potholes that formed the only road in the region.

By calling the road a “lunar landscape,” the writer evokes an image of the surface of the moon. This comparison helps the reader imagine the appearance and condition of the road.

APPLY

As you read, notice the metaphors the author uses. They have been underlined for your reference.

Read

This excerpt from an article in *The New Yorker* magazine gives insight into how Internet maps are created and maintained.

Getting There: The Science of Driving Directions

by Nick Paumgarten

In the fifteenth century, Henry the Navigator, a Portuguese prince, presided over a court in Sagres that became a center for cartographers, instrument-makers, and explorers, whose expeditions he sponsored. Seafarers returning to Sagres from the west coast of Africa reported their discoveries, and new maps were produced, extending the reaches of the known world. These maps became very valuable, owing to their utility in trade, war, and religious expansion, and were jealously guarded as state secrets.

Today's equivalent is a company called Navteq. It is the leading provider of geographic data to the Internet mapping sites and the personal-navigation industry—the boiler room of the where-you-are-and-what-to-do business. Its biggest competitor has been a Dutch company called Tele Atlas. Most of the websites, car manufacturers, and gadget-makers get the bulk of their raw material from these two companies. The

clients differ mainly in how they choose to present the data. This allows civilians¹ to have preferences.

Despite the digitization of maps and the satellites circling the earth, the cartographic revolution still relies heavily on fresh observations made by people. Navteq, like Prince Henry, produces updates periodically (usually four times a year) for its corporate clients. Its explorers are its geographic analysts. These people go onto the roads to make sure everything that the satellite data says about those roads is true—to check the old routes and record the new ones. The practice is called ground-truthing. The analysts drive around and take note of what they call “attributes,” which are anything of significance to a traveler seeking his way. A road segment can have one hundred sixty attributes, everything from a speed limit to a drawbridge, an on-ramp,² or a prohibition against U-turns.³ New signs, new roads, new exits, new rules: if such alterations go uncollected by Navteq, the traveler, relying on a device or a map produced by one of Navteq's clients, might well get lost or confused. A driver making a simple left turn can encounter a blizzard of attributes: one-way, speed limit, crosswalk, traffic light, street sign, turn restriction, two-way, hydrant.

Navteq has more than six hundred field researchers and offices in many countries. In 2006, there were nine field researchers in the New York metropolitan area. One morning in fall, I went out with a pair of them, Chris Arcari and Shovie Singh. “We're going to be working over by LaGuardia Airport,” Arcari said. “One of the items we need to check out is some street



A GPS device

¹ civilians: people not connected with a particular area of interest

² on-ramp: the approach to a highway

³ U-turns: turns that takes a driver in the opposite direction

names. They've put up new signs. Then we'll proceed to an area that we have **targeted**."

60 Arcari, who was brought up on Long Island, was the senior member of the team, and he tended to speak in the formal, polite, and indirect manner of a police officer testifying in court.

He'd been with Navteq for ten years. Singh, who 65 grew up in Queens, New York, was a new hire. He'd got hooked on geography after taking some classes in the subject in college.

They were, you might say, free-driving—no navigation device or map—because they are not 70 only locals but also professionals in the New York-area discipline of getting from here to there. They spend two to three days a week just driving around. Manhattan's grid may be the easiest road network to master in the developed 75 world (if we overlook some areas), yet the routes leading to and from it can be tricky. The highways are a mad thatch of interstates, parkways, boulevards, and spurs, plus river crossings galore, each with its own virtues and 80 inconveniences. There are many ways to get from point A to point B in New York, and, because of all the **variations**, anyone can be a route-selection expert, or at least an enthusiast. Family gatherings inevitably feature relatives 85 eating cocktail nuts and arguing over the merits of various exits and shortcuts.

Eventually, we pulled into a gas station near the airport. Singh and Arcari **assembled** their equipment. They mounted a GPS antenna, 90 shaped like a giant mushroom, on the roof of the car. The antenna was connected to a laptop, upon which a map would show our progress—a GPS track. Singh took the wheel. Arcari sat in back with the laptop, ready to note any changes.

95 The first thing the men noticed was a "No Left Turn" sign out of the gas station. "That doesn't go in the database," Arcari said. "That's unofficial, since it pertains to a private enterprise."

An analyst has some leeway in proposing 100 research missions in his territory. "The situation at LaGuardia was something I had noticed myself and thought should be revisited," Arcari explained. In his free time, he'd been driving past the airport and, nudged by curiosity, if not 105 conscience, had made a little detour. He discovered that the Port Authority of New York

and New Jersey, which runs the airport, had put up a few new road signs.

110 "We'll circle around the perimeter and then check the terminals," Arcari said. "As we're driving, I'm checking our information against what exists in reality." Left on Runway Drive ("drop a name check"), merge onto LaGuardia Road (another name check), left onto Delta 115 Arrivals Road. The sign for it was new. "A valid unnamed feature," Arcari said, turning the laptop so that I could follow along as he recorded it onscreen. "I point an arrow to where the feature occurred."

120 Seeing the road through the eyes of a ground-truther made it seem a thicket of signage—commands and designations vying for attention, like a nightmare you might have after a day of studying for a driving exam. Once you 125 start looking for **attributes**, you spot them everywhere.

"Why don't we loop around again?" Arcari said. "I want to be sure we collected everything correctly."

130 The familiar frustration of going around and around on an airport road was compensated for by the fact that no one was lost or late. After the extra orbit, we drove into a neighborhood next to the airport. Arcari approached the

135 neighborhood by driving around the outside of the "project area," and then going up and down the streets within it. He observed that, driving around like this, you become acutely aware of how many people are not at work. Arcari said 140 that one of the issues that has come up in New York in recent years is the naming of streets and squares for the victims of the attacks on September 11, 2001. We came upon one of them, James Marcel Cartier Way, and Arcari was

145 pleased to see that the name was in the database. A kind of contentment took hold, as other anomalies encountered along the way—an unlikely median strip, a "Do Not Enter" sign—turned out to be accounted for.

150 Over lunch at a local diner, we discussed various **attribute incidents**. "One item that was an issue: on the Brooklyn-Queens Expressway, they started renumbering the exits. They did some but didn't do others, so for a while there 155 were two Exit 41s."

After lunch, Arcari and Singh were due back at the central office, in Syosset, to download their findings. They offered to drive me back into Manhattan, but we agreed that it ¹⁶⁰ would make more sense for me to take the subway. None of us knew where to find it, though. Subway stations are not **attributes**;

Navteq honors the automobile, a trend started by the makers of road maps of a century ago, whose mandate was to promote auto travel and, with it, the purchase of gasoline, cars, and tires. We pulled into a gas station, and I ran inside to ask for directions. ■

READING SKILL

Identifying and Understanding Metaphors

APPLY

A. Think about the metaphors in Reading 1 and answer the questions in your notebook. Compare answers with a partner.

1. Line 16

What is a *boiler room*? What does it mean to be “the boiler room” for an entire business?

2. Line 47

What is a *blizzard*? Why does the writer choose this word to make his point?

3. Line 77

What is a *thatch*? What does *mad* mean here? What is the author trying to communicate with this metaphor?

4. Line 121

What is a *thicket*? Which other metaphor above is this one very similar to? What does it mean to *see something through someone else's eyes*?

5. Line 133

What is an *orbit*? What image does this word suggest? Why does the writer use it in this context?

B. With a partner, read these metaphors and discuss them. Think of a context in which a writer might use them effectively. Share your ideas in a small group.

1. a sea of troubles: *The situation of a person who is ill, bankrupt, and lonely.*

2. a web of deceit: _____

3. a trail of lies: _____

4. a veil of secrecy: _____

5. a labyrinth of hallways: _____

An *attribute* is a quality or feature of someone or something.

They drive around and take note of what they call "attributes," anything of significance to a traveler seeking his way.

The verb *attribute* means "to believe that something was caused or done by something or someone." It takes the preposition *to*. It can be used in active or passive form.

Active: *He attributed his poor performance on the driving test to lack of sleep the night before.*

Passive: *The fault for the accident was attributed to the driver of the other car.*

Pronunciation note: In the noun form, the stress is on the first syllable. In the verb form, the stress is on the second syllable.



A. Complete these sentences with the active or passive form of *attribute*. Be sure to use the correct tense. Read your completed sentences aloud to a partner, paying attention to pronunciation.

1. The guide _____ his excellent sense of direction to the years he spent with his grandfather, hunting and trapping in the woods.
2. The power failure on the east side of town _____ to the recent storms and high winds.
3. The map of the Texas interior _____ to Alonso de Santa Cruz.
4. He _____ her confidence on the road to the years she spent driving an ambulance in the city.

B. Put a check (✓) next to the things you think would be considered attributes by the ground-truthers in Reading 1. Discuss your answers in a small group.

- ___ 1. a stop sign
- ___ 2. an animal crossing area
- ___ 3. a mall's parking garage
- ___ 4. an automotive supply store
- ___ 5. a gas station
- ___ 6. a bus stop
- ___ 7. the poor condition of a major road
- ___ 8. a highway rest area

Word Form Chart			
Noun	Verb	Adjective	Adverb
incident incidence	_____	incidental	incidentally

The noun *incidence* generally refers to the number of times something (usually something bad) happens.

*There is a high **Incidence** of traffic accidents during the first snowfall of the year.*

The noun *incident* refers to a particular event, usually involving violence, danger, or something strange.

*There were two **Incidents** of fighting among the fans at the football game.*

The adjective *incidental* refers to minor events that accompany something bigger.

*Despite some **Incidental** problems during construction, the building was completed on schedule.*

The adverb *incidentally* is often used to change the subject, usually to something related but not very important. It has the same meaning as *by the way*.

*The mall was really crowded today, but I was able to find that sweatshirt for Peter. **Incidentally**, the travel bookstore you like isn't there anymore. It moved downtown.*



CORPUS

C. In your notebook, restate each of these statements using the form of *incidence* given in parentheses.

1. The report on the radio said that there was a minor conflict at the soccer game last night, which caused the game to start a few minutes late. (*incident*)
*The report on the radio said that an **Incident** at the soccer game last night caused the game to start a few minutes late.*
2. In the general population, the rate of traffic accidents decreases in proportion to the age of the driver. (*incidence*)
3. The new Impressa has the highest safety rating of any car in its class from three major car-rating organizations—and it's the car that a lot of pop stars drive. (*incidentally*)
4. Before the guide started the tour of the presidential palace, she gave us some trivia about the buildings in the neighborhood. (*incidental*)
5. There was a strange event during the performance when the singer seemed to forget which song he was singing. (*incident*)

D. Circle the item that best completes each statement. In your notebook, write a few sentences explaining your choice. Be prepared to read your sentences aloud or discuss your ideas with the class.

1. For me, the closest equivalent to reading a book is...
 - a. taking a nap.
 - b. watching a movie.
 - c. studying.
 - d. listening to someone tell a story.
2. For me, the closest equivalent to playing with a small child is...
 - a. writing an imaginative story.
 - b. playing a sport.
 - c. conducting a sociological experiment.
 - d. watching a funny movie.
3. For me, the closest equivalent to an evening at the opera is...
 - a. a visit to an art museum.
 - b. a visit to the home of a relative I like.
 - c. a visit to the home of a relative I don't like.
 - d. going to a movie.

Before You Read

Read these questions. Discuss your answers in a small group.

1. What is the difference between a dictionary and an encyclopedia? How is each one usually used?
2. What attributes might an online encyclopedia have that a printed book could not have?
3. If you were asked to write an encyclopedia entry on any subject, what would you choose? What types of information would you include? What would you exclude? What resources would you consult?

Whenever you use an encyclopedia for an academic paper, be sure to cite it as carefully as you would cite any other reference source. There are many encyclopedias on the Internet. Both printed and reputable online encyclopedias hire researchers and writers to supply their content.

Caution: One online encyclopedia, Wikipedia, relies on its *users* to provide content, who are not necessarily professional researchers. Anyone can write, edit, and update the entries on the website. For this reason, some instructors will not accept Wikipedia as a reference source for an academic paper, so check with your instructor before using it.

 **Read**

This entry from an online encyclopedia addresses navigation in the sense of determining position and direction on or above the surface of the Earth.

NAVIGATION

METHODS

There are several different branches of navigation, including but not limited to the following. Click on terms to see individual entries:

- Celestial navigation—using observed positions of the sun, moon, stars, and sometimes planets to navigate at sea
- 5 • Pilotage—using visible natural and man-made features such as human-made sea marks and beacons, sometimes with the aid of a nautical **chart**, or map of marine and coastal areas
- Dead reckoning—using course and speed to determine position
- Off-course navigation—deliberately aiming to one side of the destination to allow for **variability** in the heading (direction)
- 10 • Electronic navigation—using electronic equipment such as radios and satellite navigation systems to follow a course; e.g., Electronic Chart Display and Information System (ECDIS), an electronic alternative to printed nautical **charts**
- Position fixing—determining current position by visual and electronic means
- Collision avoidance using radar

HISTORY

15 Navigation is the science of accurately determining one's location and then planning and following a route. The earliest form of navigation was land navigation. This relied on physical landmarks to **chart** the journey from one place to another. Away from land, one must use other markers in order to navigate successfully. One modern way to do this is to keep track of one's position using longitude and latitude. These are two kinds of imaginary lines drawn on maps or 20 globes representing the Earth. Latitude is distance north or south of Earth's equator. Longitude is distance east or west of the Greenwich Meridian, an imaginary line that runs

from the North Pole to the South Pole and 25 through Greenwich, England.

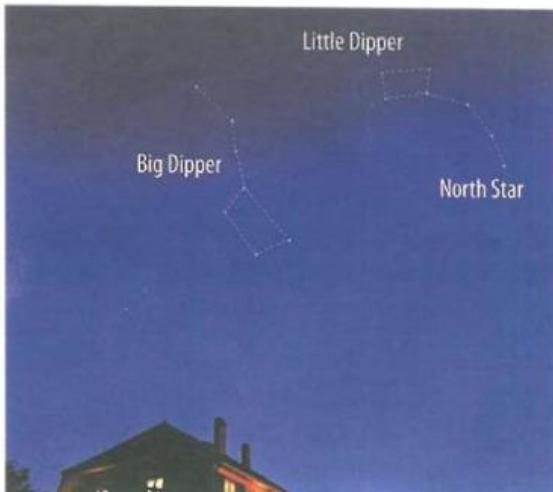
Marine navigation may have begun when prehistoric people attempted to guide a vessel, perhaps a log, across the water using familiar coastal landmarks. In the pre-modern history of 30 human migration and nautical exploration, a few peoples have excelled as seafarers. Prominent examples include the Polynesians and the Micronesians of the Pacific Ocean.

The Polynesian navigators routinely crossed 35 thousands of miles of open ocean to reach tiny islands. They used only their own senses and knowledge of the sea that was passed down from generation to generation. In eastern

Polynesia, navigators memorized extensive catalogs of information in order to help them navigate at various times of day throughout the year. These catalogs included the following kinds of information:

- The motion of specific stars, and where they would rise and set on the horizon of the ocean
- The weather
- Time of travel
- Wildlife species (some species **assembled** at particular locations)
- Ocean swells and how they would affect the crew
- The color of the sea and sky, especially how certain types of clouds would **assemble** at particular locations above some islands
- The angle at which navigators should approach a harbor

These sets of information were kept as *guild* secrets. Generally, each island maintained a guild, or group, of master navigators who had very high status. In times of famine or difficulty, only they could trade for aid or evacuate people. The guild secrets were almost lost. Fortunately, one of the last living navigators taught them to a professional small-boat captain so that he could write them down. The captain recorded these secrets in book form, creating an early navigator's **manual**.



The Big Dipper, Little Dipper, and North Star

Ancient sailors used celestial bodies (that is, objects in the night sky) to steer by. For example, in the Northern Hemisphere one can look for the constellation (group of stars) known in English as the Big Dipper. Sailors could use the Big Dipper to find the North Star, which tells which way is north.

But celestial navigation as it's known today was not used until people better understood the motions of the Earth, sun, and stars. Nautical **charts** were developed to record new navigational and piloting information for other navigators. The development of accurate celestial navigation allowed ships' crews to better determine position.

The most important instrument for nautical navigation was the navigator's diary. These diaries contained **crucial** information. They often became trade secrets because they **enabled** safe travel to profitable ports.

One problem with all early forms of navigation was that they required voyagers to be able to see either land or sky. By the year 300, the magnetic compass had been invented in China. Sometime between 850 and 1050, they became common navigational devices on ships. Magnetic compasses allowed sailors to continue sailing a course even when the weather limited the sky's visibility. This instrument also allowed the development of dead reckoning. Dead reckoning can be used to navigate when landmarks are out of sight, although it still requires people to accurately know their location from time to time.

Arab navigators in the 9th century developed a celestial navigation tool called a *kamal*. A kamal consists of a wooden rectangle and a length of rope with evenly spaced knots. Navigators used this instrument to measure the angle of a particular star above the horizon, which allowed a navigator to determine the ship's latitude. Arab navigators were very successful with using this device, establishing trade networks from the Atlantic Ocean and Mediterranean Sea to the Indian Ocean and China Sea. Navigators from India and China later adopted use of the kamal. A limitation of the kamal is that it's mainly useful only in lower latitudes, or regions relatively near the equator.

After Isaac Newton published the *Principia* in 1687, navigation was transformed. Mathematics was applied to the study of nature, and the entire world was measured using essentially modern latitude instruments and the best available clocks. In 1730, the sextant was invented.

A sextant uses mirrors to measure the altitude of
125 celestial objects in relation to the horizon.



Sextants have been used for centuries to navigate the sea.

In the late 19th century, Nikola Tesla invented radio. Soon, radio beacons and radio direction finders were providing accurate land-based fixes,¹ even hundreds of miles from shore. This system
130 lasted until modern satellite navigation systems made it obsolete.

Around 1960, LORAN was developed. This measured how long a radio wave took to travel

between antennas at known locations. These
135 measurements allowed travelers to fix positions. The equipment could then locate geographic positions to within a half mile (800 m). At about the same time, TRANSIT, the first satellite-based navigation system, was developed. It was
140 the first electronic navigation system to provide global coverage.

In 1974, the first GPS satellite was launched. GPS systems now give accurate locations with an error of only a few meters. They also have
145 **precision** timing, giving time measurements with an error of less than a microsecond (one millionth of a second). GLONASS is a positioning system that was launched by the Soviet Union. It relies on a slightly different
150 model of the Earth. In 2007, the European Union approved financing to develop a competing system, named Galileo. China had some limited participation in developing Galileo, but in 2006 announced development
155 of a GPS system of its own, to be named *Beidou*. *Beidou* is a Chinese name for the Big Dipper.

¹ fixes: determinations of one's exact location, usually made using radar, a known visual point, or astronomical observation

Reading Comprehension

Mark each sentence as **T** (true) or **F** (false) according to the information in Reading 2. Use the dictionary to help you understand new words.

- 1. Sailors using the method of celestial navigation might occasionally rely on the position of other planets for guidance.
- 2. The most important item in the ancient navigator's toolbox was his diary.
- 3. The sextant helped sailors more accurately determine their positions based on measuring the positions of the stars.
- 4. The magnetic compass was recently invented by the European Union.
- 5. Radio beacons and direction finders became obsolete after the invention of satellite navigation systems.
- 6. Ancient Polynesian navigators crossed the open ocean with the aid of sophisticated clocks.
- 7. Polynesian navigational knowledge passed down by oral tradition was finally written in book form.
- 8. There are various navigation and positioning systems about which an online encyclopedia can provide information.

What sequence is described in the history of navigation? In your notebook, list at least six developments in this sequence, in order. Pay attention to time expressions such as *around the year 300* and adverbs of sequence such as *after* or *next*.

Vocabulary Activities STEP I: Word Level

A *chart* can take many forms. It can be a table, a graph, a diagram, or any graphic representation of information—for example, a Word Form Chart used in this book.



A. Match the picture of each chart with its type, listed in the box. Compare answers with a partner and discuss the function of each type of chart.

- a. eye chart
- b. flip chart
- c. flow chart
- d. medical chart
- e. pie chart
- f. sales chart



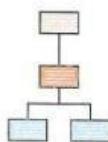
- 1 -



2



3



— 4 —



5



6

The word *precise* is an adjective meaning “clear and accurate; giving a lot of detail.” The adverb form is *precisely* and has a similar meaning to *exactly*.

The noun form, *precision*, means “the quality of being clear or exact.” *Precision* can also be used as an adjective to describe something that has precision.

Each and every component was manufactured with great **precision**.

With **precision** tools, we can achieve more effective results with less cost.

CORPUS

B. In your opinion, which of these items require precision? Put a check (✓) next to them. Why do you think it is crucial for them to be precise? Discuss your answers in a small group.

- 1. measurements for new carpeting
- 2. the time you agree to meet a friend
- 3. a portrait (a painting of someone)
- 4. a history book
- 5. the fit of your clothes
- 6. a legal agreement between two friends
- 7. the position of items on your desk
- 8. instructions to an experienced babysitter

Vary has many members in its word family. Here are example sentences to illustrate some of the more common ones. Check your dictionary for exact definitions.

Nouns

variety	Ancient travelers used a variety of landmarks to navigate their way.
variation	Most coastal cultures developed the canoe, but there are many variations in its design.
variance	His conclusions were totally at variance with the evidence.
variable	New car designers consider variables like where it will be driven, weather conditions, and how many passengers it might carry.

Adjectives

various	There are various routes you can take to get to work, but this is the fastest.
variable	Be careful driving here at night. Road conditions are variable and sometimes dangerous.

CORPUS

C. Complete these sentences using a form of *vary*.

1. Some people _____ their routes depending on the day and time.
2. Engine temperature is the most important _____ to pay attention to when driving in the desert.
3. He decided to move to California for _____ reasons.
4. Reports from the different field offices were at _____ with our expectations.
5. The GPS system in the rental car had a wide _____ of options for customizing our itinerary.
6. Researchers have found wide _____ in driving ability among people of _____ ages.

D. Complete the sentences about another type of information system. Use each target vocabulary term once. Compare answers with a partner.

assemble	crucial	items	prohibit
attribute	enable	manual	significant
chart	equivalent	precisely	

1. The Aboriginal people of Australia had a system of songs, called the Songlines. These songs identified landmarks and other _____ (*things*) (plants, rocks, waterholes) useful in finding one's way through the desert.
2. The Songlines were _____ to a continental navigational _____, or a kind of Australian travel _____.
3. In addition to describing the physical _____ of each _____ landmark, the songs also often explained how the landmarks were created and named.
4. Aboriginals used this labyrinth of pathways to _____ for rituals, to _____ or _____ travel across territorial boundaries, or to hunt for food and water.
5. To work well as a navigational system, it was _____ that the songs be sung in the appropriate order and that each song be sung _____.

As an adjective or adverb, *manual* or *manually* means “done by the hands.”

*Building a road requires a lot of machines, but also a lot of **manual** labor.*

*When the power went out, we had to do everything **manually**.*

As a noun, a *manual* is a book that explains how to do or operate something.

*I can't figure out how to fix this. I need a **manual**.*

CORPUS

E. In your notebook, write a short description of these items. Explain who might use each one and for what purpose. Discuss your ideas with a partner.

1. an owner's (or user's) manual	4. a wilderness survival manual
2. a writer's style manual	5. a camera manual
3. a computer manual	

Crucial can be used as a simple adjective before the noun, as in a *crucial decision*. To make the meaning stronger or more dramatic, use an “it” structure.

*It is **crucial** that she get to the hospital within the hour.*

Notice the grammar in the above sentence: . . . *crucial that she get* This grammar is common in sentences with “it” structures that stress importance or urgency.

It's important that he know the truth.

It is vital that it get finished today.

CORPUS

F. Write one or more answers for each of these questions. Discuss your answers in a small group. Decide which of your ideas is the most crucial in each case. Discuss your choices with the class.

1. What is a crucial problem for humanity?

Environmental pollution poses a crucial problem for humanity.

2. What was a crucial moment in history?

3. What is a crucial decision you must make for your future?

4. What is one piece of crucial information needed for navigating at sea?