

English Two 203102

Theme 3

Ecotourism



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สวทศ.062

J56E5

(Teacher's Manual)

Picture credit: <http://www.pecc.net/resources/imagebank/ecotourism.jpg>

Objectives: This unit should help you to

Speaking:



- state and support opinions
- show agreement and disagreement
- discuss pros and cons

Listening:



- listen for key words
- listen for specific information
- listen to and learn expressions used for making suggestions

Reading:



- read for main ideas
- read for specific information
- learn new words in context

Writing:

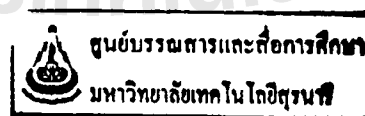


- write a short message to express an opinion
- use connectives to link supporting statements

Grammar:



- focus on the use of gerund
- focus on Present Perfect



Speaking

1) How adventurous are you? Tick (✓) the outdoor activities you did on your past trips. Compare your answers with another student.

- | | | |
|---|--|---|
| <input type="checkbox"/> bamboo rafting | <input type="checkbox"/> hiking | <input type="checkbox"/> sea canoeing |
| <input type="checkbox"/> whitewater rafting | <input type="checkbox"/> rock climbing | <input type="checkbox"/> butterfly watching |
| <input type="checkbox"/> bird watching | <input type="checkbox"/> elephant riding | <input type="checkbox"/> star gazing |
| <input type="checkbox"/> scuba diving | <input type="checkbox"/> mountain biking | <input type="checkbox"/> none of these activities |

2) We are going to arrange a field trip for our English II class. Look at the travel advertisements below and decide which one you like best.


1

Chiang Mai Adventure

- Hiking at Doi Inthanon National Park
- Visiting Hmong & Karen Hilltribes
- Bamboo rafting




Whitewater Challenge & Ethnic People of Nam



- Whitewater rafting
- Meeting ethnic people near the Thailand-Laos border
- Elephant riding
- Hiking

2


Trang-Tarutao Special



- Kayaking
- Snorkeling
- Rock climbing
- Camping

3

Wilderness tour: phu Kradung National Park



- Bird watching
- Camping
- Star gazing
- trekking

4



Now get in a group of 3-4 persons and decide which of the tour programs is best for your class. During the discussion, think of the following points:

- Where should we go at this time of the year?
- What kind of activities can we do on the trip?
- Which tour program may be the most interesting for everyone in the class? Why?

Stating opinions

Here are some ways to tell people what you think:

I think...
 In my opinion, ...
 What about...? / How about...?
 Why don't we...?

I agree (with you).
 I think so (too) because...

I don't think so because...
 (I'm afraid) I don't agree with you.
 But what about...?
 Shouldn't we consider...?



After the discussion, be prepared to report the decision of your group to the class. Also, give three reasons to support your decision.

Our group chose the tour program number ____.

First of all, we think that _____

In addition, _____

Finally, _____

Call No.

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Listening



Listening 3.1

1) A group of students are planning a trip for the coming school break. Listen to their conversation and fill in the table below.

- First, listen for the names of the places mentioned and put those names in the “**where to go**” column.
- For the second listening, listen for the activities one can do at each place and put them in the “**what to do**” column.

	Where to go	What to do
1.	<u>The Similans</u>	<u>Swimming, scuba diving</u>
2.	<u>Sai Yok National Park</u>	<u>Trekking, rafting</u>
3.	<u>Phu Kradung National Park</u>	<u>Trekking, camping</u>

2) There are a number of expressions you can use when **making suggestions**. Some are listed below. Tick (✓) the ones you hear in the conversation.

- ☐ **Let's go** to Chiang Mai. *

☐ **I suggest going** to Chiang Mai *

☐ **How/What about going** to Chiang Mai?

☐ **Why don't we go** to Chiang Mai?

What is the verb form in each expression?

Let's + V

I suggest + V-ing

How/What about + V-ing ?

Why don't we + V?






Listening 3.2

1) What kind of things should we take with us when we go camping? Tick (✓) those items.

- | | | |
|--|---|--|
| <input type="checkbox"/> Compass | <input type="checkbox"/> Lighter | <input type="checkbox"/> Small pot & pan |
| <input type="checkbox"/> Water bottle | <input type="checkbox"/> Jewelry | <input type="checkbox"/> Sleeping bag |
| <input type="checkbox"/> Hiking boots | <input type="checkbox"/> First aid kit | <input type="checkbox"/> Pillow |
| <input type="checkbox"/> Computer | <input type="checkbox"/> Radio | <input type="checkbox"/> Clothes |
| <input type="checkbox"/> Camera and film | <input type="checkbox"/> Insect repellent | <input type="checkbox"/> Sunscreen |
| <input type="checkbox"/> Flashlight | <input type="checkbox"/> Cell phone | <input type="checkbox"/> Pocket knife |

2) Listen to part of an orientation before a camp trip. Then complete the checklist of **what to bring** and **what not to bring**.

SUT CAMP CHECKLIST



☺ **What to bring to camp** ☺

<p>☞ Necessary camp items</p> <ol style="list-style-type: none"> 1. <u>Flashlight</u> 2. <u>Sunscreen</u> 3. <u>Insect repellent</u> 4. <u>water bottle</u> 	<p>☞ Optional camp items</p> <ol style="list-style-type: none"> 1. <u>Camera and films</u> 2. <u>Small pocket knife</u>
--	--

☹ **What not to bring to camp** ☹

1. Expensive things (e.g., jewelry and expensive cameras)
2. Electronic items (e.g., computers, phones, radios, computer toys)

Reading 1

Ecotourism in Thailand

1) What is ecotourism?

eco- [prefix]: connected with the environment

tourism [noun]: the business of providing services for people who are on holiday

ecotourism

[noun]:

the business of organizing holidays to places that people do not usually visit in a way which helps local people and does not damage the environment

(Cambridge Advanced Learner's Dictionary)

2) Ecotourism quiz

How much do you know about ecotourism in Thailand? Do the quiz and find out!

1. Which of the following beaches is not in Phuket?

- a) Patong
- b) Chaweng
- c) Rawai
- d) Karon



2. You can go scuba diving in all of the following provinces except _____

- a) Chonburi
- b) Rayong
- c) Phuket
- d) Phitsanulok



3. More than _____ bird species have been sighted in Thailand.

- a) 1,000
- b) 2,000
- c) 3,000
- d) 4,000

4. There are _____ national parks in Thailand.

- a) 35
- b) 76
- c) 98
- d) 112

5. Almost all national parks have at least one camping site. _____ is one of the exceptions.



- a) Phu Kradung
- b) Khao Luang
- c) Doi Luang Chiang Dao
- d) Doi Suthep

6. Where can you find the 'long-necked' women?

- a) Southern Thailand
- b) Central Thailand
- c) Northern Thailand
- d) Western Thailand

7. Rock climbing was started almost a decade ago in _____

- a) Chiang Mai
- b) Krabi
- c) Nakhon Ratchasima
- d) Leoi



8. Which eco activity is best in the rainy season?

- a) Climbing
- b) Rafting
- c) Camping
- d) Sea canoeing

9. Which part of Thailand has more rivers which are suitable for rafting than anywhere else?



- a) The north
- b) The northeast
- c) The south
- d) The central region

10. Which island is not in the Gulf of Thailand (the eastern coast)?

- a) Samui
- b) Samet
- c) Phi Phi
- d) Chang



If you score ...

9-10: Congratulations! You are a big fan of Thailand's ecotourism.

7-8: Not bad. You are getting there.

5-6: Life is short. Do yourself a favor and learn more about ecotourism!

3-4: Shame on you! Where have you been?

1-2: You are hopeless!

Answer key: 1-b, 2-d, 3-a, 4-b, 5-d, 6-c, 7-b, 8-b, 9-a, 10-c

3) Vocabulary

Put the following words under the correct parts of speech and find their meanings.

demand

responsibility

promote

trend

destination

benefit

concern

region

operator

natural

actually

available

environment

local

ultimately

policy

trash

adventure

Nouns

Verbs

Adverbs

Adjectives

Ecotourism in Thailand



Ecotourism is nothing new. It has been popular among a small number of people who love nature. Worldwide concern for the environment has created a new demand for friendly ecotourism activities. Thailand has become a favorite destination for ecotourists because it has a wide range of activities for travelers looking for an environment-friendly travel experience.

During the past decade, activities like mountain biking, whitewater rafting, trekking and camping, bird watching, scuba diving and rock climbing have appeared in many natural tourist areas. Such eco activities are now available in every region of Thailand, especially in the mountainous areas of the north, west, and the south of the country. Trekking and camping, for example, are available in such areas as Doi Luang Chiang Dao in Chiang Mai, Phu Soi Dao in Uttaradit, Phu Kradung in Loei and Khao Luang in Nakhon Si Thammarat. Other popular eco activities are elephant trekking, star gazing, butterfly watching, sea kayaking and sea canoeing.



The Thai government and the Tourism Authority of Thailand are promoting eco-friendly tourism, but they cannot control every adventure travel company's activities. Ultimately, it is your responsibility to research tour operators to find out if they actually care for the environment or if they are only taking advantage of the ecotourism trend to get you on their tour. Do they show real concern for their impact on the environment? Do they benefit local people? Do they have a policy about removing anything from the environment, or carrying out trash? Some operators think that using such words as "eco-friendly" and "environmentally friendly" to describe their company is all that is necessary.

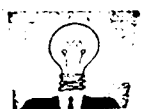


Adapted from <http://www.thailand.com/travel/eco/eco.htm> and http://www.paddleasia.com/responsible_ecotourism.htm

Comprehension Check

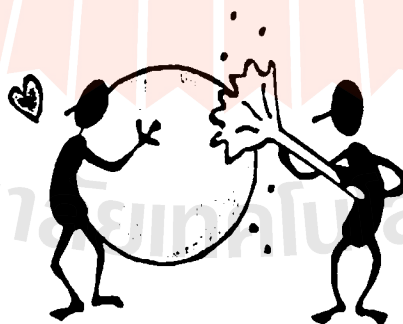
Answer **T** when the statement is true and **F** when the statement is false.

- F** 1. Ecotourism has just been introduced in Thailand.
- T** 2. More tourists want to learn about nature on their trips.
- F** 3. Eco activities are only available in the north, west, and the south of the country.
- T** 4. The Thai government supports ecotourism.
- F** 5. The Tourism Authority of Thailand has been successful in controlling all travel operator's activities.
- F** 6. All ecotour operators in Thailand really care for the environment.
- T** 7. Ecotourism should benefit local people.
- T** 8. It's the traveler's responsibility to find out which tour operators have real concern for the environment.



Follow-up questions:

1. Do you think you are eco-friendly?
2. Will you consider ecotourism when you plan your next trip?



Grammar

Gerund

V-ing → noun

An *-ing* form of a verb that is used as a noun

1. It can appear in any sentence position that a noun can.

Ex: **camp** → **camping**

Camping is my favorite activity. (**subject of the sentence**)

I enjoy camping. (**object of the verb "enjoy"**)

I am thinking about camping. (**object of the preposition "about"**)

2. It is used after certain verbs: **like, enjoy, stop, avoid, consider, quit, finish, suggest, keep, mind**

Ex: I **enjoy**/ **like** rafting.

Avoid trekking in unauthorized areas.

We should **stop** buying products made from endangered animals.

3. Some verbs are followed by **infinitives (to + V)**, not gerunds: **want to, need to, plan to, decide to, learn to, agree to, promise to, refuse to**

Ex: I **want** to go to Phuket.

We **need** to be careful on the trip.

They **decided** to visit Chiang Mai this summer.

He **learned** to drive last year.

4. Some verbs can be followed by gerunds or infinitives: **love, hate, like, prefer**

Ex: She **hates** { going }
 I **prefer** { to go } to the beach in the summertime.
 They **love**



Practice

A. Change the verbs provided into **gerunds** or **infinitives**.

1. Bill agrees (bring) **to bring** a tent along.
2. We plan (catch) **to catch** the train to Chiang Mai.
3. Many students take a break by (play) **playing** computer games.
4. (Swim) **Swimming** is my favorite activity.
5. Jill refuses (support) **to support** irresponsible tour operators.
6. The government has planned (promote) **to promote** ecotourism.
7. (Travel) **Traveling** is a great way to explore the world.
8. Nid is afraid of (fly) **flying**.
9. Students are excited about (go) **going** on a field trip.
10. My friends suggested (visit) **visiting** many temples in the North.

B. Complete the following conversation with the verbs provided in the correct forms (**base forms**, **gerunds**, **infinitives**).

Kathy: Did you (have) **have** a good weekend?

Mary: Yes, I went to Phuket and really enjoyed (swim) **swimming**.
(Dive) **Diving** there was also a lot of fun.

Kathy: Oh, I didn't (know) **know** you could (dive) **dive**.

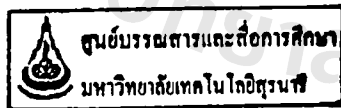
Mary: I learned (dive) **to dive** two months ago.

Kathy: Have you decided where you want (go) **to go** next?

Mary: Yes, I'm thinking of (trek) **trekking** in Khao Yai but I've decided (wait) **to wait** until the school break.

Kathy: You should avoid (travel) **traveling** in the summer. It's too hot.

Mary: I think I will (be) **be** fine. I just need (bring) **to bring** a big bottle of water along.



Listening



Listening 3.3

- 1) Listen to a conversation about what people should and should not do while they are traveling on an eco trip. Circle the word you hear in each pair.

- | | |
|------------------------------------|--|
| 1. impact – compact | 6. damage - dampness |
| 2. cultural – natural | 7. biodegradation – biodegradable |
| 3. authorized – on the rise | 8. subjects – objects |
| 4. rails – trails | 9. endangered – in danger |
| 5. positive – negative | 10. transmit - transfer |

- 2) Listen to the conversation again. Put ✓ in front of the “do’s” and ✗ in front of the “don’ts”.

Eco Do's and Don'ts

- ☒ Stay on the trails or in authorized areas
- ☒ Use coal or wood instead of gas
- ☒ Use biodegradable soap for washing
- ☒ Buy objects made from endangered species to support the local economy
- ☒ Ask local people to bring animals close to you.
- ☒ Feed the animals when you can
- ☒ Touch the animals to show you care
- ☒ Leave biodegradable things in the area
- ☒ Use garbage bags to take out everything that you bring in

Speaking



Ecotourism in our town?

Who are you?

You are residents of **SUT town**, a small and quiet town with a beautiful environment.

What's happening?

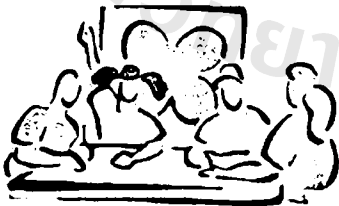
A tourism development company is planning to turn the town into a popular ecotourism destination. Tourists will come here for such activities as trekking, camping, climbing, and elephant riding. The company wants to build hotels, shops and restaurants for the tourists.

What's next?

The town council wants to know the opinions of SUT residents before making any decision. In a group of 3-4 students, look at the following points and decide which ones are the pros (✓) and cons (✗) of developing ecotourism in your town. Use them in your discussion.

- ☐ Better economy (money from tourists)
- ☐ More jobs for local people
- ☐ Effects on the environment
- ☐ Social problems, e.g., drugs and prostitution
- ☐ Development of SUT town
- ☐ Changes in the traditional way of life

After the discussion, tell the chair of the town council (your teacher) if your group is for or against the ecotourism project.



We think our town should develop ecotourism because ...

We think our town shouldn't develop ecotourism because ...

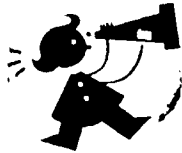
Reading 2

Ecotourism – is it all good?

1) Read through the text quickly and find out what impact ecotourism is having on the environment.

- ☐ Deforestation
- ☐ Animal abuse
- ☐ Trash

2) Vocabulary



a) Find words in the text that have the **same** meanings as the following.

popularity – boom

negative side – downside

huge – enormous

need – require

enough – adequate

result – consequence



b) Now find the words with **opposite** meanings.

positive – negative

decrease – increase

foreign – native

dead – living

Ecotourism – is it all good?

The ecotourism boom can have both a positive and a negative impact on the environment. On the positive side, more tourists are interested in nature. They also want to learn more about ecology. Many responsible travel companies offer teaching as a part of their ecotours. On the downside, the increase in tourists brings more damage and disruption to the environment.



Animal abuse is more common than you might think. There are dozens upon dozens of tour operators in Phuket who offer elephant trekking. Do you realize how much food and water it takes to keep an elephant healthy? It's a lot of work gathering the enormous amount of food that one elephant requires. Many don't get all that they need. Some operators give their elephants adequate access to water for bathing and some do not. All of the elephants in Phuket have been brought by truck long distances from other provinces. There are no living elephants which are native to the area.



Have you ever considered the consequences of getting your picture taken by sidewalk vendors? You can see locals with eagles, pythons, and other animals who are trying to get tourists to get their picture taken with these "jungle" creatures. For one thing, these animals aren't used to and probably aren't capable of getting used to constant loud noise. They are often sedated with drugs night after night to keep them from going crazy and panicking when faced with loud music and people screaming. You are only supporting their suffering when you hand the vendor some money.



Adapted from http://www.paddleasia.com/responsible_ecotourism.htm

Comprehension Check

Answer the following questions based on the text you have read.

1. What is the positive impact of ecotourism?

More tourists are interested in nature and want to learn more about ecology.

2. What is its negative impact?

The increase in tourists brings more damage and disruption to the environment.

3. How are some elephants abused in Phuket?

They don't get enough food and don't have adequate access to water for bathing.

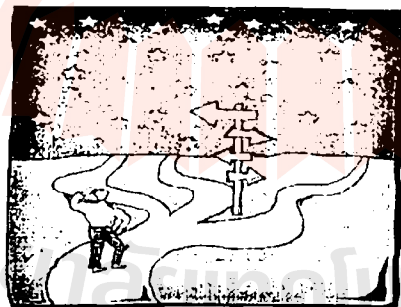
4. What happens when we have our picture taken by sidewalk vendors?

We indirectly support animal abuse.



Follow-up questions:

1. What are other negative effects that ecotourism may have on the environment?
2. Should we still support ecotourism in Thailand? Why/ Why not?



Grammar

Present Perfect

Have/ Has + V₃

Affirmative: I ve prepared for the trip.
She has prepared for the trip.

Negative: I haven't prepared for the trip.
She hasn't prepared for the trip.

Question: Have you prepared for the trip?
Has she prepared for the trip?

1. Use the Present Perfect to talk about *experiences that happened some time in our lives*.

Ex:

Have you ever **considered** the consequences of getting your picture taken by sidewalk vendors?

She **has traveled** to most parts of Thailand.

I **haven't been** to Phuket.

I **ve never thought** about going there.

ever and never

Use **ever** in questions and
never in negative sentences

2. Use the Past simple to say *when something happened*.

Ex:

When **did** you go to Trang?

I **went** there { last year.
three years ago.
in 1995.

3. Use the Present Perfect for unfinished actions (action still in progress).

Ex:

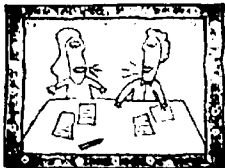
Ecotourism **has been** popular for many years.

We **have studied** at SUT for 1 year.

Practice

A. Change the verbs provided into the **Present Perfect**.

1. (you/ read) **Have you read** Harry Potter? It's one of the best books.
2. My sister (go) **has gone** on holiday four times this year.
3. I (not/ see) **haven't seen** the new movie.
4. How long (you/ live) **have you lived** here?
5. Dang and Gai (be) **have been** my best friends since high school.
6. John (spend) **has spent** three hours doing homework.
7. We (not/ meet) **haven't met** our advisors this term.
8. (you/ ever/ try) **Have you ever tried** scuba diving?



B. Complete the following conversation with the verbs provided in the correct forms (**Present Simple**, **Past Simple**, **Present Perfect**).

Bob: Hi Jane! Could you give me some advice? I (want) **__want__** to go to Chiang Rai in January. I heard you (be) **__have been__** there.

Jane: Yes, I (go) **__went__** there last year.

Bob: What kind of activities can we (do) **__do__** there?

Jane: Well, there (be) **__are__** many things you can do – trekking, rafting, camping, bird watching, and biking, for example.

Bob: (you/ ever/ be) **__Have you ever been__** to Chiang Saen Lake?

Jane: No, I haven't. I'd love to go there some time. I heard it (be) **__is__** a very good spot for bird watching. Unfortunately, last time my friends and I (spend) **__spent__** too much time at Doi Tung and we (not/ have) **__didn't have__** time to go to other places.

Bob: I (not/ think) **__haven't thought__** about where to go in Chiang Rai yet. Now I'm just trying to get as much information as I can.

Writing

What's happening:

Some tour operators want to turn the Karen hill tribe community in the north of Thailand into a popular tourist destination. Read the following information to get some idea about the situation.



The Karen community lives on farming and hunting. Some people think that the community should be open to tourists. That way, tourists would come and bring in money, so the Karen would not have to clear more forest for farming. On the other hand, some people say the community should avoid tourism because tourists may change their traditional way of life and may cause damage to the environment. What do you think?

What you can do:

Write a short message telling other people what you think on <http://www.travelforum.org/thailand>. In your message, include **three supporting statements** to support your opinion. Remember to use **connectors** to link these statements together.

The first supporting statement ➡ **First, Firstly**

The second supporting statement ➡ **Second, Secondly, In addition**

The last supporting statement ➡ **Finally, Lastly**

If you **agree** with the project, complete **Message A**. If you are **against** the project, complete **Message B**.

Message A

I think developing tourism in the Karen community is a good idea. _____

Message B

I think developing tourism in the Karen community is a bad idea. _____

Appendix

Core Vocabulary for Reading 1

demand (n.)	responsibility (n.)	promote (v.)
trend (n.)	destination (n.)	benefit (n., v.)
concern (n.)	region (n.)	operator (n.)
natural (adj.)	actually (adv.)	available (adj.)
environment (n.)	local (adj.)	ultimately (adv.)
policy (n.)	trash (n.)	adventure (n.)

Core Vocabulary for Reading 2

impact (n.)	abuse (n., v.)	consequence (n.)
boom (n.)	enormous (adj.)	vendor (n.)
downside (n.)	require (v.)	responsible (adj.)
increase (n., v.)	adequate (adj.)	capable (adj.)
damage (n., v.)	native (adj.)	positive (adj.)
disruption (n.)	consider (v.)	negative (adj.)

Computer lab activities

1. Amazon Interactive: Ecotourism Simulation Game

<http://eduweb.com/ecotourism/>

You can try your hand at developing an ecotourism project in the Amazon.
Can you make ecotourism sustainable?

2. Grammar explanation and practice:

Gerund:

<http://marksesl.com/grammar.html>

<http://web2.uvcs.uvic.ca/elc/studyzone/410/grammar/gerund.htm>

<http://esl.lbcc.cc.ca.us/eeslessons/gerundinf/gerundinf.htm>

<http://www.edu.ge.ch/cptic/prospective/projets/anglais/exercises/gerund1.htm>

Present Perfect:

<http://esl.about.com/library/quiz/blpastorperfect1.htm>

<http://esl.about.com/library/quiz/blpastorperfect2.htm>

<http://www.englishpage.com/verbpage/presentperfect.html>

Listening Scripts

Script 3.1

Joe : Let's talk about where we want to go this break. I suggest going to the Similans for swimming and scuba diving. There are many beautiful beaches there.

Joy: Well, we just went to the beach last time. Let's do something else. I'm thinking of going to Sai Yok National Park in Kanchanaburi. We can go trekking and rafting there.

Jane: That sounds like fun. But I think it's a little too crowded there.

Joe: Well, I have another idea. What do you think about Phu Kradung National Park in Loei? I heard it is a great place for trekking and camping and it's not crowded.

Jane: That sounds fantastic! I can't wait to see it.

Joy: Me too. That's settled then. Let's find more information about it on the website of the Tourism Authority of Thailand.

Script 3.2

Now let's talk about packing. Please only pack a few things for our trip. It is important not to bring too much stuff so we can save space in the tents. Please look at the checklist in front of you. First on the list, there are the items you need to bring with you: a flashlight, sunscreen, insect repellent, and a water bottle. Next are things that are optional, so you can bring them with you if you want, but you don't have to, for example, a camera and films and a small pocket knife. Now, here are things you shouldn't bring with you. First of all, don't bring expensive things on this trip, for example, jewelry and expensive cameras. They may get lost or stolen. Second, don't bring electronic items, such as computers, cell phones, and radios. We should take care of the environment while we are camping. Is there anything else?

Script 3.3

Joe: What are you doing, Jane?

Jane: I'm reading about ecotourism on this interesting website called ecotravel.com.

Joe: What is ecotourism?

Jane: It's the kind of travel that has a low impact on the environment of places we visit.

Joe: What do you have to do then?

Jane: The most basic thing to do is to stay in authorized areas. Going off the trails has a negative impact on the environment because we may damage plants and disturb animals in the area. Also, you should use gas instead of coal or wood and use biodegradable soap to wash with.

Joe: Anything we shouldn't do, then?

Jane: First of all, don't buy objects made from endangered species, for example, ivory, coral, and seashells. You should also not encourage local people to bring animals close to you. Don't feed the animals because it changes their eating habits. And don't touch the animals because we may transmit diseases to them.

Joe: That makes a lot of sense. I'll make sure I do all these things on my next trip.

Jane: Oh, one more thing. Don't throw away even biodegradable things. You should use garbage bags to take everything away with you.

English Two 203102

Theme 4

Alternative Energy



(Teacher's Manual)

Picture credit: <http://cui.unige.ch/eao/www/gif/globe.gif>



Objectives: This unit should help you to

Speaking:



- state and support opinions
- discuss pros and cons
- give advice

Listening:



- listen for key words
- listen for specific information
- take notes

Reading:



- read for main ideas
- read for specific information
- learn new words in context

Writing:



- write a descriptive paragraph
- present contrasting information

Grammar:



- focus on superlatives
- focus on the passive voice

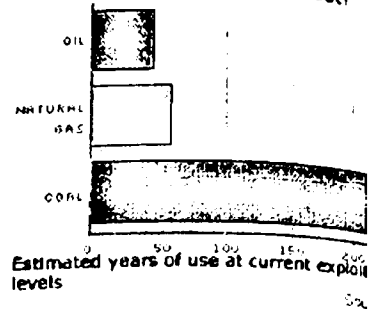
Speaking



1) With a partner, try to answer these questions (the figure on the right can help you answer some of the questions).

- ◆ What are fossil fuels?
Oil, natural gas, and coal
- ◆ Are they renewable (can they be used over and over again)? **No**
- ◆ Which fossil fuel will run out first? **Oil**
- ◆ Which one will last the longest? **Coal**
- ◆ Which one is the most polluting? **Coal**

How long will fossil fuels last?



(Picture credit: www.news.bbc.co.uk)

2) There are other sources of energy which can be our alternatives. Working with your partner, match each source of energy with its origin.

solar energy geothermal energy	biomass wind power
<p>Wood, Crops, Garbage, Landfill Gas, Alcohol Fuels</p>	<p>Origin: the sun</p>
<p>Origin: wood, garbage, agricultural waste</p>	<p>Origin: the wind</p>
<p>Origin: flowing water</p>	<p>Origin: heat inside the earth</p>



3) With a group of students, decide which source of alternative energy is best for use on SUT campus. List the advantages and disadvantages of your choice of alternative energy by answering the following questions:

- ◆ Is it renewable?
- ◆ Does it cause pollution?
- ◆ Is it safe for the environment?
- ◆ Is it efficient?
- ◆ Is it reliable? (Can we produce it when we want?)
- ◆ Is it expensive?

Our choice of alternative energy: _____



Advantages



Disadvantages

_____	_____
_____	_____
_____	_____

Be prepared to report the decision of your group to the university board. First, support your choice of energy by presenting the advantages. Then present its disadvantages (use "**however**" to introduce contrasting information).

_____ is best for use on our campus because
it is _____.



However, it is _____
_____.



Listening



Listening 4.1

1) You will hear these words in the radio talk. Match the words with the meanings.

__c__ lessen

__e__ dung

__a__ fertilizer

__f__ generate

__b__ conventional

__d__ alternative

a. a substance used to make plants grow more successfully

b. being used for a long time

c. reduce

d. offering a choice

e. animal waste

f. produce



2) You are gathering information on alternative energy for a class report. Listen to the Green Earth radio program and complete the notes.

☞ Type of alternative energy: Biogas

☞ Place where it is produced:

A pig farm in Ratchaburi

☞ How is it produced?

Pig dung is used to produce electricity.

☞ Advantages for farm owner:

1) Reducing the bad smell of pig dung

2) Reducing the electricity bill

☞ Government's plan:

To expand the project to 16 farms countrywide.

☞ These farms will generate:

136 million kilowatthours of electricity

51 million kilograms of liquid petroleum gas

400,000 tons of fertilizer





Listening 4.2



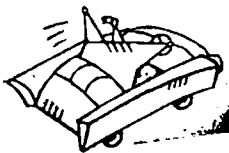
1) Peter is walking near the library and Julia is driving past by. Listen to their conversation and choose the best answers.

1. Why isn't Peter driving today?
 - a) His car broke down.
 - b) He wants to help reduce pollution on campus.*
 - c) He left his car key in his office.
2. Why doesn't Julia's car cause pollution?
 - a) It uses less gasoline.
 - b) It is brand new.
 - c) It does not produce tailpipe emissions.*



3. What fuel is used in her car?

- a) Electricity *
- b) Solar energy
- c) Natural gas



4. How does Julia refuel her car?

- a) By using solar cells.
- b) By recharging the batteries.*
- c) By filling the tank with gasoline.

5. What is the problem of the electric car mentioned by Julia?

- a) The batteries are expensive.
- b) The batteries take a long time to recharge.
- c) The batteries are good for short trips.*

2) Listen again and tick (✓) the expressions you hear. When is each of them used in the conversation?

When to use:

1. ☐ That would be less.
- ☐ That would be great.*

To accept an offer

2. ☐ I'm depressed.
- ☐ I'm impressed.*

To express admiration

3. ☐ That's a shame.*
- ☐ That's a game.

To express regret



Reading 1

The Veggie Van



1) Read through the text **quickly** and answer these questions:

A. What alternative energy is focused on in the text?

Biodiesel

B. What are the two names mentioned in the text?

Rudolf Diesel and Joshua Tickell

C. The Veggie Van is a van that

- ☐ sells vegetables
- ☐ runs on vegetable oil *
- ☐ was built by a vegetarian



2) Vocabulary

Match the words with the meanings.

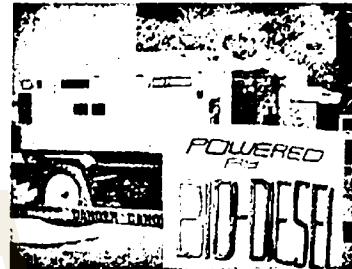
- | | |
|----------------------|--|
| <u>c</u> engine | a. the waste gas from an engine, especially a car's |
| <u>e</u> modify | b. to make something free from faults |
| <u>h</u> abundant | c. a machine that uses energy to produce movement |
| <u>g</u> crisis | d. surprise |
| <u>f</u> drastically | e. change |
| <u>i</u> solution | f. with very noticeable effects |
| <u>a</u> exhaust | g. a situation that has reached an extremely difficult point |
| <u>d</u> shock | h. more than enough |
| <u>b</u> perfect | i. the answer to a problem |



The Veggie Van

When Rudolf Diesel presented the diesel engine at the 1900 World Fair in Paris, he shocked scientists by pouring peanut oil into his engine. After his death, the idea of fueling engines with vegetable oil was quickly swept under the rug. Diesel engines were modified and were made to run on the cheapest, most abundant fuel available: petroleum.

It was not until the oil crisis of the 1970's that the idea of using vegetable oil as an engine fuel was again given serious thought. European researchers perfected the chemical process to make biodiesel fuel from vegetable oil. Biodiesel is made from vegetable oil, alcohol, and a catalyst. Biodiesel is easy to make, can be used in any diesel engine, and drastically reduces tailpipe emissions. Biodiesel can be made from any vegetable oil including soy, canola, sunflower, coconut, and even used cooking oils or animal fat. Biodiesel fuel is very lubricating, which makes it better for diesel engines than diesel fuel. The best part about biodiesel is that it requires no engine modifications. To use it, you just pour it into the fuel tank. It even mixes with regular petroleum diesel fuel.



In 1997, Joshua Tickell decided to bring people's attention to one solution to an environmental problem. The problem was petroleum use. The solution he wanted to show was vegetable oil. His goal was to drive a van across America, and fuel it with vegetable oil. The result was the Veggie Van. Since new vegetable oil from the supermarket is expensive, the van was run on used cooking oil from fast food restaurants. The first question people always asked was "Does it really run on vegetable oil?" One whiff of the exhaust was enough to convince people because it does, believe it or not, smell like french fries.



Adapted from "Fueling Around: The Story of the Veggie Van" by Joshua Tickell on <http://www.veggievan.org/veggievan/article.html>



Comprehension Check

1. What happened in the following periods of time?

1900: Rudolf Diesel presented the Diesel engine at the World Fair in Paris.

The 1970s: The idea of using vegetable oil as an engine fuel was again given serious thought because of the oil crisis.

1997: Joshua Tickell drove a van fueled with vegetable oil across America.

2. What is biodiesel made from?

It is made from vegetable oil, alcohol, and a catalyst.

3. What are the advantages of biodiesel?

It is easy to make, can be used in any diesel engine, and drastically reduces tailpipe emissions.

4. What is the best part about biodiesel?

It requires no engine modifications.

5. What was the Veggie Van run on?

It was run on used cooking oil from fast food restaurants.



Follow-up questions:

1. Do you think biodiesel will become popular in Thailand?
2. If you have a car, will you use biodiesel? Why/ Why not?



Grammar

Superlative adjectives

Compare the use of adjectives in the two sentences below.

- A. Petroleum is **cheaper** and **more abundant** than biodiesel.
- B. Petroleum is the **cheapest** and **most abundant** fuel.

We use **comparative adjectives** in A to compare two things.

We use **superlative adjectives** in B to compare more than two things.



Now review the rules for comparatives. Then observe the changes in the rules for superlatives.

<u>Rules</u>	Comparative	Superlative
One-syllable adjectives	adj + er older bigger	adj + est oldest biggest
	(Double the consonant if the adjective end in one vowel and one consonant.)	
Adjectives ending in -y	y → i + er funnier	y → i + est funniest
Adjectives with two or more syllables	more + adj more beautiful	most + adj most beautiful
Exceptions: good bad	better worse	best worst

comparative (than + n.)

the + superlative





Practice

A. Change the following adjectives into comparatives and superlatives.

		<u>Comparatives</u>	<u>Superlatives</u>
1. quick	→	<u>quicker</u>	<u>quickest</u>
2. dirty	→	<u>dirtier</u>	<u>dirtiest</u>
3. clean	→	<u>cleaner</u>	<u>cleanest</u>
4. cheap	→	<u>cheaper</u>	<u>cheapest</u>
5. friendly	→	<u>friendlier</u>	<u>friendliest</u>
6. polluting	→	<u>more polluting</u>	<u>most polluting</u>
7. expensive	→	<u>more expensive</u>	<u>most expensive</u>
8. efficient	→	<u>more efficient</u>	<u>most efficient</u>

B. Use the adjectives provided in the comparative and superlative forms.

- Coal is (dirty) dirtier than natural gas.
- In fact, coal is (dirty) the dirtiest source of energy.
- Some people think that petroleum is (reliable) the most reliable option.
- Many people prefer petroleum to wind power. It is (reliable) more reliable.
- In terms of safety, solar energy is (safe) safer than fossil fuels.
- Scientists are trying to find (safe) the safest energy resources.
- Even though scientists try to support the use of renewable energy, nonrenewable energy is still (popular) more popular.
- Petroleum is (popular) the most popular source of nonrenewable energy.
- Joshua Tickell thinks that vegetable oil is (good) the best solution to the problem of petroleum use.
- For diesel engines, biofuel is (good) better than petroleum.



Listening

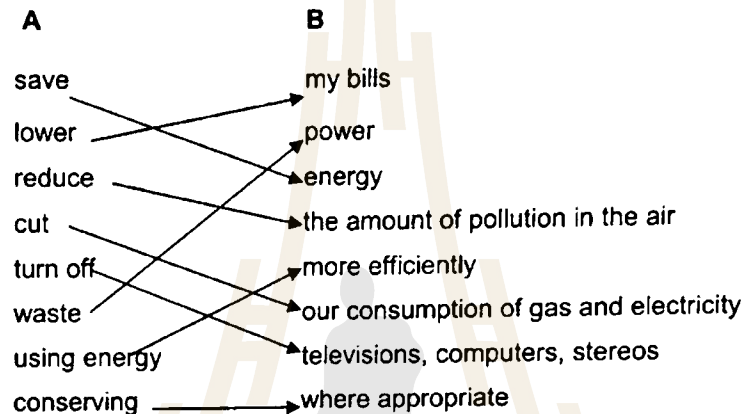


Listening 4.3



Listen to an interview with an energy consultant.

1) **First listening:** match the words and phrases in A with those in B.



2) **Second listening:** decide if these statements are true (T) or false (F).

- F 1. The interview is mainly about how to save money and reduce air pollution.
- T 2. Electricity and natural gas are becoming more expensive.
- T 3. We can save money when we use energy efficiently.
- F 4. Using a "screensaver" program when the computer is idle helps save energy.
- F 5. Screensaver programs use more power than other programs.
- T 6. We should set the computer to go into the sleep mode when it is not in use.



Speaking



How many ways can you think of to save energy on campus? Brainstorm with your group and make a list of what we should and should not do in order to save energy.

☺ Things to do:

1. We should _____.
2. _____.
3. _____.

☹ Things not to do:

1. We should not _____.
2. _____.
3. _____.

Giving advice

- ☺ For things you want people to do, use

should + V

ex: We should walk to school.

- ☹ For things you don't want people to do, use

should not + V

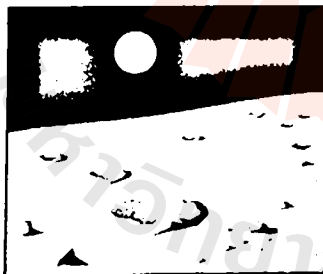
ex: We shouldn't leave lights on.

Reading 2

Power from the Moon



1) Moon quiz – How much do you know about the moon?



1. Is the moon Earth's only natural satellite?
 - ☐ Yes *
 - ☐ No
2. Is the moon bigger or smaller than the earth?
 - ☐ Bigger
 - ☐ Smaller *
3. Does the Moon have an atmosphere?
 - ☐ Yes
 - ☐ No *
4. About how long does it take the Moon to revolve around the Earth?
 - ☐ One month *
 - ☐ One year



5. Does the same side of the moon always face the Earth?

- ☐ Yes * ☐ No

6. On the moon, would the sky look blue or black?

- ☐ Blue ☐ Black *

7. Which spacecraft was the first to land on the moon on July 20, 1969?

- ☐ Apollo 11 * ☐ Apollo 13

8. Who was the first person to walk on the moon?

- ☐ Edwin Aldrin ☐ Neil Armstrong *



2) Pre-reading questions:

- › Is the moon a regular source of energy for the Earth?
- › How do you think we can get energy from the moon?



3) Vocabulary



Look for these words in the reading text and guess their meanings from the surrounding words.

Verbs

generate = produce

provide = give

capture = catch

replace = take the place of

convert = change

Adjectives

global = worldwide

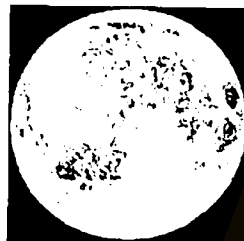
lunar = relating to the moon

solar = relating to the sun



Power from the Moon

Eighty-five percent of energy on Earth is now produced by fossil fuels which produce greenhouse gases. Many scientists believe these gases are the causes of global warming and say new methods must be found to generate energy. One scientist is proposing a solution to the problem: power plants on the moon.



Prof. David Criswell of the University of Houston's Institute for Space Systems says that lunar power plants that capture the sun's rays and send them on to Earth as microwave beams could provide inexpensive, abundant, and stable energy for the Earth's growing population. He estimates that the 10 billion people living on Earth in 2050 will require 20 Terawatts (TW) of power. The moon receives 13,000 TW of power from the sun. Collecting just 1% of the solar power and directing it toward Earth could replace fossil fuel power plants on Earth.



According to Criswell, the moon is an obvious choice for new power production facilities that would cause none of the pollution or nuclear waste of power plants on Earth. His plan is to set up solar panels on the moon to collect the sun's rays. This energy could then be converted into a microwave beam and sent back to Earth, where it would be easily converted into electricity. The microwave energy beam would have the intensity of about 20 percent of noontime sunlight and would be perfectly safe.

Adapted from: http://www.scientific-alliance.org/news_archives/energy/scientistsaysmoonpowersolveenergy.htm



Comprehension Check

- T 1. The greenhouse gases produced by fossil fuels are the causes of global warming.
- F 2. Energy produced from the moon is more abundant but more expensive than energy produced on earth.
- F 3. People living on Earth in 2050 will require 13,000 TW of power.
- T 4. Power sent from the moon could replace fossil fuel power on Earth.
- T 5. Power plants on the moon would cause no pollution.
- T 6. Solar panels have to be set up on the moon to collect the sun's rays.
- F 7. Electricity can be sent directly from the moon.
- F 8. The microwave energy beam would have the intensity of noontime sunlight.



Follow-up questions:

- 1. Do you think the plan to set up a power plant on the Moon will one day become true?
- 2. In addition to the Moon, where else might be an alternative source of energy for Earth?



Grammar

Passive voice

Compare the two sentences below:



Active voice: the subject performs the action

A. **Fossil fuels** produce eighty-five percent of energy on Earth

B. Eighty-five percent of energy on Earth is produced by **fossil fuels**.

Passive voice: the subject receives the action

RULES :

Passive voice → Be + V₃

Present simple

Active (V1): The moon captures the sun's rays.

➔ Passive (is/am/are + V3): The sun's rays are captured by the moon.

Past simple

Active (V2): Criswell proposed a solution to the energy problem.

➔ Passive (was/were + V3): A solution to the energy problem was proposed by Criswell.

Modals (e.g. can, will, should, must)

Active (modal + V1) : We must find new methods to generate energy.

➔ Passive (modal + be + V3): New methods to generate energy must be found.



How to change active to passive

1. Consider who or what is performing the action.
2. Make it the object of the "by..." phrase.
3. Make what is acted upon the subject of the sentence.
4. Change the verb form to **be + V3**.



Practice

A. Change the following sentences into the passive voice.

1. Greenhouse gases cause global warming.

Global warming is caused by greenhouse gases.

2. A scientist found a new place for power plants.

A new place for power plants was found by a scientist.

3. Lunar power plants could provide inexpensive and stable energy.

Inexpensive and stable energy could be provided by lunar power plants.

4. Solar power can replace fossil fuel power plants on Earth.

Fossil fuel power plants on Earth can be replaced by solar power.

5. The 10 billion people living on Earth in 2050 will require 20 Terawatts of power.

20 Terawatts of power will be required by the 10 billion people living on Earth in 2050.

6. The moon receives 13,000 Terawatts of solar power.

13,000 Terawatts of solar power are received by the moon.

7. They will build new power production facilities on the moon.

New power production facilities will be built on the moon.

8. Lunar power plants can convert solar energy into a microwave beam and send it back to Earth.

Solar energy can be converted into a microwave beam and sent back to Earth by lunar power plants.

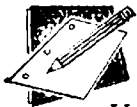
9. People can convert the microwave beam into electricity.

The microwave beam can be converted into electricity.



B. Change the verb provided into the appropriate forms.

1. We (should/ use) **should use** vegetable oil as an engine fuel.
2. Vegetable oil (should/ use) **should be used** as an engine fuel.
3. Exhaust from cars (cause) **causes** pollution.
4. Pollution (cause) **is caused** by exhaust from cars.
5. The use of biodiesel (reduce) **reduces** tailpipe emissions.
6. Tailpipe emissions (reduce) **are reduced** by the use of biodiesel.
7. The process to make biodiesel (perfect) **was perfected** in the 1970's.
8. Researchers (perfect) **perfected** the process to make biodiesel in the 1970's.
9. Biodiesel (can/ make) **can be made** from any vegetable oil.
10. We (can/ make) **can make** biodiesel from any vegetable oil.



Writing

Use your imagination and think of a **new source of energy** (it does not have to be real now). Write a short paragraph about it.

- ◆ Describe what the energy is made from.
 - ◆ Describe its advantages and disadvantages.
- Use **"however"** to present contrasting information.

The new source of energy I want to propose is _____.

It is made from _____.

_____.

_____.

However, _____.

_____.



Appendix

Core Vocabulary for Reading 1

shock (v.)	perfect (v., adj.)	abundant (adj.)
fuel (n., v.)	crisis (n.)	attention (n.)
engine (n.)	chemical (adj.)	solution (n.)
modify (v.)	process (n.)	exhaust (n.)
modification (n.)	drastically (adv.)	convince (v.)

Core Vocabulary for Reading 2

cause (n., v.)	population (n.)	obvious (adj.)
generate (v.)	estimate (v.)	facilities (n.)
global (adj.)	lunar (adj.)	waste (n.)
propose (v.)	solar (adj.)	convert (v.)
provide (v.)	capture (v.)	pollution (n.)
stable (adj.)	replace (v.)	intensity (v.)



Computer lab activities

1. Grammar practice

▣ Comparative and superlative adjectives:

http://esl.about.com/library/quiz/blgrquiz_compsup.htm

<http://www.stclaresoxfordonline.fsworld.co.uk/pages/langprac/compstu1.htm>

<http://www.collegeem.qc.ca/cemdept/anglais/genknof3.htm>

▣ Passive voice

<http://www.quia.com/pop/10140.html>

http://esl.about.com/library/quiz/blgrquiz_passive1.htm

2. Energy games and puzzles (crossword puzzles, word scrambles, seek-a-word puzzles, etc.)

<http://www.energyquest.ca.gov/games/>

Listening Scripts

Script 4.1

On our Green Earth Program today, we want to introduce you to a farm of the future. It's a pig farm in Ratchaburi where pig dung is used to produce electricity. Two years ago, the owner of the farm was told that the droppings of his 5,000 animals could be changed into electricity. Today, he's happy because he can lessen the bad smell of pig dung and his electricity bill has been reduced as well. He has his pigs to thank, or rather the mountain of pig dung that is now being used to power most of his farm's electrical needs. This energy is called biogas and it's an alternative to the conventional source of fossil fuel and nuclear energy. Based on this success, the government plans to expand this energy project to cover 16 farms countrywide. Together they will generate 136 million kilowatthours of electricity, 51 million kilograms of liquid petroleum gas and 400,000 tons of fertilizer.



Script 4.2

Julia: Hi Peter! Do you want a lift? I'm going to C Building.

Peter: Oh, that would be great.

Julia: Why aren't you driving today?

Peter: Well, I just want to help reduce pollution on campus by not driving and trying to walk when I can instead.

Julia: Wow, I'm impressed. But guess what? My car doesn't cause any pollution. It's an electric car. It runs on electricity generated from batteries and doesn't produce tailpipe emissions.

Peter: Very interesting. How do you refuel your car, Julia?

Julia: I have to recharge the batteries which takes about 15 minutes.

Peter: Isn't it more expensive than using gasoline?

Julia: Actually, no. The cost of electricity for recharging a battery is about 1/3 less than the cost of gasoline and diesel per year.

Peter: Is there any problem using an electric car at all?

Julia: Unfortunately, yes. The batteries can only supply enough energy for short trips.

Peter: That's a shame. But at least it's good for use on campus.

Script 4.3

Interviewer: As the cost of electricity and natural gas is getting higher and higher, a frequently asked question is: How can I save energy and lower my bills? Dr. Tyler, what kind of advice do you have?

Dr. Tyler: By using energy more efficiently and conserving where appropriate, we can cut our consumption of gas and electricity, save money, and reduce the amount of pollution in the air. One of the most common ways to save energy is to turn off televisions, computers, stereos and the like when you are not using them.

Interviewer: Speaking of computers, a lot of people have a "screensaver" program that floats animated images across the screen when the computer is idle. Is that a way to save energy?

Dr. Tyler: Actually, no. These programs also waste power by keeping your monitor on -- even when the computer is not in use. Instead of using a screensaver, program your computer to go into "sleep" mode when not in use.

Interviewer: I'm sure this is very useful advice for a lot of people. Thank you very much, Dr. Tyler.