ENGLISH 2
Theme 5

Science in Life
(Part 2)

STEM CELLS

Sarit Srikhao

(Student's Copy)

Objectives: This unit should help you to:

Speaking:

- Ask and give advice.
- Use apologizing expressions.

Listening:

- Listen to expressions relating to asking and giving advice.
- Listen to expressions relating to apologizing.
- Listening to a short talk

Reading:

- Identify the topic sentence.
- Find the specific information from the text.
- Identify the main idea.
- Indicate the part of speech.

Writing:

- Write the sentence using the present participle as an adjective.
- Write sentences using the present participle phrase as an adjective. phrase.
- Write a short paragraph.

Grammar focus:

- The Present Participle
- The Present Participle Phrase

1. Warm up

A. How much do you know about cells? Choose the best answer.

1. Which of the following is NOT a major type of cells?
   A. Eurythrotes
   B. Prokaryotes
   C. Eukaryotes
2. What type of cells is humans made of?
   A. Photosynthetic cells
   B. Prokaryotic cells
   C. Eukaryotic cells
3. Which type of cells has no membrane around their nucleus?
   A. Chlorine cells
   B. Prokaryotic cells
   C. Eukaryotic cells
4. How long can a nerve cell be?
   A. 1 meter
   B. 1 kilometer
   C. 1 centimeter
5. What is a major difference between plant and animal cells?
   A. Plan cells can make their own food but animal cells can't.
   B. Plant cells are always at least 10 times bigger than animal cells.
   C. There are no difference.
6. Animal cells are surrounded by ____ .
   A. A stiff cell membrane
   B. A flexible cell membrane
   C. Fur
7. Where would you find prokaryotic cells?
   A. In bacteria
   B. In cats and dogs
   C. In human muscles
8. Which of these statements is true about plant cells?
   A. They have no cell membranes.
   B. They can make their own food from sunlight.
   C. They work independently of one another.
9. The greenish color of plant cells comes from_____ .
   A. The cell membrane
   B. Chloroplast
   C. Ink
10. Which part of your body is made of cells?
   A. Just your hair and nails
   B. Just your brain
   C. Your entire body

Your Score:

_____

10

FACTS:

1. The largest cell in the human body is the female egg cell.
2. DNA is stored in the nucleus of an animal cell.
3. Your skin sends out 25,000 cells every minute.
4. People who live at high altitudes have more red blood cells than those who live at low altitudes.
5. Red blood cells are smaller than white blood cells.

B. How much do you know about stem cells?

Answer the following questions.

1. Stem cells can be taken from humans and animals.
2. Humans have 220 different cell types.
3. Stem cells can be taken from every part of the human body.
4. Stem cell research is the same as cloning research.
5. Stem cells have the ability to divide for an indefinite amount of time.
6. Stem cells can give rise to specialized cells.
7. A heart cell is a type of stem cell.
8. Stem cells can be found only in the embryo.
9. When stem cells are taken from the embryo, the embryo is destroyed.
10. The bone marrow is one source of stem cells.

Listening

Listening 5.6 Asking and giving advice. Listen to the dialogue. John is talking to Jane, his sister. Then, answer the questions.

1. What is the relationship between John and Jane?
2. Does Jane have a problem?
3. What is her problem?
4. What exactly does John ask Jane?
5. What does John tell Jane to do?
6. What will Jane do finally?

Speaking

Speaking 1. Asking and Giving advice.

A. Initiating a topic. The following expressions are used to initiate a topic.

You seem troubled.
You seem upset
You don't seem to be yourself today.

B. Offering to give advice. The following expressions are used to offer advice.

Is anything the matter?
What seems to be the problem?
What seems to be the matter?
What's the matter?
What's wrong?
Can I offer you some advice/a piece of advice/ a suggestion?

C. Asking for advice. The following expressions are used for asking for and giving advice.

I need your advice on .....
Do you have any suggestions?
Do you have any ideas?
Do you have any thoughts?
Do you have any recommendations?

D. Responses. The following expressions are used to give advice.

I advise you to + V1
I urge you to + V1
I recommend you to + V1
I think you should + V1
You should/must/ ought to + V1
How about + V-ing
What about +V-ing
Why don't you + V1
You could + V1

Ask and answer the questions. Initiate a topic, offer to give advice, and then, give advice.

Example:

..... lost my purse.
A: *You seem upset. What's the problem?* B: *I lost my purse.*
A: *You should go to the Lost and Found Office.*

1. ..... failed English 2.
   A: _____ B:_____
   A: _____
2. .....lost the pet dog.
   A: _____ B:_____
   A: _____
3. .....broke up with the boyfriend.
   A: _____ B:_____
   A: _____
4. .....have been on probation status.
   A: _____ B:_____
   A: _____
5. .....have got no money.
   A: _____ B:_____
   A: _____

Think about the following situations.
With your partner, create a conversation and practice saying.

Example: Calculus 2 / Midterm score was much lower than the mean score.
A: You seem troubled. *Is anything the matter?*
B. I have a problem with *Calculus 2.*
A: *What seems to be the problem?*
B: *My midterm score is much lower than the mean score.*
A: *I think you should study harder.*

1. English 2/ failed the midterm test.

A: _____
B: _____
A: _____
B: _____
A: _____

2. a friend/was angry with me
3. my stomach/ had a diarrhea
4. my mother/ wanted me to be a teacher
5. my car/ broke down again.

Listening 5.7 Apologizing
Listen to the dialogue. Then, answer the questions.
Father is talking to his daughter, Jenny, who comes home very late at night.

1. Do you think Jane's father is angry? _____
2. Why is he angry? _____
3. What time did his daughter come home? _____
4. Why does Jane come home very late at night? _____
5. What do they talk about? _____
6. What do you think is Jane's major subject? _____
7. Does her father know what stem cells are? _____
8. What is Jane father doing when she comes in? *He is waiting for her.*
8. What do you think Jane will do if she will be late again.
_____
9. What would you say if you were Jane? _____.
10. Would you be angry if you were Jane's father? _____.

Speaking 2 : Apologizing. The following are expressions for apologizing.

Apologizing	Responses to apologies
Sorry.	That's OK.
I'm sorry.	That's all right.
I'm terribly sorry.	Don't worry about it.
I'm awfully sorry.	Never mind. It's nothing to worry about.
I really am sorry.	It doesn't matter.
I'm so sorry I .... (V2)	
I'm terribly sorry about ...V-ing	
I do apologize for ...V-ing	

A. Think about the following situations. With your partner, apologize and respond to apologies.
Example: Your friend borrowed your pen and lost it.
Your friend: I'm so sorry I lost your friend. **You**: That's OK.

1. You step on your friend' toes.
2. You spill black coffee on your friend's new shirt.
3. You break your friend's coffee cup.
4. You forget to return your friend's calculator.
5. You dial the wrong number.

Listening 5.8 Short talk. Listen to the talk on embryonic stem cells. Then, answer the questions.

A. Gap-fill. Listen to the talk carefully. Then, fill the gap with the word or words you have heard.

Host: Good morning. You are listening to "_____", a program on applied sciences. We _____ you to write or call us with your _____. I am Robert Turner, your host. Our _____ this morning is Dr. Sue Mansfield, a _____. (A phone rings) We have our first caller on the line. Go ahead, please.

Caller: Hi, my name is Jacky. I _____ an article about _____ stem cells, but I don't really _____why they are _____.

Host: OK. Dr. Mansfield, what do you have for Jacky?

Mansfield: Embryonic _____ are important in medicine and _____ because they can _____ into any other cell made by the human _____. In theory, if stem cells can be _____ and their development can be directed in _____, it would be possible to grow cells of _____ importance, such as bone marrow, neuron _____or muscle. They can be used to cure some incurable _____ like cancer, and Parkinson's Disease.

Caller: Thank you very much. Now, I _____ how they are important to us.

B. Answer the questions.

1. Where does the talk take place? _____
2. What is the program called? _____
3. What is the host's name? _____
4. How can the audience ask questions? _____
5. What does Dr. Mansfield do? _____
6. What is the caller's name? _____
7. What does she want to know? _____
8. Why are stem cells important? _____
9. Give examples of cells that can be developed from stem cells. _____
10. What diseases are stem cells expected to cure? _____

Reading

Pre-reading Activities.

A. Match the words in column A with the meanings in column B.

Column A	Column B
1____ grow up	A. Change from childhood into adulthood
2____ career	B. To have many different skills
3____ fate	C. Piece of tissue inside the body
4____ substance	D. The way that events develop
5____ identity	E. All that belong to someone or something
6____ process	F. Completely
7____ defect	G. Job or profession
8____ muscle	H. Place from which something comes or is got
9____ course	I. To stop something before completion
10____ source	J. Number of group of different things
11____ harvest	K. Fault or imperfection in a person or thing
12____ abort	L. Remainder of something
13____ residual	M. Extremely important or necessary
14____ variety	N. Uncontrollable thing that happens
15____ capacity	O. Thing with particular properties
16____ turn into	P. To collect, to gather
17____ entirely	Q. What something or somebody is
18____ versatile	R. To change or develop into something different
19____ essential	S. Amount of ability or ability to do something
20____ property	T. A series of actions or of things

B. Put the following words into the appropriate category i.e. Noun, Verb, adjective, or Adverb, where possible.

Unit Words	Noun	Verb	Adjective	Adverb
grow (up)				-
career				-
fate				
substance				
identity				
process				
defect				
muscle				
course				
source				
harvest				
abort				
residual				
variety				
capacity				
turn (into)				
entirely				
versatile				
essential				
property				

C. Use the words. Write in each blank a word from the list above that most accurately fits the form and meaning of the sentence. Read the entire context before filling the blank. Change the word form where appropriate.

1. There is public _____concern over the effects of government's policy on stem cell experiments.
2. Doctors fear that stem cell transplant may affect the child's _____.
3. Some SUT students will chose a _____ in biotechnology.
4. They refused to reveal the _____of the donor of the fetal stem cells.
5. There were a few genetic _____in the newly cloned sheep.
6. In the normal _____of events, he would have thought no more of stem cell culture.
7. Genetic disorders can cause _____diseases like dystrophy and hemophilia.
8. The concern here is the possibility of a _____ effect of stem cell injections.
9. Stem cell knowledge can contribute to a _____ of cell-based treatments.
10. It is _____ to establish how the money is being spent on the experiment.
11. Her _____ passed to his next of kin.
12. In some way we do not know exactly, the living organisms concentrated the minerals by biological _____.
13. The meeting result will decide the _____ of thousands of employees in biotechnology.
14. The decision was taken to _____ stem cell experiment program.
15. The computer is a _____ machine.

D. One of the words in the list (in B) can replace all of the italicized words in each sentence. Fill in the blanks correctly.

1. Scientists were surprised to learn the *ability to be used in many different ways* of stem cells..
   Scientists were surprised to learn the _____ of stem cells.
2. John Smith *has a job as* a scientist.
   John Smith becomes a _____ scientist.
3. Fear sends adrenaline *flowing in large amounts* through the veins.
   Fear sends adrenaline _____ through the veins.
4. The aerobic exercises are good for developing the pieces of flesh used to make a movement in a certain part of the body.
5. The Genetech Laboratory has conducted research to replace *incorrectly made* genes with healthy ones.
   The Genetech Laboratory has conducted research to replace_____ genes with healthy ones.
6. The new computer is *able to hold much* more than the old one.
7. The new computer has more_____ memory than the old one.
8. The researchers are worried about their *ability* to invest for the future.
   The firms are worried about their _____ to invest for the future.
9. Many farmers do not *collect* their crops at the start of the season.
   Many farmers do not _____ their crops at the start of the season.
10. The reports from stem cell programs are not *completely* free of suspicion.
    The reports from stem cell programs are not _____ free of suspicion.
11. The scientist is conducting research on a *thing with particular properties*, which encourages cell growth.
    The scientist is conducting research on a _____that encourages cell growth.
12. The research team was unable to find the *place from which the infection comes.*
    The research team was unable to find the _____of the infection.

13. Since the *important and decisive* event, the man only wishes to die.
    Since the _____ event, the man only wishes to die.
14. After three *unsuccessful* attempts with stem cells, the researcher stopped working.
    After three _____attempts with stem cells, the researcher stopped working.
15. The freezing temperatures *changed* the water in the stream into ice.
    The freezing temperatures _____ the water in the stream into ice.

Grammar Focus

The Present Participle. The present participle is formed by the infinitive plus *-ing* (V+-ing). It is used to from progressive tenses with the auxiliary *be*, and to function as the adjective. Like regular adjectives, the present participle when used as an adjective, follows the auxiliary *be* or is followed by the noun.

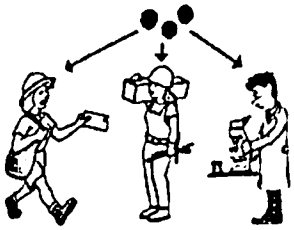
Example: There are a lot of *frightening* stories in the newspaper.
The match between Liverpool and Arsenal teams was very *exciting*.
Most spices have *pleasing* odors.
The movie was *boring*, so I fell asleep.

The Present Participle Phrase
The present participle phrase used as the adjective follows the noun it modifies.

Example: The man *standing under the tree* is an English professor.
The students *listening to the lecture* felt bored.
I know the man *walking in the field.*
He always loses the games *playing at home.*

Stem cells

What do you want to be when you grow up, a fire fighter, a doctor, a cook, an architect, a nurse? No matter what you do when you grow up, you can always change careers and become something else. However, once a cell becomes a heart cell or a muscle cell, it cannot change. That is what scientists thought. Studies in the past years have shown that some cells can change their fate. For example, one study reported that early brain cells called neural stem cells can act as bone marrow, which is a reddish substance inside of bones that produce blood cells. Stem cells are *undifferentiated* – like people seeking a career, these cells do not yet have a specific identity. Signals in the body cause stem cells to go through the process of differentiation to become a certain type of cell, such as a liver cell or a skin cell.



What is a stem cell? A stem cell is a cell that has two abilities. It can divide and make identical copies of itself, and to give rise to any of the body's cell type including heart, muscle, skin, or nerve cell. Stem cells arise early in development, when embryos are less than a week old, and exist there in an undifferentiated state for a very short time before going off to become other types of cells. In the course of development, they finally become skin cells, neurons, muscle, blood cells and very other type of the 220 cell types that make the tissues and organs in the body.

Where do stem cells come from? Stem cells come from four different sources and in four varieties. *Embryonic stem cells* are taken from a human embryo when it is about 5 days old. *Adult stem cells* are harvested from many different tissues in the body including bone marrow, blood or skin of a fully developed child or adult. Fet*al stem cells* are taken from an unborn child who has been aborted. The last type of stem cells is *umbilical stem cells*. They are drawn from the residual blood left in the umbilical cord of a newborn baby.

What is the difference between embryonic and adult stem cells? Embryonic stem cells are not the same as adult stem cells. Embryonic stem cells can develop into any type of mature cells. Adult stem cells may also develop into a variety of tissue types, but are limited in the kinds of cells they can produce. However, scientists are now finding out that some types of adult stem cells, such as adult bone marrow cells, have the capacity to turn into an entirely different kind of cell. Stem cells in the bone marrow are especially versatile in their function, as they may grow and differentiate into blood cells, heart tissues, and even brain tissue. Scientists want to study stem cells in the laboratory, so they can learn about their essential properties and what makes them different from specialized cell types. As scientists learn more about stem cells, it may become possible to use the cells in cell-based therapies, such as diabetes and Parkinson's diseases for screening new drugs and toxins, and understanding birth defects.

(*Adapted from* http://stencells.nih.gov.infoCenter/stemCellBasics.asp)

Post-reading Activities

A. Finding the Main idea

1. What is paragraph 1 mainly about? _____
2. What is the main idea of paragraph 2? _____
3. What is the main idea of paragraph 3? _____
4. What is the main idea of paragraph 4? _____

B. Finding the topic sentences

1. What is the topic sentence of paragraph 1?
   _____
2. What is the topic sentence of paragraph 2?
   _____
3. What is the topic sentence of paragraph 3?
   _____
4. What is the topic sentence of paragraph 4?
   _____

C. Finding the detailed information Answer the following questions.

1. In the first three lines, the author compares two things. What does he compare?
   _____
2. What does the phrase "what you can do" (line 2) refer to?
   _____
3. The word "fate" (line 3) in this passage means _____.
4. The word "undifferentiated" (line 7) in this passage means_____
   _____
5. According to the passage, what kind of cell can change to bone marrow?
   _____
6. What is bone marrow? _____
7. What is the function of bone marrow?_____
8. According to the passage, what can a stem cell do?
   1. _____
   2. _____
9. According to the passage, when does a stem cell develop?
   _____
10. How many cell types are there in the human body?
    _____
11. What are the 4 sources of stem cells?
    _____
    _____
12. What is the difference between the embryonic and the adult stem cell?
    _____
    _____
13. What is the scientist finding about adult stem cells now?
    _____
    _____
14. What types of cells can the bone marrow turn into?
    _____

15. Why do scientists want to study stem cells in the laboratory?
    1. _____
    2. _____
16. What diseases do scientists expect to cure using stem cell technology?
    _____
17. The passage implies that there are 2 major types of cells. What are they?
    _____
18. Give examples of specialized cells.
    _____
19. Apart from curing diseases, what are other expected advantages of stem cells?
    _____
    _____
20. What does the word "therapies" (line 2) mean?
    _____

Writing

A. In-class writing

Exercise 1. Rewrite the following sentences, using the present participles in the verbs as adjective modifiers before the subjects. Use appropriate pronouns.

Example: **The baby** is crying. **It** is a *crying baby*
The woman is fascinating. **She** is a *fascinating woman.*

1. The weather is freezing. _____
2. The movie is frightening. _____
3. The tailor is laughing. _____
4. The girl is working. _____
5. The crowd is rushing. _____
6. The plants are flowering. _____
7. A star is shining. _____
8. The student is smiling. _____
9. The water is running. _____
10. The bus is moving. _____

Exercise 2. Combine and rewrite the following sentences, using present participle phrases.

Example: The boy was studying is lesson. The boy was the most intelligent.
The boy *studying his lesson* was the most intelligent.

1. The man was wearing a red hat. The man is John.
   _____
2. The man was wearing a red shirt. The man was sitting in the back row.
   _____
3. The man was painting the fences. The man was hired yesterday.
   _____
4. The man was carrying the ball. The man fell on his face.
   _____
5. The woman was looking at the painting. The woman was an artist.
   _____

Exercise 3. In context.

Put in the correct forms.

B. Homework Assignment.

Write a short paragraph of about 200 words discussing why you are in favor of or against stem cell experiments. You can get information from any website. Use connectives like first, second, third, and finally for each of your reasons. You may start your essay with either of the following topic sentences.

I support stem cell experiments because of the following reasons.
First, ...

I am against stem cell experiments because of the following reasons.
First.....

Appendix

Core Vocabulary

grow up	career	fate	identity	defect	muscle
course	source	harvest	abort	residual	variety
capacity	turn into	entirely	versatile	essential	property
substance	process				

Listening Scripts

Listening 1

John: OK, Jane. It seems you are in trouble. What's the matter?
Jane: No... Yes. I don't know.
John: Come on, Jane. I'm your brother. What's the problem?
Jane: It's my experiment on fetal stem cells. It's failed again.
I don't know what to do. Professor Lewis said I would fail this course.
John: You should tell him exactly what happened in the experiment.
Jane: I did, but he didn't seem to understand.
John: Try again. You should explain thoroughly why it failed.
Jane: I think I'd better talk to him. Thanks.

Listening 2

Father: What sort of time do you call it now, Jenny?
Jenny: I'm sorry, dad.
Father: You should say so! It's 3 a.m.!
Jenny: Come on, dad. Please stop nagging. I'm 19. I know what I am doing.
Father: Maybe, if you are not living in my house. Anyway, what were you doing until 3 in the morning?
Jenny: We were chatting and also talking about stem cell techniques.
Father: What on earth does that mean? Are you trying to confuse me?
Jenny: Dad, I really am sorry, but you don't have to stay up late for me.
Father: OK. I know you think I'm a fussy old man, and I'm sorry, but next time just let me know when you are going to be late. Give me a call or something.
Jenny: Yes, I will let you know next time. Sorry, dad.
Father: That's OK.

Short talk. Listen to the talk on embryonic stem cells. Then, answer the questions.

Host: Good morning. You are listening to "Science in Life", a program on applied sciences. We invite you to write or call us with your problems. I am Robert Turner, your host. Our expert this morning is Dr. Sue Mansfield, a biotechnologist. (A phone rings) We have our first caller on the line. Go ahead, please.

Caller: Hi, my name is Jacky. I have read an article about embryonic stem cells, but I don't really know why they are important.

Host: OK. Dr. Mansfield, what do you have for Jacky?

Mansfield: Embryonic stem cells are important in medicine and science because they can develop into any other cell made by the human body. In theory, if stem cells can be grown and their development can be directed in culture, it would be possible to grow cells of medical importance, such as bone marrow, neuron tissue or muscle. They can be used to cure some incurable diseases like cancer, and Parkinson's Disease.

Caller: Thank you very much. Now, I understand how they are important to us.

ENGLISH 2
Theme 5

Science in Life
(Part 2)

STEM CELLS

(Teachers' Manual)

Objectives: This unit should help you to:

Speaking:

- Ask and give advice.
- Use apologizing expressions.

Listening:

- Listen to expressions relating to asking and giving advice.
- Listen to expressions relating to apologizing.
- Listening to a short talk

Reading:

- Identify the topic sentence.
- Find the specific information from the text.
- Identify the main idea.
- Indicate the part of speech.

Writing:

- Write the sentence using the present participle as an adjective.
- Write sentences using the present participle phrase as an adjective. phrase.
- Write a short paragraph.

Grammar focus:

- The Present Participle
- The Present Participle Phrase

1. Warm up

A. How much do you know about cells? Choose the best answer.

1. Which of the following is NOT a major type of cells?
   A. Eurythrotes *
   B. Prokaryotes
   C. Eukaryotes
2. What type of cells is humans made of?
   A. Photosynthetic cells
   B. Prokaryotic cells
   C. Eukaryotic cells *
3. Which type of cells has no membrane around their nucleus?
   A. Chlorine cells
   B. Prokaryotic cells *
   C. Eukaryotic cells
4. How long can a nerve cell be?
   A. 1 meter *
   B. 1 kilometer
   C. 1 centimeter
5. What is a major difference between plant and animal cells?
   A. Plan cells can make their own food but animal cells can't. *
   B. Plant cells are always at least 10 times bigger than animal cells.
   C. There are no difference.
6. Animal cells are surrounded by _____ .
   A. A stiff cell membrane
   B. A flexible cell membrane *
   C. Fur
7. Where would you find prokaryotic cells?
   A. In bacteria *
   B. In cats and dogs
   C. In human muscles
8. Which of these statements is true about plant cells?
   A. They have no cell membranes.
   B. They can make their own food from sunlight. *
   C. They work independently of one another.
9. The greenish color of plant cells comes from_____ .
   A. The cell membrane
   B. Chloroplast *
   C. Ink
10. Which part of your body is made of cells?
   A. Just your hair and nails
   B. Just your brain
   C. Your entire body *

Your Score:
_____
10

FACTS:

1. The largest cell in the human body is the female egg cell.
2. DNA is stored in the nucleus of an animal cell.
3. Your skin sends out 25,000 cells every minute.
4. People who live at high altitudes have more red blood cells than those who live at low altitudes.
5. Red blood cells are smaller than white blood cells.

B. How much do you know about stem cells?

Answer the following questions.

1. Stem cells can be taken from humans and animals. F
2. Humans have 220 different cell types. T
3. Stem cells can be taken from every part of the human body. F
4. Stem cell research is the same as cloning research. F
5. Stem cells have the ability to divide for an indefinite amount of time. T
6. Stem cells can give rise to specialized cells. T
7. A heart cell is a type of stem cell. F
8. Stem cells can be found only in the embryo. F
9. When stem cells are taken from the embryo, the embryo is destroyed. T
10. The bone marrow is one source of stem cells. T

Listening

Listening 5.6 Asking and giving advice. Listen to the dialogue. John is talking to Jane, his sister.

John: OK, Jane. It seems you are in trouble. What's the matter?
Jane: No... Yes. I don't know.
John: Come on, Jane. I'm your brother. What's the problem?
Jane: It's my experiment on fetal stem cells. It's failed again.
I don't know what to do. Professor Lewis said I would fail this course.
John: You should tell him exactly what happened in the experiment.
Jane: I did, but he didn't seem to understand.
John: Try again. You should explain thoroughly why it failed.
Jane: I think I'd better talk to him. Thanks.

Better Pronunciation

A. Intonation. Listen to the dialogue above. Underline the stressed words.
B. Listen and repeat. Imitate the intonation. Draw the intonation contour.

Listen to the dialogue again and answer the questions.

1. What is the relationship between John and Jane? *Brother and sister.*
2. Does Jane have a problem? *Yes*
3. What is her problem? *Her experiment failed*
4. What exactly does John ask Jane? *What's the matter?*
5. What does John tell Jane to do? *She should tell the professor what happened.*
6. What will Jane do finally? *She will talk to the professor again.*

Speaking

Speaking 1. Asking and Giving advice.

A. Initiating a topic. The following expressions are used to initiate a topic.
You seem troubled.
You seem upset
You don't seem to be yourself today.

B. Offering to give advice. The following expressions are used to offer advice.
Is anything the matter?
What seems to be the problem?
What seems to be the matter?
What's the matter?
What's wrong?
Can I offer you some advice/a piece of advice/ a suggestion?

C. Asking for advice. The following expressions are used for asking for and giving advice.
I need your advice on .....
Do you have any suggestions?
Do you have any ideas?
Do you have any thoughts?
Do you have any recommendations?

D. Responses. The following expressions are used to give advice.
I advise you to + V1
I urge you to + V1
I recommend you to + V1
I think you should + V1
You should/must/ ought to + V1
How about + V-ing
What about +V-ing
Why don't you + V1
You could + V1

Ask and answer the questions. Initiate a topic, offer to give advice, and then, give advice.

Example:
..... lost my purse.
A: *You seem upset. What's the problem?* B: *I lost my purse.*
A: *You should go to the Lost and Found Office.*

1. ..... failed English 2.
A: _____ B:_____
A: _____
2. .....lost the pet dog.
A: _____ B:_____
A: _____
3. .....broke up with the boyfriend.
A: _____ B:_____
A: _____
4. .....have been on probation status.
A: _____ B:_____
A: _____
5. .....have got no money.
A: _____ B:_____
A: _____

Think about the following situations.
With your partner, create a conversation and practice saying.

Example: Calculus 2 / Midterm score was much lower than the mean score.
A: You seem troubled. *Is anything the matter?*
B. I have a problem with *Calculus 2.*
A: *What seems to be the problem?*
B: *My midterm score is much lower than the mean score.*
A: *I think you should study harder.*

1. English 2/ failed the midterm test.

A: _____
B: _____
A: _____
B: _____
A: _____

2. a friend/was angry with me
3. my stomach/ had a diarrhea
4. my mother/ wanted me to be a teacher
5. my car/ broke down again.

Listening 5.7 Apologizing

Father is talking to his daughter, Jenny, who comes home very late at night.

Father: What sort of time do you call it now, Jenny?
Jenny: I'm sorry, dad.
Father: You should say so! It's 3 a.m.!
Jenny: Come on, dad. Please stop nagging. I'm 19. I know what I am doing.
Father: Maybe, if you are not living in my house. Anyway, what were you doing until 3 in the morning?
Jenny: We were chatting and also talking about stem cell techniques.
Father: What on earth does that mean? Are you trying to confuse me?
Jenny: Dad, I really am sorry, but you don't have to stay up late for me.
Father: OK. I know you think I'm a fussy old man, and I'm sorry, but next time just let me know when you are going to be late. Give me a call or something.
Jenny: Yes, I will let you know next time. Sorry, dad.
Father: That's OK.

Listen to the dialogue again. Then, answer the questions.

1. Do you think Jane's father is angry? *Yes, he is*
1. Why is he angry? *Jane came home very late at night.*
2. What time did his daughter come home? *Three o'clock in the morning*
3. Why does Jane come home very late at night? *She talks to her friends.*
4. What do they talk about? Stem cell techniques
5. What do you think is Jane's major subject? *Biotechnology*
6. Does her father know what stem cells are? *No, he doesn't.*
7. What is Jane father doing when she comes in? *He is waiting for her.*
8. What do you think Jane will do if she will be late again.
   She will call up her father.

9. What would you say if you were Jane? _____.
10. Would you be angry if you were Jane's father? _____.

Speaking 2 : Apologizing. The following are expressions for apologizing.

Apologizing	Responses to apologies
Sorry.	That's OK.
I'm sorry.	That's all right.
I'm terribly sorry.	Don't worry about it.
I'm awfully sorry.	Never mind. It's nothing to worry about.
I really am sorry.	It doesn't matter.
I'm so sorry I .... (V2)	
I'm terribly sorry about ...V-ing	
I do apologize for ...V-ing	

A. Think about the following situations. With your partner, apologize and respond to apologies.

Example: Your friend borrowed your pen and lost it.
Your friend: I'm so sorry I lost your friend. **You**: That's OK.

1. You step on your friend' toes.
2. You spill black coffee on your friend's new shirt.
3. You break your friend's coffee cup.
4. You forget to return your friend's calculator.
5. You dial the wrong number.

Listening 5.8 Short talk. Listen to the talk on embryonic stem cells. Then, answer the questions.

Host: Good morning. You are listening to "Science in Life", a program on applied sciences. We invite you to write or call us with your problems. I am Robert Turner, your host. Our expert this morning is Dr. Sue Mansfield, a biotechnologist. (A phone rings) We have our first caller on the line. Go ahead, please.

Caller: Hi, my name is Jacky. I have read an article about embryonic stem cells, but I don't really know why they are important.

Host: OK. Dr. Mansfield, what do you have for Jacky?

Mansfield: Embryonic stem cells are important in medicine and science because they can develop into any other cell made by the human body. In theory, if stem cells can be grown and their development can be directed in culture, it would be possible to grow cells of medical importance, such as bone marrow, neuron tissue or muscle. They can be used to cure some incurable diseases like cancer, and Parkinson's Disease.

Caller: Thank you very much. Now, I understand how they are important to us.

A. Gap-fill. Listen to the talk carefully. Then, fill the gap with the word or words you have heard.

Host: Good morning. You are listening to "*Science in Life*", a program on applied sciences. We *invite* you to write or call us with your *problems*. I am Robert Turner, your host. Our *expert* this morning is Dr. Sue Mansfield, a *biotechnologist*. (A phone rings) We have our first caller on the line. Go ahead, please.

Caller: Hi, my name is Jacky. I *have read* an article about *embryonic* stem cells, but I don't really *know* why they are *important*.

Host: OK. Dr. Mansfield, what do you have for Jacky?

Mansfield: Embryonic *stem cells* are important in medicine and *science* because they can *develop* into any other cell made by the human *body*. In theory, if stem cells can be *grown* and their development can be directed in *culture*, it would be possible to grow cells of *medical* importance, such as bone marrow, neuron *tissue* or muscle. They can be used to cure some incurable *diseases* like cancer, and Parkinson's Disease.

Caller: Thank you very much. Now, I *understand* how they are important to us.

B. Answer the questions.

1. Where does the talk take place? *On the radio*
2. What is the program called? *Science in life*
3. What is the host's name? *Robert Turner*
4. How can the audience ask questions? *By writing or by phone*
5. What does Dr. Mansfield do? *A biotechnologist*
6. What is the caller's name? *Jacky*
7. What does she want to know? *Why stem cells are important*
8. Why are stem cells important?
   They can develop into other cell types.
9. Give examples of cells that can be developed from stem cells.
   Neuron tissue cells, bone marrow cells, muscle cells
10. What diseases are stem cells expected to cure? *Parkinson' disease, cancer*

Reading

Pre-reading Activities.

A. Match the words in column A with the meanings in column B.

Column A	Column B
1____ grow up	A. Change from childhood into adulthood (1)
2____ career	B. To have many different skills (18)
3____ fate	C. Piece of tissue inside the body (8)
4____ substance	D. The way that events develop (9)
5____ identity	E. All that belong to someone or something (20)
6____ process	F. Completely (17)
7____ defect	G. Job or profession (2)
8____ muscle	H. Place from which something comes or is got (10)
9____ course	I. To stop something before completion (12)
10____ source	J. Number of group of different things (14)
11____ harvest	K. Fault or imperfection in a person or thing (7)
12____ abort	L. Remainder of something (13)
13____ residual	M. Extremely important or necessary (19)
14____ variety	N. Uncontrollable thing that happens (3)
15____ capacity	O. Thing with particular properties (4)
16____ turn into	P. To collect, to gather (11)
17____ entirely	Q. What something or somebody is (5)
18____ versatile	R. To change or develop into something different (16)
19____ essential	S. Amount of ability or ability to do something (15)
20____ property	T. A series of actions or of things (6)

B. Put the following words into the appropriate category i.e. Noun, Verb, adjective, or Adverb, where possible.

Unit Words	Noun	Verb	Adjective	Adverb
grow (up)	growth	grow	growing, grown	-
career	career	-	career	-
fate	ate	-	fateful	fatefully
substance	substance	-	-	-
identity	identity	-	-	-
process	process	process	-	-
defect	defect	defect	defective	defectively
muscle	muscle	-	muscular	muscularly
course	course	course	-	-
source	source	source	-	-
harvest	harvest	harvest	-	-
abort	abortion	abort	abortive	abortively
residual	residue	-	residual	residually
variety	variety	-	-	-
capacity	capacity	-	capacious	capaciously
turn (into)	turn	turn	turnable	turnably
entirely	entirety	-	entire	entirely
versatile	versatility	-	versatile	versatilely
essential	essence	-	essential	essentially
property	property	-	propertied	-

C. Use the words. Write in each blank a word from the list above that most accurately fits the form and meaning of the sentence. Read the entire context before filling the blank. Change the word form where appropriate.

1. There is public _____concern over the effects of government's policy on stem cell experiments. *(growing)*
2. Doctors fear that stem cell transplant may affect the child's _____. *(growth)*
3. Some SUT students will chose a _____ in biotechnology. *(career)*
4. They refused to reveal the _____of the donor of the fetal stem cells. *(identity)*
5. There were a few genetic _____in the newly cloned sheep. *(defects)*
6. In the normal _____of events, he would have thought no more of stem cell culture. *(course)*
7. Genetic disorders can cause _____diseases like dystrophy and hemophilia. *(muscular)*
8. The concern here is the possibility of a _____ effect of stem cell injections. *(residual)*
9. Stem cell knowledge can contribute to a _____ of cell-based treatments. *(variety)*
10. It is _____ to establish how the money is being spent on the experiment. *(essential)*
11. His _____passed to his next of kin. *(property)*
12. In some way we do not know exactly, the living organisms concentrated the minerals by biological _____. *(processes)*
13. The meeting result will decide the _____ of thousands of employees in biotechnology. *(fate)*
14. The decision was taken to _____ stem cell experiment program. *(abort)*
15. The computer is a _____ machine. *(versatile)*

D. One of the words in the list (in B) can replace all of the italicized words in each sentence. Fill in the blanks correctly.

1. Scientists were surprised to learn the *ability to be used in many different ways* of stem cells..
   Scientists were surprised to learn the _____ of stem cells. *(versatility)*
2. John Smith *has a job as* a scientist.
   John Smith becomes a _____ scientist. *(career)*
3. Fear sends adrenaline *flowing in large amounts* through the veins.
   Fear sends adrenaline _____ through the veins. *(coursing)*
4. The aerobic exercises are good for developing the pieces of flesh used to make a movement in a certain part of the body. *(muscles)*
5. The Genetech Laboratory has conducted research to replace *incorrectly made* genes with healthy ones.
   The Genetech Laboratory has conducted research to replace_____ genes with healthy ones. *(defective)*
6. The new computer is *able to hold much* more than the old one.
7. The new computer has more_____ memory than the old one. *(capacious)*
8. The researchers are worried about their *ability* to invest for the future.
   The firms are worried about their _____ to invest for the future. *(capacity)*
9. Many farmers do not *collect* their crops at the start of the season.
   Many farmers do not _____ their crops at the start of the season. *(harvest)*
10. The reports from stem cell programs are not *completely* free of suspicion.
    The reports from stem cell programs are not _____ free of suspicion.*(entirely)*

11. The scientist is conducting research on a *thing with particular properties*, which encourages cell growth.
    The scientist is conducting research on a _____that encourages cell growth. (*substance*)
12. The research team was unable to find the *place from which the infection comes.*
    The research team was unable to find the _____of the infection. (*source*)

13. Since the *important and decisive* event, the man only wishes to die.
    Since the _____ event, the man only wishes to die. (*fateful*)
14. After three *unsuccessful* attempts with stem cells, the researcher stopped working.
    After three _____attempts with stem cells, the researcher stopped working. (*abortive*)
15. The freezing temperatures *changed* the water in the stream into ice.
    The freezing temperatures _____ the water in the stream into ice. (*turned*)

Grammar Focus

The Present Participle. The present participle is formed by the infinitive plus *–ing* (V+-ing). It is used to from progressive tenses with the auxiliary *be*, and to function as the adjective. Like regular adjectives, the present participle when used as an adjective, follows the auxiliary *be* or is followed by the noun.

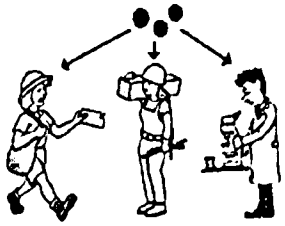
Example: There are a lot of *frightening* stories in the newspaper.
The match between Liverpool and Arsenal teams was very *exciting.*
Most spices have *pleasing* odors.
The movie was *boring*, so I fell asleep.

The Present Participle Phrase
The present participle phrase used as the adjective follows the noun it modifies.

Example: The man *standing under the tree* is an English professor.
The students *listening to the lecture* felt bored.
I know the man *walking in the field.*
He always loses the games *playing at home.*

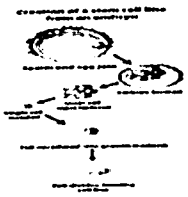
Stem cells

What do you want to be when you grow up, a fire fighter, a doctor, a cook, an architect, a nurse? No matter what you do when you grow up, you can always change careers and become something else. However, once a cell becomes a heart cell or a muscle cell, it cannot change. That is what scientists thought. Studies in the past years have shown that some cells can change their fate. For example, one study reported that early brain cells called neural stem cells can act as bone marrow, which is a reddish substance inside of bones that produce blood cells. Stem cells are *undifferentiated* – like people seeking a career, these cells do not yet have a specific identity. Signals in the body cause stem cells to go through the process of differentiation to become a certain type of cell, such as a liver cell or a skin cell.



What is a stem cell? A stem cell is a cell that has two abilities. It can divide and make identical copies of itself, and to give rise to any of the body's cell type including heart, muscle, skin, or nerve cell. Stem cells arise early in development, when embryos are less than a week old, and exist there in an undifferentiated state for a very short time before going off to become other types of cells. In the course of development, they finally become skin cells, neurons, muscle, blood cells and very other type of the 220 cell types that make the tissues and organs in the body.

Where do stem cells come from? Stem cells come from four different sources and in four varieties. *Embryonic stem cells* are taken from a human embryo when it is about 5 days old. *Adult stem cells* are harvested from many different tissues in the body including bone marrow, blood or skin of a fully developed child or adult. Fet*al stem cells* are taken from an unborn child who has been aborted. The last type of stem cells is *umbilical stem cells*. They are drawn from the residual blood left in the umbilical cord of a newborn baby.



What is the difference between embryonic and adult stem cells? Embryonic stem cells are not the same as adult stem cells. Embryonic stem cells can develop into any type of mature cells. Adult stem cells may also develop into a variety of tissue types, but are limited in the kinds of cells they can produce. However, scientists are now finding out that some types of adult stem cells, such as adult bone marrow cells, have the capacity to turn into an entirely different kind of cell. Stem cells in the bone marrow are especially versatile in their function, as they may grow and differentiate into blood cells, heart tissues, and even brain tissue. Scientists want to study stem cells in the laboratory, so they can learn about their essential properties and what makes them different from specialized cell types. As scientists learn more about stem cells, it may become possible to use the cells in cell-based therapies, such as diabetes and Parkinson's diseases for screening new drugs and toxins, and understanding birth defects.

(*Adapted from* http://stencells.nih.gov.infoCenter/stemCellBasics.asp)

Post-reading Activities

A. Finding the Main idea

1. What is paragraph 1 mainly about?
   General information about stem cells
2. What is the main idea of paragraph 2?
   The development of stem cells
3. What is the main idea of paragraph 3?
   The 4 types of stem cells
4. What is the main idea of paragraph 4?
   A comparison of adult and embryonic stem cells

B. Finding the topic sentences

1. What is the topic sentence of paragraph 1?
   Studies in the past years have shown that some cells can change their fate.
2. What is the topic sentence of paragraph 2?
   A stem cell is a cell that has two abilities.
3. What is the topic sentence of paragraph 3?
   Stem cells come form four different sources and in four varieties.
4. What is the topic sentence of paragraph 4?
   Embryonic stem cells are not the same as adult stem cells.

C. Finding the detailed information Answer the following questions.

1. In the first three lines, the author compares two things. What does he compare?
   A career and a cell
2. What does the phrase "what you can do" (line 2) refer to?
   A career
3. The word "fate" (line 3) in this passage means _____.
   Identity (Destiny)
4. The word "undifferentiated" (line 7) in this passage means_____.
   Unable to discriminate or show the differences
5. According to the passage, what kind of cell can change to bone marrow?
   Neuron stem cells
6. What is bone marrow?
   A reddish substance inside the bone
7. What is the function of bone marrow?
   It produces blood cells.
8. According to the passage, what can a stem cell do?
   1. *It can divide and make identical copies of itself.*
   2. *It can give rise to any of the body's cell type.*
9. According to the passage, when does a stem cell develop?
   When the embryo is less than a week old
10. How many cell types are there in the human body?
    220
11. What are the 4 sources of stem cells?
    A human embryo, an unborn aborted child, residual blood left in the umbilical cord, and tissues in the body

12. What is the difference between the embryonic and the adult stem cell?
    The adult stem cell is limited in the kinds of cells they can produce, but the embryonic stem cell can develop into any type of mature cell.
13. What is the scientist finding about adult stem cells now?
    Some types of adult stem cells can, such as bone marrow cells, can turn into an entirely different kind of cell.
14. What types of cells can the bone marrow turn into?
    Blood cells, heart tissues, brain tissues
15. Why do scientists want to study stem cells in the laboratory?
    To *learn about their essential properties*
    To learn what makes them different from specialized cell types
16. What diseases do scientists expect to cure using stem cell technology?
    Diabetes, Parkinson's disease
17. The passage implies that there are 2 major types of cells. What are they?
    Undifferentiated or stem cells, and specialized cells
18. Give examples of specialized cells.
    Heart cells, brain cells
19. Apart from curing diseases, what are other expected advantages of stem cells?
    Stem cells can be used for screening drugs and toxins, and understanding birth defects.
20. What does the word "therapies" (line 2) mean?
    Treatment without the use of drugs or operations

Writing

A. In-class writing

Exercise 1. Rewrite the following sentences, using the present participles in the verbs as adjective modifiers before the subjects. Use appropriate pronouns.

Example: **The baby** is crying. **It** is a *crying baby*
The woman is fascinating. **She** is a *fascinating woman.*

1. The weather is freezing. *It is a freezing weather.*
2. The movie is frightening. *It is a frightening movie.*
3. The tailor is laughing. *He is a laughing tailor.*
4. The girl is working. *She is a working girl.*
5. The crowd is rushing. *It is a rushing crowd.*
6. The plants are flowering. *They are flowering plants.*
7. A star is shining. *It is a shining star.*
8. The student is smiling. *He is a smiling student.*
9. The water is running. *It is the running water.*
10. The bus is moving. *It is a moving bus.*

Exercise 2. Combine and rewrite the following sentences, using present participle phrases.

Example: The boy was studying is lesson. The boy was the most intelligent.
The boy *studying his lesson* was the most intelligent.

1. The man was wearing a red hat. The man is John.
   The man wearing a red hat is Tom.
2. The man was wearing a red shirt. The man was sitting in the back row.
   The man wearing a red shirt was sting in the back row.
3. The man was painting the fences. The man was hired yesterday.
   The man painting the fences was hired yesterday.
4. The man was carrying the ball. The man fell on his face.
   The man carrying the ball fell on his face.
5. The woman was looking at the painting. The woman was an artist.
   The woman looking at the painting was an artist.

B. Homework Assignment.

Write a short paragraph of about 200 words discussing why you are in favor of or against stem cell experiments. You can get information from any website. Use connectives like first, second, third, and finally for each of your reasons. You may start your essay with either of the following topic sentences.

I support stem cell experiments because of the following reasons.
First, ...

I am against stem cell experiments because of the following reasons.
First.....

Appendix

Core Vocabulary

grow up	career	fate	identity	defect	muscle
course	source	harvest	abort	residual	variety
capacity	turn into	entirely	versatile	essential	property
substance	process				

Listening Scripts

Listening 1

John: OK, Jane. It seems you are in trouble. What's the matter?
Jane: No... Yes. I don't know.
John: Come on, Jane. I'm your brother. What's the problem?
Jane: It's my experiment on fetal stem cells. It's failed again.
I don't know what to do. Professor Lewis said I would fail this course.
John: You should tell him exactly what happened in the experiment.
Jane: I did, but he didn't seem to understand.
John: Try again. You should explain thoroughly why it failed.
Jane: I think I'd better talk to him. Thanks.

Listening 2

Father: What sort of time do you call it now, Jenny?
Jenny: I'm sorry, dad.
Father: You should say so! It's 3 a.m.!
Jenny: Come on, dad. Please stop nagging. I'm 19. I know what I am doing.
Father: Maybe, if you are not living in my house. Anyway, what were you doing until 3 in the morning?
Jenny: We were chatting and also talking about stem cell techniques.
Father: What on earth does that mean? Are you trying to confuse me?
Jenny: Dad, I really am sorry, but you don't have to stay up late for me.
Father: OK. I know you think I'm a fussy old man, and I'm sorry, but next time just let me know when you are going to be late. Give me a call or something.
Jenny: Yes, I will let you know next time. Sorry, dad.
Father: That's OK.

Short talk. Listen to the talk on embryonic stem cells. Then, answer the questions.

Host: Good morning. You are listening to "Science in Life", a program on applied sciences. We invite you to write or call us with your problems. I am Robert Turner, your host. Our expert this morning is Dr. Sue Mansfield, a biotechnologist. (A phone rings) We have our first caller on the line. Go ahead, please.

Caller: Hi, my name is Jacky. I have read an article about embryonic stem cells, but I don't really know why they are important.

Host: OK. Dr. Mansfield, what do you have for Jacky?

Mansfield: Embryonic stem cells are important in medicine and science because they can develop into any other cell made by the human body. In theory, if stem cells can be grown and their development can be directed in culture, it would be possible to grow cells of medical importance, such as bone marrow, neuron tissue or muscle. They can be used to cure some incurable diseases like cancer, and Parkinson's Disease.

Caller: Thank you very much. Now, I understand how they are important to us.