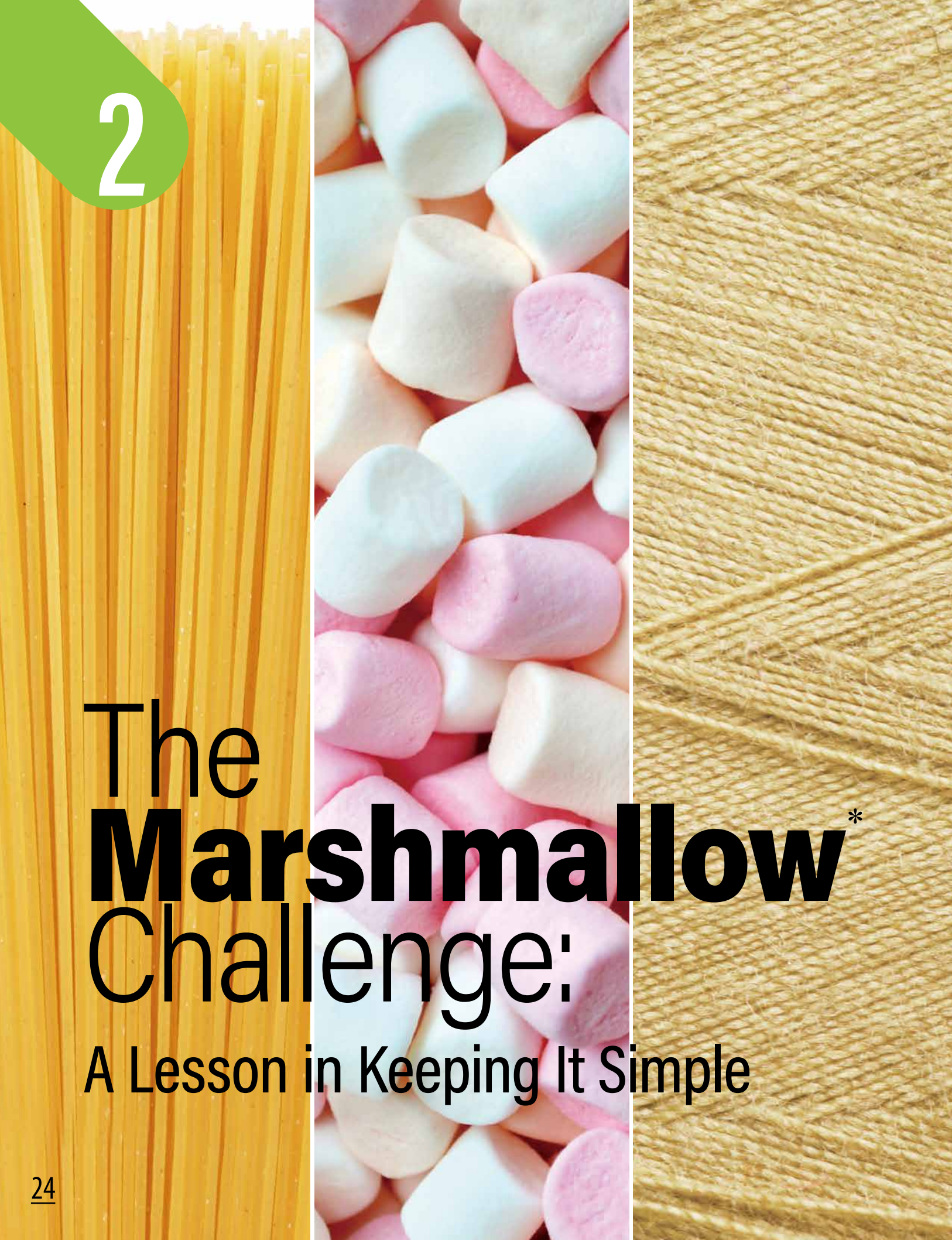




2

The **Marshmallow*** Challenge:

A Lesson in Keeping It Simple

Thinking Ahead

1. Watch the video and circle the correct answers.



The marshmallow challenge is to build a tall, free-standing structure using a marshmallow, (spaghetti sticks / glue / scissors / some string and tape) in just (10 / 15 / 50) minutes. And most importantly, the marshmallow needs to be at the (top / bottom)! The challenge shows the importance of studying (math / science / technology) and engineering.

2. Look at the pictures. They are well-known fun challenges in the world. Which one would you like to participate in, and why?

I'd like to participate in... because....



Reading Strategy

Identifying Types of Topic Sentences

Different types of topic sentences are used in the different paragraphs of a passage. The two most common types of topic sentences are used to interest readers and to connect the information given in different paragraphs. To interest readers, a topic sentence may include a number, a question, an emotion, or a very short introduction. A topic sentence can also connect the previous paragraph with the following one, helping readers understand the relationship between the pieces of information given in the two paragraphs.

1. Read the passage on the next page and circle the correct answers.

The topic sentence of the first paragraph is a number/a question/an emotion to catch readers' attention/connect the first and second paragraph.

2. The following is the topic sentence of the second paragraph. Check (✓) the underlined information that is from the first paragraph.

Fourteen years after this interesting experiment, a follow-up study was done to
() ()
see how the same group of children performed as they grew older.
() ()

Reading Comprehension

_____ According to the passage, which of the following statements is **NOT** true?

- (A) The marshmallow test was first conducted in the 1960s.
- (B) The marshmallow test measured children's ability to delay satisfaction.
- (C) The follow-up study found that patient children were less successful in school and social relationships.



**Eat the
Marshmallow
Now or Later**



Do you believe that success in life can be predicted by the ability to wait for a treat? This is the argument made by the famous “marshmallow test,” first performed in the 1960s. A group of four-year-olds were asked to sit alone in a room with a marshmallow. They were then given two choices: eat the marshmallow now, or wait fifteen minutes without eating the marshmallow to get a second one. The results showed that two-thirds of the children wanted to satisfy their desires immediately. Only a third of them were prepared to wait for the second marshmallow.

Fourteen years after this interesting experiment, a follow-up study was done to see how the same group of children performed as they grew older. The study indicated that all of the more patient young people were happier and more successful than those who couldn't resist eating the first marshmallow. They had not only better grades but also better relationships with their teachers and classmates. These wise kids may have been hungry for fifteen minutes, but it turned out they could also be patient and plan for success.

Reading Selection



課文動畫
課文朗讀



Language Highlight

What does the word *those* in line 26 in the third paragraph refer to?

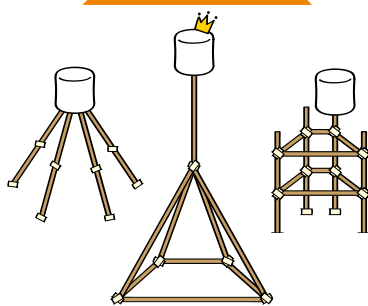
How can twenty sticks of dry spaghetti, a yard of tape, a yard of string, and one marshmallow help build a stronger team? An **innovative**¹ team-building exercise known as the Marshmallow Challenge **promises**² to do just that. In this challenge, with only the **materials**³ **mentioned**⁴ above, teams need to build the tallest free-standing **structure**⁵ **capable**⁶ of supporting the weight of



THE MARSHMALLOW CHALLENGE

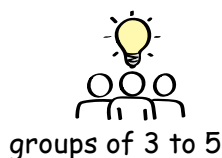


YOU NEED TO



Build a tower that is the tallest of all.

YOU'LL WORK IN



groups of 3 to 5



18 minutes

YOU CAN USE



20 sticks of spaghetti



1 roll of tape



1 yard of string

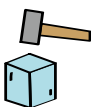


1 marshmallow

DO NOT

- ⊘ Support the tower with extra aids.
- ⊘ Put the marshmallow anywhere except the top of the tower.
- ⊘ Cut or eat the marshmallow.

THE CHALLENGE CAN BE USED FOR



breaking the ice



relationship building



problem-solving training

one marshmallow at the top. With only 18 minutes to complete the task, the teams must learn to **collaborate**⁷ quickly.

The Marshmallow Challenge, promoted by Canadian technology expert **Tom Wujec**^{*}, has been conducted around the world with **architects**⁸ and engineers, **CEOs**^{*}, lawyers, business **graduates**⁹, and even **kindergarteners**^{*}. Over the years the challenge has produced some surprising results. In Wujec's study, the average height of the structures **constructed**¹⁰ was 20 inches. The group that built the highest structure was, as expected, architects and engineers. CEOs performed **slightly**¹¹ better than average, coming in third. Lawyers, on the other hand, performed below average, **ranking**¹² second to last. And despite working to create the best plan, business graduates performed the worst. Amazingly, kindergarteners **outperformed**^{*} most of the adult teams to achieve the second best performance.

The impressive performance of the kindergarten group, whose structures were taller than those of most adult teams, can be explained by several reasons related to their **unique**¹³ way of working. One reason is that kids usually get started with what has been given to them right

Reading Strategy

Identifying Types of Topic Sentences

- Check which type of topic sentence it is or how it functions in a paragraph.
1. The topic sentence of the first paragraph is ☐ a question ☐ an introduction.
 2. The topic sentence of the second paragraph is ☐ an introduction ☐ about a number.
 3. The purpose of the topic sentence of the third paragraph is ☐ to interest readers ☐ to connect the previous paragraph.

Note the Details

1. What is the Marshmallow Challenge?
2. Who promoted the Marshmallow Challenge, and who has taken this challenge?

3. Besides collaborating with more flexibility, what are two other factors that help kindergarteners outperform most of the adult groups?



30 away, whereas adults usually don't start putting the structure together until they have spent most of the time planning. This leaves no time to **adjust**¹⁴ the design if it cannot support the marshmallow. Another reason is that unlike adults, kindergarteners are quicker to change their
35 methods after failed approaches. They **rely**¹⁵ on **trial and error**—if one method doesn't work, they quickly move on to the next. This approach gives them immediate **feedback**¹⁶ about what design **elements**¹⁷ work to give their structure height and **stability**¹⁸. Still another reason
40 for their success is that children tend to collaborate freely and naturally. They don't waste time deciding who is **in charge**. Instead, they are more focused on working together to **figure out** how to build the tallest structure.

“

The Marshmallow Challenge teaches us that age and experience are not the only routes to success.”



The Marshmallow Challenge teaches us that age and
45 experience are not the only **routes**¹⁹ to success. In order to
solve problems, we must **roll up our sleeves** and **get down**
to work right away, **explore**²⁰ and experiment with new
ideas, and collaborate effectively. In this way, we can surely
keep the marshmallow at the top.

—Written by Pearl Wright

Reading Comprehension

Check the box if the information is mentioned in BOTH the passage and the infographic on p. 28.

- ☐ The person who designed and popularized the challenge.
- ☐ The goal of the challenge.
- ☐ The materials used to build the tower.
- ☐ The proper number of people in each group.
- ☐ The reasons why kindergarteners outperform most adults.
- ☐ The time limit for the challenge.

Graphic Organizer



A Venn diagram is used to compare and contrast two things. Use it to review the reasons why the kindergarteners performed better than most of the adults. Start with the ranking in the Marshmallow Challenge, and then complete the Venn diagram by inserting the sentences below in the correct spaces.

Ranking in the Marshmallow Challenge

lawyers

business graduates

architects & engineers

kindergarteners

CEOs

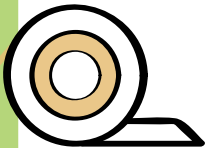
No. 1: _____

No. 2: _____

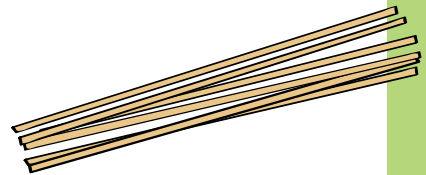
No. 3: _____

No. 4: _____

No. 5: _____



- (A) They collaborate freely and naturally.
- (B) They spend time deciding who is in charge.
- (C) They are quicker to change their methods.
- (D) They plan first and leave no time for adjustment.
- (E) They are slow to move on to the next method when one doesn't work.
- (F) They start to work at the moment the challenge begins.
- (G) They spend most of their time planning.
- (H) They rely on trial and error.



Kindergarteners

They work in teams, use the same materials, and complete the task in 18 minutes.

Adults

Comprehension Practice

2

1. What is NOT required in the Marshmallow Challenge? **General Understanding**
- (A) Teamwork.
 - (B) A marshmallow.
 - (C) String and tape.
 - (D) A detailed plan.
2. Which of the following is one reason that made most adult teams lose to kindergarteners? **Key Details**
- (A) They spent much time making plans.
 - (B) They spent too much time building the structure.
 - (C) They tried different methods and learned from their mistakes.
 - (D) They were more awkward than kids in building the weak spaghetti structure.
3. What is implied in the passage? **Inference**
- (A) There's only one way to achieve success.
 - (B) Kids lose the ability to work in teams when they grow up.
 - (C) Lawyers are better at coming up with innovative solutions.
 - (D) The ability to quickly adjust to change is important in problem-solving.

Think and Reflect

1. What element do you think is the most important in the success of the Marshmallow Challenge? That is, what makes a successful team? And why is it so?

In the Marshmallow Challenge, I think... is the most important because....

2. One thing the Marshmallow Challenge teaches us is to keep things simple, rather than overcomplicate a task. Think of an example in which you solved a problem or personal crisis by using the rule "Keep it simple."

I once... However, when I..., it turned out that.... I learned a lesson that things sometimes are not as complicated as they seem. The golden rule of "Keep it simple" may bring surprising results.

Vocabulary & Phrases



Words for Production

1. innovative

[ˈɪnəˌveɪtɪv]

innovate

[ˈɪnəˌveɪt]

innovation

[ˌɪnəˈveɪʃən]

▶ *adj.* 創新的 able to come up with new and creative ideas for using or doing something

- Successful inventions often involve people taking an innovative approach to solving a problem.

▶ *vi.* 創新

- The smartphone industry continually innovates to win customers' loyalty in the competitive market.

▶ *n.* [C] 新方法

- The Internet is surely one of the most important innovations of the last 100 years.

2. promise

[ˈprəmɪs]

promise

[ˈprəmɪs]

▶ *vt.* 可望……；預示…… to make something likely to happen or to show signs of something

- The dark clouds promised rain, so we decided to bring umbrellas before heading out for a walk.

▶ *vi. vt.* 承諾；保證

- When Ellis borrowed my book, he promised to return it within a week.
- The police promised Mrs. Rogers that they would contact her as soon as they found her missing child.

▶ *n.* [C] 承諾

- You made a promise not to tell anyone about my secret and now everyone knows it. How can I ever trust you again?

3. material

[məˈtɪriəl]

▶ *n.* [C] (活動所需的) 材料 things used to take part in a certain activity

- Our art teacher first explained how to make the lanterns, and then handed out some paper, wire, and other materials.

4. **mention**

[ˈmenʃən]

▶ **vt. 提到** to briefly talk or write about something without going into detail

- Jacob mentioned the trip plan to his parents, and they liked the idea.

5. **structure**

[ˈstrʌktʃə]

▶ **n. [C] 結構體；建築物** something that is built by putting together different materials

- Before the workers completed the new building, tests were conducted to see how well the structure could withstand strong winds.

6. **capable**

[ˈkeɪpəbl̩]

▶ **adj. 有能力的；能夠……的** being able to do something

- After taking lessons for a year, Martha was capable of playing several songs on the guitar.

capability

[ˌkeɪpəˈbɪləti]

▶ **n. [C] 能力**

- The assignment for the students is beyond their capabilities, so they spent a lot of time doing research for it.

7. **collaborate**

[kəˈlæbəˌreɪt]

▶ **vi. 合作** to work with someone else or others for a special purpose

- Throughout the years, Louis Vuitton has collaborated with various artists for new collections.

collaboration

[kəˌlæbəˈreɪʃən]

▶ **n. [C, U] 合作**

- The new collection for this season is a collaboration between the two famous designers from Italy.
- The Chinese kindergarten teacher worked in close collaboration with the English teacher during the language class.

8. **architect**

[ˈɑrkəˌtekt]

▶ **n. [C] 建築師** someone who designs buildings for a living

- The architect promised to design a beautiful building for the corporation's new head office.

architecture

[ˈɑrkəˌtektʃə]

▶ **n. [U] 建築**

- The students were introduced to several ancient Greek and Roman structures in the classical architecture course.

9. **graduate**

[ˈgrædʒʊət]

graduate

[ˈgrædʒʊ,et]

graduation

[ˌgrædʒʊˈeɪʃən]

▶ **n. [C] 大學畢業生** someone with a college or university degree

- Debbie's new employer is also a graduate of Oxford, so the two shared many fond memories from their college days.

▶ **vi. 畢業**

- NBA star Jeremy Lin majored in economics and graduated from Harvard in 2010.

▶ **n. [U] 畢業**

- Upon graduation, Sal decided to keep studying and get a master's degree instead of starting to work as an architect right away.

10. **construct**

[kənˈstrʌkt]

construction

[kənˈstrʌkʃən]

▶ **vt. 建造** to build something that is usually large and requires a lot of labor and materials

- Paris's famous Eiffel Tower was constructed in just over two years using around 18,000 pieces of iron.

▶ **n. [C] 建築物**

- A building company is putting up a huge construction on the edge of town, but none of the locals know what it will be yet.

▶ **n. [U] 建造**

- There is a fence surrounding the construction site next to our building.

▶ **adj. 有建設性的**

- When you give constructive criticism, you must be sure not to step on people's toes and offend them.

constructive

[kənˈstrʌktɪv]

11. **slightly**

[ˈslaɪtli]

slight

[slaɪt]

▶ **adv. 稍微** a little bit; somewhat

- It took Janice slightly longer to find a job than the other graduates, but in the end, it was worth the wait.

▶ **adj. 細微的**

- There's only a slight difference in pronunciation when it comes to the noun and verb forms of the word "graduate."

12. **rank**

[ræŋk]

▶ *vi. vt.* 排序為…… to compare people or things by placing them in order according to performance, quality, ability, etc.

- On a list of the world's best universities, schools such as MIT, Stanford, and Cambridge often rank in the top 1%.
- Companies often spend a lot of money trying to have their websites ranked higher on Google searches.

ranking

[ˈræŋkɪŋ]

▶ *n. [C]* 排名

- Tai Tzu Ying, a Taiwanese professional badminton player, has won several international games and has the top ranking in several categories.

13. **unique**

[juˈnik]

▶ *adj.* 獨特的 unlike anything else; very special

- The coconut crab is a unique type of crab that is capable of climbing trees and breaking coconuts open with its claws!

14. **adjust**

[əˈdʒʌst]

▶ *vt.* 調整 to make slight changes to suit the conditions or requirements better

- This software allows you to adjust the color, brightness, and size of your photos.

adjustment

[əˈdʒʌstmənt]

▶ *n. [C]* 調整

- Although Penny follows a pretty healthy diet already, she still needs to make certain adjustments if she wants to lose weight.

15. **rely**

[riˈlaɪ]

▶ *vi.* 依賴；信任 to use, need, or depend on someone or something

- The small mountain kingdom of Bhutan relies heavily on tourism to keep its domestic economy going.

reliable

[riˈlaɪəbəl]

▶ *adj.* 可信賴的

- Our apartment building's security guard is completely reliable. He's always on time and never falls asleep on the job.

16. **feedback**

[ˈfɪdbæk]

▶ *n.* [U] 回饋意見 opinions about something, usually with advice or suggestions on how to make it better

- After receiving a lot of constructive feedback from customers, the company was able to improve their product a great deal.

17. **element**

[ˈɛləmənt]

elementary

[ˌɛləˈmentəri]

▶ *n.* [C] 要素 a basic part or condition that is necessary

- Maintaining the right temperature at all times is a key element in food transportation.

▶ *adj.* 初級的；基礎的

- In the first two hours of the chef course, students will learn some of the elementary principles of cooking and baking.

18. **stability**

[stəˈbɪləti]

stable

[ˈsteɪbəl]

▶ *n.* [U] 穩定 the condition of not changing much over time

- Water rushed into the hole at the front of the ship and soon the stability of the whole ship was in danger.

▶ *adj.* 穩定的；穩固的

- The country's economy is fairly stable at the moment, so we can expect slow but steady growth in the next few years.

19. **route**

[rut; raʊt]

▶ *n.* [C] 途徑；路線 a specific road or way taken to reach or get to somewhere

- Since the main road to the beach was under construction, the family had to take a different route.

20. **explore**

[ɪkˈsplɔː]

exploration

[ˌɛkspləˈreɪʃən]

▶ *vt.* 探索 to try out or investigate new things, usually in order to find or learn something

- Reports suggest that there might be alien life on Mars, so scientists will need to further explore the planet.

▶ *n.* [U] 探索；探究

- More detailed exploration of the ocean floor will likely reveal previously unknown plants and sea creatures.

Idioms and Phrases

1. **trial and error** 反覆試驗 an approach that aims to arrive at the best solution by trying different things and eliminating what doesn't work
 - The members of the research team weren't sure which elements to include in their design, so they relied on trial and error to see what worked best.
2. **in charge** 主控；負責 to be in a higher position that gives one power or control over others
 - Helen's in charge because she has the most experience and is therefore likely to lead the team successfully.
3. **figure out** 想出 to work out; to find the answer or solution to a problem
 - Rather than copy other people, why not figure out a unique exercise and diet plan that works for you?
4. **roll up one's sleeves** 挽起袖子（表示開始行動） to get ready to work hard or do what is needed, usually without question or complaint
 - We've had enough positive feedback from everyone. Now it's time to roll up our sleeves and get to work!
5. **get down to...** 開始做某事 to start to do something with a lot of effort or attention
 - The boss wants that report done by Monday morning, so you'd better stop wasting time and get down to it.

Word Power



get down to...

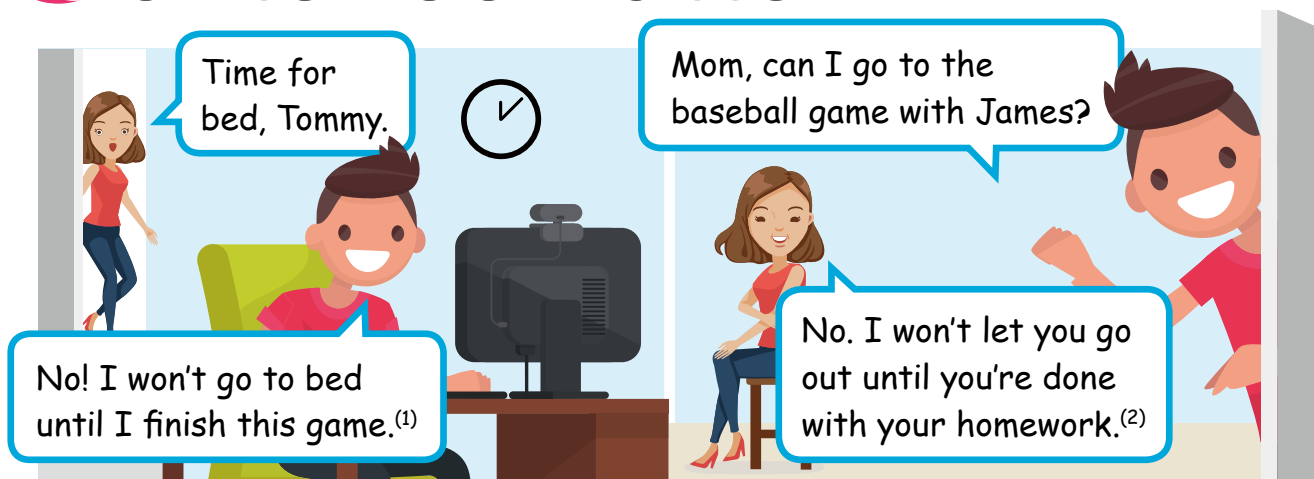


get stuck in

Words for Recognition

1. **marshmallow** ['mɑːʃ,mælo] *n.* [C, U] 棉花糖
2. **Tom Wujec** [tɑːm 'wʊdʒɛk] *n.* 湯姆·伍傑克（一位來自加拿大公司Autodesk的研究員。協助企業商業視覺化、圖像藝術使用，並幫助團隊透過合作解決複雜問題。）
3. **CEO** [ˌsi i 'o] *n.* [C] 行政總裁；首席執行長（= chief executive officer）
4. **kindergartener** ['kɪndəˌɡɑːrtənə] *n.* [C] 幼稚園生
5. **outperform** [ˌaʊtpə'fɔːm] *vt.* （在操作或性能上）勝過

Sentence Pattern



在此語境中，句(1)表達「直到該場遊戲結束後才要上床睡覺」，句(2)表達「直到兒子完成功課才會讓他出門」，因此使用「not...until...」的句型來表示某事發生後才會發生另一件事。

not...until...

在此句型中，until 後面接某個時間點或是某事件，表達「直到」該時間點或該事件發生後，另一件事「才」會發生。

- I did not get home until midnight.
- Sam did not get dressed until his mother asked him to.

Example

Adults usually don't start putting the structure together until they have spent most of the time planning. (line 30)

Practice A

Rewrite the sentences using the above pattern. The first one has been done for you.

1. He stopped working only when he was tired out.

He didn't stop working until he was tired out.

2. Emily leaves the office only when she finishes her work.

3. I will forgive him only when he apologizes to me.

4. You know the value of a moment only when it becomes a memory.

5. People realize the importance of good health only when they become sick.

Practice B

Read the following descriptions of Mrs. Granger, an English teacher who looks serious but has a warm heart. Complete the sentences using the above pattern. The first one has been done for you.

- Mrs. Granger is an old lady with gray hair. She thinks a teacher's image is important, so she does not go to work until she makes sure she looks decent (she / not / go to work / she / make sure / she / look decent). In fact, she wears a jacket-and-skirt uniform to school every day.
- Mrs. Granger is best-known for her love of words. She is a dictionary lover and has thirty dictionaries at home. It is said that _____ (she / not / go to bed / she / finish reading five pages of a dictionary / every night).
- At school, every student knows that Mrs. Granger is a strict teacher. _____ (she / not / let her students go home / they / finish their schoolwork)
- Although Mrs. Granger is strict, she cares about students. She is very patient, especially with those who are slow learners. _____ (she / not / stop teaching them / they / know how to read and spell)
- This year, Mrs. Granger was honored with an award for her selfless dedication to teaching. At the awards ceremony, one of her students said, "_____ (I / not / know / how important a teacher could be / I meet her) She changed my life. She is Mrs. Granger." Mrs. Granger stood up and walked up onto the stage amid loud cheers—in her jacket-and-skirt uniform, with a dictionary in her hand.

Language in Use

Explore & Discover



Read the sentences carefully.

1. The population of Taipei is much larger than that of Hualien.
2. The apartments downtown are more expensive than those in the suburbs.
3. The climate in this area is very similar to that in the south of England.
4. Mr. Frizzle's children are well-behaved, whereas those of his sister are naughty.
5. In Iceland, the salary of men is the same as that of women doing the same job.
6. This company has always made its products more appealing than those of its competitors.

In each sentence, what is the relation between the two parts that are marked?

- ☐ They refer to the same thing.
- ☐ They are opposite to each other.
- ☐ They are in a cause-and-effect relation.

Example

The impressive performance of the kindergarten group, whose structures were taller than those of most adult teams, can be explained by several reasons related to their unique way of working. (line 25)

Apply & Practice

2

Step 1: The following table is the information on three models of the latest smartwatch.

Decide which watch is your best choice and write down three major reasons.

Using the following expressions or phrases is recommended.

A {
 be adj. -er/more adj. than
 be as adj. as
 be similar to
 be different from
 be the same as } that/those of B

A..., while/whereas that/those of B....

Step 2: Pair up and share your choice and reasons with your partner.

	E-Watch Surf	E-Watch Raider	E-Watch Amazing
Price	\$2,499	\$3,899	\$1,999
Colorway			
Battery Life	30 days	25 days	45 days
Weight	110 g	110 g	65 g
Functions	Pedometer Heart Rate Counter Timer GPS	Pedometer Heart Rate Counter Timer GPS Instant Messaging Wi-Fi	Pedometer Heart Rate Counter Timer

1. The battery life of E-Watch Amazing is much longer than that of the other two models.

2. _____

3. _____

L

istening Strategy



Vocabulary Preview

Listen and repeat.



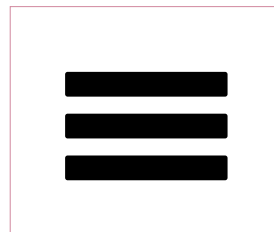
1. pyramid



2. elastic band



3. string

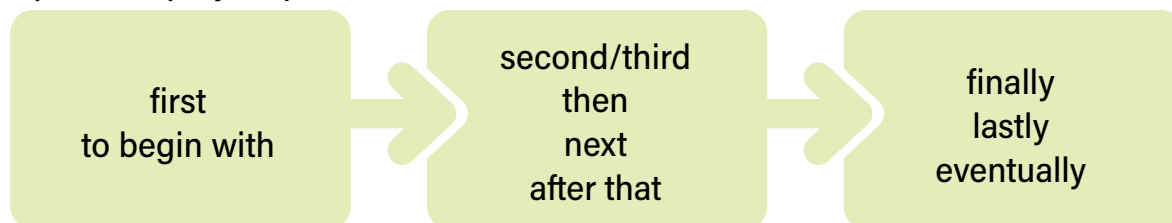


4. row

Listening Strategy

Listening for the Order in a Process

The order in a process means the sequences or steps of one event. When listening to the following keywords, you can clearly understand what the speaker is going to express step by step.



Listen for the Gist

Listen to the instructions of the lecturer. What might be the possible training target for the challenge?

- ☐ Knowledge of an ancient civilization.
- ☐ Team building for running a business.
- ☐ Skills for designing a board game.

Listen for Details

Listen again, pick the correct steps for the cup pyramid challenge and list them in order.

(A)



(B)



(C)



(D)



_____ → _____ → _____ → _____

2

