

**I. Read the following article and answer the questions (1-10).**

Harding Senior High, a public school in St. Paul, Minnesota, has long been known as a 90-90-90 school: 90 percent of students are minorities, nearly 90 percent come from poor or struggling families and, until recently, 90 percent graduate (now about 80 percent) to go on to college or a career. Impressive statistics, to be sure. But perhaps most amazing about this school is that it recognizes and acts on the critical contribution that adequate food and good nutrition make to academic success. Accordingly, (A)it provides three balanced meals a day to all its students, some of whom might (B)( ) have little else to eat on school days. For those who can't get to school in time for early breakfast, a substitute meal is offered after first period, to be eaten during the second period. Every student can pick up dinner at the end of the school day, and those who play sports after school can take the dinner with them to practices and games.

To Jennifer Funkhauser, a French teacher at Harding and a hands-on participant in the meal program, making sure the students are well fed is paramount to their ability to succeed academically. Ms. Funkhauser and the staff at Harding are well aware of the many studies showing that children who are hungry or malnourished have a hard time learning. After she noticed that some youngsters were uncomfortable eating with hundreds of others in a large, noisy lunchroom, Ms. Funkhauser created a more private, quieter “lunch bunch” option for them.

The attitude and atmosphere at Harding are in distinct contrast to the humiliating lunchroom experiences suffered by students at some schools, where youngsters are sometimes shamed in front of their classmates and their meals confiscated and dumped in the garbage when parents have an unpaid lunch bill. A recent article in *The New York Times* pointed out (C) this appalling practice.

But current problems with school lunch go far beyond shaming innocent children. After major improvements championed by the Obama administration in the nutritional value of school meals were already underway, the Republican-dominated House of Representatives and now the Trump administration have begun to undermine (D) them.

Providing adequate amounts of nutritious food in schools is more important than many realize. “Students who eat regular, healthy meals are less likely to be tired, are more attentive in class, and retain more information,” Sean Patrick Corcoran, associate professor of economics and education policy at New York University’s Steinhardt School of Culture, Education and Human Development, told *The Atlantic*.

In fact, well-designed studies have demonstrated that “students at schools that contract with a healthy school lunch vendor score higher” on statewide achievement tests, Michael L. Anderson of the University of California, Berkeley, and colleagues reported in April. They showed a 4-percentile improvement in test scores above those achieved in schools with less healthy meals. “While this effect is modest in magnitude, the relatively low cost of healthy vendors when compared to in-house meal preparation makes this a very cost-effective way to raise test scores,” the researchers concluded. Clearly, an expansive food program at schools like Harding Senior High bears replication nationwide, not cutbacks.

“Nutrition can affect learning through three channels: physical development (e.g., sight), cognition (e.g., concentration, memory), and behavior (e.g., hyperactivity),” the Berkeley team wrote. For example, they explained, diets high in trans and saturated fats have a negative impact on learning and memory, reducing substances in the body that support cognitive processing and increasing the risk of neurological dysfunction.

In spite of that, some schools have complained that children don’t like the healthier meals and are more likely to throw the food away. However, an analysis of three large studies by the Pew Charitable Trusts found that under the improved nutrition rules, food waste actually declined in 12 Connecticut schools; children consumed more fruits and vegetables in eight elementary schools in southeast Texas; and in four elementary schools studied by the Harvard School of Public Health, children ate more of their entree and vegetable servings and more children took a serving of fruit.

A study conducted by Cornell University researchers found that **(E)**simply moving the salad bar from a corner of the lunchroom to the center increased the sales and consumption of this healthier fare. Offering students a choice between two vegetable options and having them pay cash for unhealthy items like desserts and soft drinks, the findings suggested, may enhance consumption of healthier foods without reducing revenue or participation in school lunch programs. While the studies are not conclusive, they suggest that with a few simple steps, schools may have an impact on the foods students eat.

1. What does the underlined word **(A)** refer to?
  - a. academic success
  - b. critical contribution
  - c. good nutrition
  - d. this school
  
2. Choose the most appropriate word to fill in the blank **(B)**.
  - a. moreover
  - b. nevertheless
  - c. otherwise
  - d. therefore
  
3. Which of the following is NOT true about the meal program at Harding Senior High School?
  - a. Students can not only get dinner from school but also take it with them to their after-school activities.
  - b. Students who missed early breakfast cannot eat anything until lunch.
  - c. The school gives early breakfast to all students who come to school early enough.
  - d. The students who missed early breakfast can eat a meal during the second period.

4. Which of the following describes best what Harding Senior High School does?
- It criticizes an increasing influence that nutrition makes on academic success, but it allows its students to have three meals at school.
  - It disagrees with the idea that most students can be in school early enough for the breakfast provided by the school.
  - It notices that some students dislike eating lunch with a lot of classmates, but it does not deal with this matter directly at the moment.
  - It recognizes how important nutrition is for achieving good grades, and it makes sure to supply its students with nutritious food.
5. Which of the following provides the best explanation of the underlined phrase (C)?
- Some classmates have insulted poor students whose parents have not paid their school lunch bills.
  - Some schools have shamed and humiliated poor parents for not paying for their children's school meals on time.
  - Some students felt humiliated after admitting to the school that they had unpaid school lunch bills.
  - Some students were humiliated and had their school meals taken away from them, if their parents did not pay their lunch bills.
6. What does the underlined word (D) refer to?
- current problems
  - innocent children
  - major improvements
  - school meals
7. Which of the following does the author mention in the last paragraph on **page 1**?
- Considering the cost of in-house meals, school lunch services from vendors are an inexpensive way to increase students' academic performance.
  - Research has shown that academically successful students buy their meals at relatively cheap restaurants located close to their schools.
  - Research has shown that few schools have implemented vendor school meals, but their impact on students' grades is very strong.
  - The meal program at Harding Senior High School is an expensive but good way to help students achieve high scores.

8. How does the author feel about the food program from Harding Senior High School?
- It is just an ethical issue.
  - It is needed specifically in Minnesota.
  - It should be discontinued immediately.
  - It should be introduced in the whole country.
9. According to the article, which of the following is true?
- A diet and school lunches high in saturated fats will contribute to children's brain development.
  - Healthy school lunch programs are spreading widely, but most children prefer junk food for lunch.
  - Nutritious lunches will have an adverse effect on most students' attitude toward learning.
  - With healthy lunches provided, students can be expected to concentrate on studying and learn better.
10. Which of the following would be the most appropriate title for this article?
- Balancing Costs and Benefits of Food for the Poor
  - Feeding the Poor and Minorities in St. Paul
  - Nourishing Humiliated, Poor Students
  - Nourishing Young Minds to Succeed

次の問題  1 ,  2 の解答は記述式解答用紙に記入しなさい。

1 Translate the underlined part (E) in the article into Japanese.

2 Do you agree or disagree with the following statement?

“High schools in Japan should provide all their students with free lunches.”

Write your own ORIGINAL reason in English within 25 words.

Answers over 25 words will not be considered.

Do NOT copy sentences or phrases from the article.

解答用紙の **because** 以降を 25 語以内で書き、使用語数を明記すること。

**II.** In each of the following passages (11-13), insert the underlined sentence(s) into the most appropriate position from ( a ) to ( d ).

11.

But this capability is not perfect. A study published Thursday in *Science* reveals that smooth, vertical surfaces like the metal or glass plates on buildings can trick a bat into thinking it is flying in open air.

**Fouling up the Radar that Bats Rely on**

(a)

Bat echolocation is a finely tuned sense. By emitting high-frequency calls and listening for returning echoes, bats can navigate complex surroundings and precisely target moving prey in the dark.

(b)

The findings may help explain why the creatures are often found dead or injured near buildings and other smooth structures, said Stefan Greif, an author of the study and a postdoctoral researcher affiliated with the Max Planck Institute for Ornithology.

(c)

A previous study showed that smooth metal or plastic plates, laid on the ground, act as “sensory traps” for bats, which mistook the surfaces for water.

(d)

12.

Some scientists have wondered whether the effects of this decline might be lessened if we started the downward slope from a higher peak, a condition that has been termed having a “cognitive reserve.”

### **Moving When Young may Strengthen the Adult Brain**

Being active in youth may change the inner workings of brain cells much later in life and sharpen some types of thinking, according to a remarkable new neurological study involving rats.

**(a)**

The study suggests that the effects of youthful exercise on the brain could linger deep into adulthood, potentially providing a buffer against the declines in brain health and memory that otherwise occur with age.

**(b)**

Most of us who are past the age of 40 are aware from disappointing personal experience that mental acuity gradually decreases as the decades pass. The deficits are often subtle — names and other nouns slide just out of our mind’s reach — but pervasive.

**(c)**

They also have wondered whether exercise, especially aerobic exercise such as running, might build such a reserve, since it is known to increase neurogenesis, or the creation of new brain cells, in the hippocampus, a part of the brain critical to memory and learning. Exercise also prompts the release of a variety of neurochemicals associated with brain health.

**(d)**

The brain’s responses to exercise are particularly strong when animals are young, past experiments have found, because young brains are so reactive to all kinds of stimuli. But it has not been clear whether these impacts are long lasting and beneficial for older brains, or if they sputter and vanish as we age, especially if we stop exercising.

13.

The team then tested the game among 38 children aged 2 to 5, investigating at which age they mastered it. The results showed that children 4 or older learned the game, suggesting the task requires an intellectual ability present in children that age.

### Researchers Teach Chimps to Play Rock-scissors-paper

Chimpanzees can learn the rules of the rock-scissors-paper game through training, matching the intellectual ability of children 4 years old or older, researchers at Kyoto University have found.

(a)

In a study that could shed light on the evolution of intellectual abilities in animals, a team of researchers led by Tetsuro Matsuzawa at the university's Primate Research Institute in Aichi Prefecture let seven chimpanzees kept at the institute play the game. The chimpanzees were shown pairs of the three tools on a computer screen and asked to choose the stronger tool in each pair.

(b)

When they picked the right answer, such as the paper in the paper-rock pair or rock in the rock-scissors pair, they were given an apple as a reward. The results showed that five of the chimpanzees mastered the game in about 100 days, the researchers said.

(c)

The study also showed that chimpanzees learned the rules about the first two pairs presented relatively easily—that rock beats scissors and that scissors beat paper, for example—but had a difficulty learning the “circular rule” of paper beating rock. Such tendency was not found among children, the researchers said.

(d)

The study was published in the online edition of the journal *Primates*. “The chimpanzees experienced difficulties finalizing the circularity,” the researchers wrote in the paper. “In contrast, children had little difficulty and required the same number of trials to complete all three pairs of tasks.”

III. Based on the graphs below, choose the most appropriate answer to fill in each blank (14-23).

### Why Chinese Children Born in Years of the Dragon are more Successful

“Dragons” have long been greatly respected in Chinese culture. As a result, children born in the dragon years (or “dragon children”) of the zodiac\* calendar are thought to be destined for success in later life. A recent working paper by Naci Mocan and Han Yu, two economists at Louisiana State University, probes this ( 14 ).

The authors note that Chinese parents certainly seem to prefer raising dragon children than, say, sheep children. The number of babies born in China ( 15 ) in 2000 and 2012, the two most recent years of the dragon. Birth rates in Taiwan, Hong Kong, Singapore and Malaysia follow a similar pattern. China’s “one-child policy” has made it difficult for parents to time the births of their children to correspond with years of the dragon, ( 16 ) has suppressed the effect of the zodiac calendar on births.

Children ( 17 ) enough to be born in dragon years seem to flourish at school. The authors looked at the test scores of some 15,000 Chinese secondary-school pupils, and found that relative to their peers, dragon children received ( 18 ) grades on both their Chinese and their English exams. ( 19 ), analysis of a different data set showed that they are 11 percentage points more likely to go to university than others. These findings hold true when accounting ( 20 ) family background, cognitive ability and self-esteem. What is different about dragon children, the authors argue, is how much their ( 21 ) believe in them.

Parents of dragon children tend to ( 22 ) both more money and more time educating their offspring. They are more likely to speak to teachers, enroll their children in kindergarten and dish out more pocket money. Similarly, dragon children get given fewer chores around the house. When these factors are controlled for, the academic edge of dragon children ( 23 ). Success, the authors argue, is a self-fulfilling prophecy.

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\*zodiac: a diagram used by astrologers to represent the positions of the planets and stars. It is divided into twelve sections, each of which has its own name and symbol.

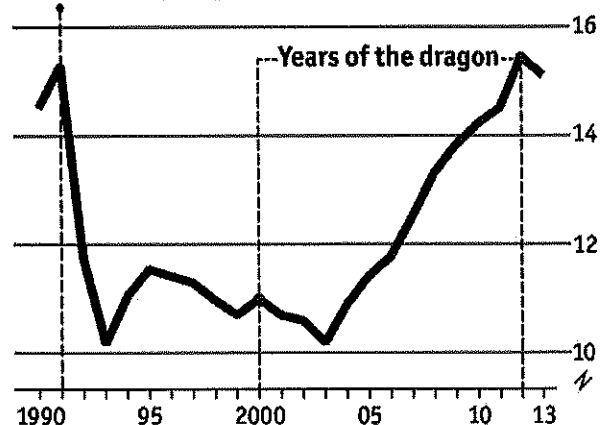


## Dragonborn

China

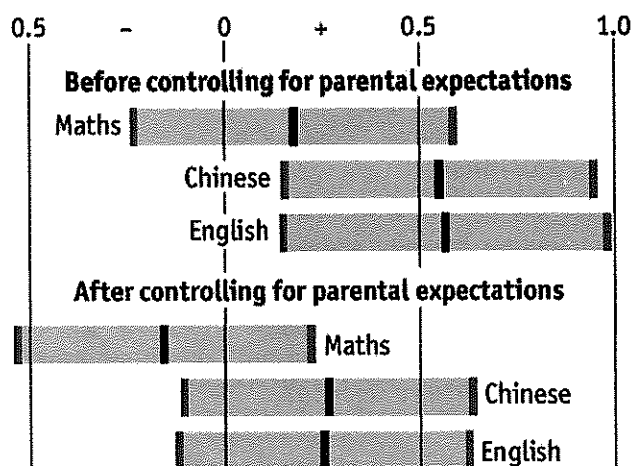
Live births, m

1991 Stricter enforcement of "one-child policy" introduced



Sources: "Can Superstition Create a Self-Fulfilling Prophecy? School Outcomes of Dragon Children of China" by Naci Mocan and Han Yu, Louisiana State University; government statistics

Dragon childrens' performance relative to peers, points in middle-school exams\*



\*On exams with average scores of 70

- |                     |              |                |                 |
|---------------------|--------------|----------------|-----------------|
| 14. a. dream        | b. policy    | c. statistic   | d. superstition |
| 15. a. deteriorated | b. dropped   | c. leveled off | d. spiked       |
| 16. a. but          | b. that      | c. which       | d. who          |
| 17. a. chosen       | b. fortunate | c. timed       | d. typical      |
| 18. a. better       | b. more      | c. poorer      | d. worse        |
| 19. a. For example  | b. However   | c. In addition | d. Nevertheless |
| 20. a. for          | b. from      | c. in          | d. on           |
| 21. a. classmates   | b. parents   | c. schools     | d. teachers     |
| 22. a. bring        | b. involve   | c. possess     | d. spend        |
| 23. a. disappears   | b. increases | c. lacks       | d. shows        |

IV. Based on the following dialog and the flyer (PDF) on pages 11-12, answer the questions (24-33).

*Two juniors (Lan and Miho) from a university in Japan have been close friends for three years. They are talking on the phone.*

**Lan:** Hi, Miho.

**Miho:** Hi, Lan. (A)

**L:** I got a flyer from the language center the other day. I'm sending you a link. Can you check it on your iPad or computer?

**M:** Give me a second. Yes, got it.

**L:** Open the PDF.

**M:** OK. Done. Oh, wait, what's this about?

**L:** The center has just started a new international exchange program that juniors can take part in. I was contemplating joining (B)it!

**M:** You were? (C)How come? I thought you were going to look for work!

**L:** Sure, but before that, why not take this opportunity to learn something new, see the world, meet new people, and make friends?

**M:** I don't know... It's kind of pricey, if you ask me. It's just a language program, after all. It's not like you can learn much else and get credit for it.

**L:** Well, actually, it looks like you can study and work. Scroll down. See?

**M:** O.K. Scrolling... I see... I've read it. Um, but, (D)I still don't really get it!

**L:** Well, it looks like they have various work options and paid internships. So, for example, if you get a job with the college you can cover your tuition and accommodation because the tuition would be reduced. Even if you work off campus, that would still be better than just studying in school—you'd gain precious life experience working overseas! I'm seriously considering going. But, I was wondering if you'd be interested, too.

**M:** It's so (E)out of the blue. Remember how I used to dream about going abroad before I started job hunting this year? But, it is quite tempting, I admit. Especially now that I see you can actually work, perhaps receive a tuition remission, and pay your own bills. Plus, it would be a great work experience, I can see that.

**L:** This is a great opportunity! Just think about it. The school has a great reputation, and it's in California! Wine country, beautiful nature, great weather, awesome beaches, an international community, what's not to like?

**M:** I agree. I'm sure I'd enjoy everything you mention! But, look, they have four campuses. They're in different locations, some even dozens of miles apart. Which one would you pick?

**L:** How about campus Ocean? They have many Japanese students there.

**M:** I'd prefer one where there aren't so many. If I'm going to make my English perfect, I'd rather stay away from students who speak Japanese.

**L:** That's a good point! So, Ocean is out. And also, more than half of the students at Lake would speak my mother tongue! So, how about Hill then?

**M:** At Hill, you can't work on campus. (F)And look at the distance from the city, too! How would you even get to work?

**L:** Exactly. (G) So, the choice is obvious! There's only one campus left. It looks really good.

**M:** I think so, too. Anyway, let's go to the language center first and get more information. Maybe they can tell us more about the jobs, salaries, and tuition reduction. Then we can also see whether we can actually afford this or not.

PDF

PDF

## Studyland College

San Alberto & Jamesville, California, USA

**NEW! 12-month International Exchange Program**

**Improve Your Language Skills and Academic Knowledge**

**Studying & Working at a Top-Ranking University**

*Application fee: \$100 (non-refundable). Tuition & accommodation (shared room, 12 months): \$18,000~*

*All campuses offer:*

- *Intensive English as a Second Language Program, up to five days a week*
- *Elective courses (audit): psychology, sociology, anthropology, linguistics, history, music, etc.*
- *Research methods courses in social and behavioral sciences*
- *Internships and employment opportunities on and off campus*
- *Counseling and guidance for students who wish to study in graduate school*

### Campuses (Locations)

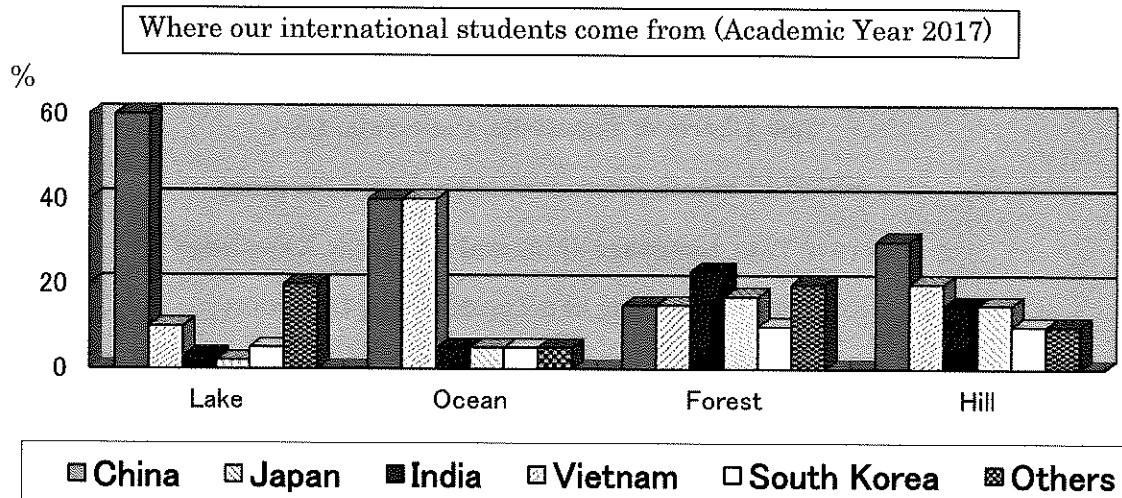
Lake (San Alberto)	Ocean (San Alberto)	Forest (Jamesville)	Hill (Jamesville)
Location: downtown, 2 miles from the city hall, San Alberto, 2020 W Park Ave	Location: south of the city hall, in a quiet residential area but walking distance from the center, San Alberto, 2109 S 12 <sup>th</sup> Ave	Location: downtown, 1 mile from the city hall, Jamesville, 41908 Park Ln	Location: 10 miles from Jamesville, on an isolated hill, surrounded by lush greenery, 5010 Hill Rd

\*One mile = 1.6 km

Employment opportunities/paid internship (for credit):

Lake	Ocean	Forest	Hill
On campus: library, cafeteria.  Students working as teaching assistants and research assistants entitled to tuition remission, depending on work hours.	On campus: library, campus bookstore, campus shop.  Off campus: restaurants, other local businesses, city newspaper, paid internship with local NGOs or the center for social research.	On campus: library, cafeteria.  Translation and interpretation. Tuition reduction available for qualified individuals.  Off campus: local businesses, paid internship at the local newspaper or NGOs.	Off campus, downtown in city of Jamesville: local shops and businesses.  Internship at a travel agency.

**See the next page.**



PDF

PDF

24. Choose the most appropriate expression to fill in (A).
  - a. What about it?
  - b. What do you say?
  - c. What's next?
  - d. What's up?
  
25. What does the underlined word (B) refer to?
  - a. the flyer from the center
  - b. the international exchange program
  - c. the PDF
  - d. the university language center
  
26. What kind of emotion does the underlined expression (C) convey in this conversation?
  - a. fear
  - b. happiness
  - c. jealousy
  - d. surprise
  
27. What does the underlined expression (D) mean in the conversation?
  - a. Miho still cannot open the PDF to read the information.
  - b. Miho still cannot scroll down to find the information in the PDF.
  - c. Miho still does not understand her friend's instructions to scroll down.
  - d. Miho still does not understand the information in the PDF.
  
28. Which of the following is the reason why Miho is saying (E)?
  - a. She did not expect this kind of proposal from her friend.
  - b. She is worried that she will suddenly have to start working.
  - c. There are too many study abroad options.
  - d. There are too many work options to choose from.

29. What is Lan's native language?
- a. Chinese
  - b. Japanese
  - c. Korean
  - d. Vietnamese
30. Miho says (F) because she thinks that the campus is
- a. easily accessible
  - b. far away
  - c. not isolated
  - d. within walking distance
31. Choose the most appropriate comment to fill in ( G ).
- a. I don't agree with that.
  - b. I have a question.
  - c. You would need a car to get around.
  - d. Well, we could just go on foot.
32. What is the campus of Lan and Miho's choice?
- a. Forest
  - b. Hill
  - c. Lake
  - d. Ocean
33. Based on the flyer, which campus would a student interested in interpreting be most likely to choose in order to gain suitable work experience?
- a. Forest
  - b. Hill
  - c. Lake
  - d. Ocean