Spot on

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Solutions for English Teaching

Level 3 Advanced

No geeks allowed

1 QUICK QUIZ

Answer the questions and then compare your answers in class.

1. Science is for …
   a) ... girls.
   b) ... boys.
   c) ... geeks.

2. Science is …
   a) ... interesting.
   b) ... boring.
   c) ... okay, but not for me.

3. I use science …
   a) ... all the time.
   b) ... quite often.
   c) ... very occasionally.

2 WHAT DOES IT MEAN?

1. Look at the article to find words that mean the following.

a) A public show where interesting things are put for people to go and look at them. _____ (paragraph 1)

b) Something that shows you what condition something is in. _____ (paragraph 1)

c) When something has done this, it is no longer good to consume. _____ (paragraph 1)

d) To try to win a competition. _____ (paragraph 2)

e) Small amounts of something that shows you what all of it is like. _____ (paragraph 4)

f) Giving loud shouts of happiness or approval. _____ (paragraph 5)

g) A machine or piece of equipment that communicates using electronic signals. _____ (paragraph 11)

h) Qualities or features. _____ (paragraph 14)

i) People who decide who the winner of a competition will be. _____ (paragraph 16)

2. Translate these science-related words from the article into your language and look up their meanings.

special words	in my language
acid	
anthropologist	
black hole	
chemist	
discovery	
DNA	
gravity	
invent	
invention	
pH balance	
physicist	
physics	
research	
science	
scientist	
space	

No geeks allowed

NO GEEKS ALLOWED

by Talitha Linehan

1 "When I was younger, I hated science. I thought scientists were geeks," says **Aisling Judge**, the youngest ever winner of Ireland's BTYoung Scientist & Technology Exhibition (YSTE). Aisling, now 16, from Kinsale in County Cork in Ireland, won 5,000 euros when she was 14 for inventing an indicator that shows when food has gone off.

2 But like many kids, Aisling grew up thinking science was boring – until she went to see her brother compete at the Exhibition in 2002. Now she knows that science is an important part of everyone's life. Without science, we wouldn't have computers, phones, the Internet or any of the medicine that saves lives every day. And scientists, including many teenagers, are still making great discoveries today.

3 Aisling got her invention idea from her family. "I was listening to my mum say that the milk had gone off. I started thinking that we know when milk is off because it smells bad, but it's harder to know when meat is off."

4 In her science lessons, Aisling learned about the pH balance, which measures how much acid is in food. She decided to use this to make something that changes colour to show when food is off. She worked with hundreds of different food samples and often had to get up in the middle of the night to see what was happening to them.

5 Aisling couldn't believe it when she won first prize at the YSTE. "I didn't hear them calling out my name because I was talking," says Aisling. "Then everyone was looking at me and cheering. It was really cool. I felt like a movie star!"

6 Since then, Aisling has been working with an organization which helps kids to become interested in science. "I try to teach kids that science isn't about numbers on a page but about real life in the real world. Every kid with a Nintendo is using science. They just don't know it."

7 The winner of the 2005 BTYSTE, 18-year-old **Patrick Collison**, from south-western Ireland, has already started his own company. Patrick's winning invention was a new computer-programming language called Croma. Patrick told us, "Computer projects allow us to make many new things. Physics has existed for thousands of years. The Internet has existed for fewer than 50 years. There's still so much to discover."

8 **Everything is physics**

How does the universe work? What's a black hole? The science that answers these questions is physics. 18-year-old **Lin Fei**, from Canada, won a gold medal at the 2006 International Physics Olympiads (IPhO) in Singapore. Now, Lin studies physics at the Massachusetts Institute of Technology.

9 **Tell us why physics is so fascinating.**

"I couldn't stop thinking about black holes when I was younger. A black hole is a place in time and space where gravity is so strong that nothing gets out – not even light. Physics is the only subject that really helps us understand the universe. Physics is so interesting because *everything* is physics!"

10 **What was it like at the IPhO?**

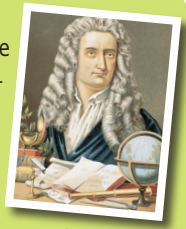
It was exciting! I listened to Nobel Prize winners and talked to brilliant pupils from other countries. We played badminton and soccer and saw the beautiful island of Singapore. Being there really made me want to keep studying physics!

11 **The future is bright**

As a kid, 19-year-old **Andrew Nowell** loved building with Lego. Now Andrew, from England, is inventing computer systems that could change the future! In 2006, Andrew won $18,000 for his project, a handheld wireless device that can control a computer. Andrew's project could help make handheld computers much more powerful and change the way people use them.

12 Andrew, who's now studying engineering at Cambridge University, tells us how he thinks future inventions will change the world. "In our lifetime, there will be more and better robots. Computers will become a bigger part of our homes and lives. We'll have things like lights that turn on when we walk into a room. And we won't have to do things like cleaning any more. There'll be flying cars, but not many people will use them. The future is small electric cars and better public transport. We'll have more wireless power and Internet everywhere. Instead of mobile phones, we'll have phones that connect to the Internet and let people call each other for free.

13 **Science superstars**



Every teen we spoke to said their favourite scientists included **Albert Einstein** (1879–1955) and **Isaac Newton** (1643–1727). Isaac was a physicist and mathematician who first described gravity. Because of Albert's theory of relativity, he has been called the greatest physicist ever. In 1999, the US magazine Time called him the "Person of the Century".

14 **It's our world too!**

Not long ago, most scientists were men. Today, many women and girls work in science. Amanda Kortum, 18, from the US state of Montana, won first prize for her antibacterial-properties project. Now Amanda studies biology at the University of Montana.

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15 "People use the echinacea flower against colds. But nobody had tried to find out if it has antibacterial properties, so I wondered if there's really a good reason to use it. I also looked at eucalyptus. I grew bacteria on special plates and put the echinacea and eucalyptus oils on the plates to see if the oils stopped the bacteria from growing. I found that both oils stop some bacteria – so both can help stop colds and other infections.

16 I presented my research to a group of judges – in front of other competitors, teachers and parents. I talked about my project, and the judges asked questions. That's the scary part because someone might ask a question you can't answer!

17 When I go to science competitions, I meet many other girls who are working on projects. I think boys and girls think about science differently. I only do an experiment if I'm quite sure it will work. I do more research first. My way of doing things is just different."

18 **Girl power**

Some people think science is a boys' subject. But many women have done great work in science:

Marie Curie (1867–1934), a Polish-French physicist and chemist, won a Nobel Prize for discovering the elements radium and polonium.

Maria Mayer (1906–1972), a German-American physicist, worked on the US atomic-bomb project and is famous for her work on the structure of the atom.

Rachel Carson (1907–1964), a US biologist, made many people start thinking about environmental problems with her book Silent Spring.

Jane Goodall (born in 1934), a British anthropologist, is best known for her study of chimpanzees.

Rosalind Franklin (1920–1958), a British chemist and biologist, studied DNA. Her work helped scientists James Watson and Francis Crick to discover the structure of DNA.

3 FIND THE INFORMATION

Choose the correct answer according to the information in the article.

1. Aisling ...
   a) ... hates science.
   b) ... thinks science is important.
   c) ... thinks scientists are geeks.

2. Aisling's invention ...
   a) ... checks what happens to food in the night.
   b) ... checks whether food is still good to eat.
   c) ... checks when milk has gone off.

3. Lin Fei is interested in ...
   a) ... UFOs.
   b) ... space travel.
   c) ... black holes.

4. Andrew thinks that in the future ...
   a) ... we will all drive flying cars.
   b) … we will have more robots and computers at home.
   c) ... we won't use mobile phones anymore.

5. Amanda's project showed that ...
   a) ... some plants can fight bacteria.
   b) ... everybody gets colds and infections.
   c) ... bacteria can grow on plates.

6. Amanda thinks that ...
   a) ... boys are better scientists than girls.
   b) ... girls are better scientists than boys.
   c) ... boys and girls think about science differently.

4 TEEN TALK

***Geek*. A *geek* is someone who other people think is boring or strange because they are only interested in computers. *Geeky* is also an adjective.**

Do you know anyone who is a bit of a *geek*?

What things could you describe as *geeky*? _____

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5 DISCUSSION: A NEW INVENTION

Andrew talks about computers and robots in the home (paragraph 12).

If you could invent a robot for your home, what would it do? Write notes and, if possible, draw a diagram then present your ideas to the class. Be judges and decide which is the best idea.

My robot ...

6 WEBQUEST: SCIENCE SUPERSTARS "WALL OF FAME"

Choose one of the scientists from paragraphs 13 and 18. Find information about your scientist on the Internet. Make posters which include pictures and bullet points about the scientist's work and life. Put them up in the classroom to make a *Science Superstars Wall of Fame*.

7 DEBATE: OUR FAVOURITE SCIENCE SUPERSTAR

Use the information from the posters and hold a class debate to decide who your favourite scientist is.

Divide the class into groups. Each group chooses a different science superstar. Each group has three minutes to say why their scientist is the best. The Chairperson should make sure each group has had the chance to speak before allowing any questions or further debate.

Use debating sentences such as:

I think ... because ...

I agree / disagree because ... but ...

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KEY

2

1. a) exhibition
   b) indicator
   c) gone off
   d) compete
   e) samples
   f) cheering
   g) wireless device
   h) properties
   i) judges

3

1. b
2. b
3. c
4. b
5. a
6. c