READING An Online Forum

1 **GUESSING MEANING FROM CONTEXT** Read the posts and look at the words in bold. Try to guess the meaning of each one.

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2 **MULTIPLE MATCHING** Which writer mentions … ?
1 reducing existing damage
2 making systems more accurate
3 something that probably won't happen
4 being inspired by their work
5 financial considerations as a cause of danger
6 a problem that exists both on Earth and in space
7 skills that can be used in a negative way
8 a change of perspective because of their job

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3 Choose the correct answer.
1 The incident in 2009 is an example of … .
   a a crash that could not happen today
   b problems between the US and Russia
   c a collision involving several satellites
   d something that produces more space debris
2 Eve Benson's project could … .
   a be used for earthquakes
   b prevent a volcanic eruption
   c help rescuers after a disaster
   d predict a volcanic eruption
3 Text D tells us … .
   a how satellites could stop working
   b why people need satellites
   c what to do if satellites stop working
   d how to keep satellites safe

4 **SENTENCE COMPLETION** Complete the sentences using your own words.
1 Julie Foster is going to help the US Air Force learn … .
2 Unless there is worldwide cooperation, … .
3 Earthquakes cannot … .
4 Planes need satellites for GPS navigation and … .

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TECHNO TASK

Go online and find out:
1 what the following satellites do: CryoSat, SORCE and Envisat.
2 what the only habitable satellite orbiting Earth is.

WORDS FROM THE TEXT IC/IS VOCABULARY

5 Find words or expressions in the text that mean:
1 spend less (text A)
2 enormous (text B)
3 solve (text C)
4 at the same time (text D)
5 steps (text D)

6 Choose the correct answer to show that you understand the meaning of the words in green.
1 The driving instructor can **take control** of the *car / lessons* if necessary.
2 *Swedish / English* is spoken **worldwide**.
3 If the computer **shuts down**, you need to *get rid of / restart* it.
4 *Bottles / Boats* are a type of **debris** often found in the ocean.
5 I **grabbed** the child's hand before he *ate lunch / ran into the street*.

EXPRESSIONS ABOUT SAFETY AND DANGER

There are many expressions in English about safety and danger.
*Hackers are **putting** us all **in danger**.*
*Satellites must be kept **in safe hands**.*

7 Complete the sentences using the expressions below.

watch your step | touch-and-go | close call
run the risk | out of danger | be on the safe side
at your own risk

1 He was seriously injured, but now he's … .
2 If you start a business, you … of losing money.
3 There are no lifeguards on this beach, so swim … .
4 The floor is wet, so … .
5 You should take an umbrella, just to … .
6 We almost hit that car. That was a … !
7 It was … whether she would survive the operation.

YOUR OUTLOOK CRITICAL THINKING

Do you think that we could manage if satellites stopped working? Why or why not?

SUPER SATELLITES!

How do satellites help keep us safe?
And how can we keep them out of danger?
Let's hear from the experts.

A Julie Foster Student

I'm about to enter an international contest run by the US Air Force. The mission? To hack a satellite! They want to know from hacking experts how it could be done so they can prevent criminals from hacking satellites in the future.

5 Satellites are very vulnerable to cyberattacks. Hackers could shut one down or block its signals to make it stop working. Even worse, they could take control of the steering systems. This could alter the satellites' orbits and possibly crash them into other satellites or spacecraft.

Every satellite company wants to cut costs, and the first thing to go 10 is often cyber security, which can be very **costly**. But without proper protection, companies are making it easy for hackers to destroy their work and put us all in danger. Satellites must be kept in safe hands only.

B Ron Stevens Space Engineer

Everyone worries about air and ocean pollution, but I'm also concerned about the massive pollution in space. Close to 200 million pieces of 15 space rubbish, from paint chips to defunct satellites, are flying around our planet. They're travelling so fast that even the **slightest** piece of debris crashing into a satellite can cause catastrophic damage.

In 2009, an old Russian satellite collided with a US communications satellite, destroying both of them and creating thousands of new pieces 20 of debris. Incidents like these make the situation even more critical.

I wish there were an efficient way to clean up space junk, but there isn't yet. My team at the European Space Agency is working on a four-armed robot which will grab items one at a time. But if we want to ensure effective solutions, we'll need international cooperation.

C Eve Benson Volcanologist

25 Up until now, volcano monitoring has been done on the ground, but that isn't always **reliable**. I'm part of a team working on an innovative method involving satellite imagery. We can use these images to identify changes that might indicate when a volcano is about to erupt. We still have a few problems to work out, but hopefully, our methods will soon 30 improve early warning systems.

What about other natural disasters? Satellites predict the probable future path of a hurricane, showing which communities should evacuate. It's not yet possible to predict earthquakes, but after an earthquake, satellites provide vital information for rescuers.

35 If satellites hadn't helped during previous disasters, many more people would have died. I'm really excited to be working on something that will save even more lives in the future.

D Jeffrey Robinson Journalist

I used to take satellites for granted, but since becoming a science journalist, I've grown more aware of how dependent we 40 are on them. What would life be like if they all stopped working?

If we didn't have GPS, planes, trucks, ships and trains could no longer be tracked or guided. Emergency rescue services would have a hard time finding victims. Without weather satellites to provide storm warnings, flights would have to be **grounded**. 45 Eventually, phone and Internet use would become impossible. Loss of communications would cause chaos, shutting down water and food supplies, electric grids and financial systems.

Sound scary? Of course it's unlikely that all satellites would fail at once. But what's certain is that we need emergency measures 50 to keep satellites safe. Our entire way of life is in danger.

LOOKING AT LANGUAGE

1 Look at the false friends underlined in the text. How do you say them in your language?

2 The word *crash* is used as a verb in text A. It can also be used as a noun (a car *crash*).

Look for at least five other words in the text that have the same verb / noun form.

PRONUNCIATION

1/23 3 Listen and repeat the words below from the text.
crash /æ/   spacecraft /ɑː/

1/24 4 Which word in each group doesn't belong? Listen and check your answers.

/æ/ hackers | massive | satellite | chaos
/ɑː/ path | disaster | natural | chances

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IC/IS VIDEO