



## SÈRIE 1

### Listening comprehension (3 points)

#### We'll be on Mars again!

*In the following conversation you are going to hear some new words. Read and listen to them. Make sure you know what they mean.*

**spacecraft, craft:** nau espacial, nau / nave espacial, nave

**layer:** capa

**gust of wind:** cop de vent / golpe de viento

**shield:** escut / escudo

**quake:** terratrèmol / terremoto

**seismometer:** sismòmetre/sismómetro

*Ready?*

*Now read the questions on the following page. Read them carefully before listening to the conversation.*

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**Paul Smith:** This is *Science Today*. Welcome! The spacecraft InSight successfully landed on the surface of Mars a few weeks ago, just as other spacecraft had done in previous missions, but it is different this time. Today, Dr Susan Halliday, a scientist working for the InSight mission for NASA is with us and will help us find out why this mission is different from previous ones.

**Paul:** We've had a lot of spacecraft go to Mars. What's unique about this mission?

**Dr Halliday:** We have had many missions that have looked at the surface of Mars, but we are the first one that is really going to tell us about the interior of Mars and its several layers, how all those layers got there. We will learn about the geologic activity that could have created a habitat that may have supported life early in Mars's history.

**Paul:** And why do we want to know that?

**Dr Halliday:** Well, what we are really aiming for, our big-picture scientific question is what happens in the first tens of millions of years after a planet forms. We know from investigations of volcanoes on Earth that all the rocky bodies go through this process of separating into different layers, but we don't know much about how that process really works. Our mission will help us gain a better understanding of this process.

**Paul:** Can you tell me a little bit about the craft?

**Dr Halliday:** Sure, it's the InSight Lander. Lander crafts don't have wheels. We actually need to stay in one place and be as quiet as possible so that we can use our instruments to detect Mars quakes. In fact, we put those instruments underground. This is extremely important to us. The first mission that landed on Mars, Viking, actually had a seismometer that stayed on the craft. So it detected the gusts of wind that made the craft shake, but it could not detect quakes precisely at all.

**Paul:** I see, so the InSight also has a seismometer?



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**Dr Halliday:** Yes, that's right, but for the first time we're going to place it on the ground. The only other place where this has been done besides Earth is on the Moon. The Apollo astronauts actually drilled holes into the Moon to place some instruments underground. But now we are going to do all those things robotically. We use a robotic arm to put the seismometer in the ground and then place a wind shield on top of the seismometer to protect it from wind gusts that could be mistaken for seismic waves.

**Paul:** And how do you decide on the landing location? Can you determine a location precisely?

**Dr Halliday:** Yes, we can be very precise about the location. In fact, we chose a specific area where there is a certain elevation for safety reasons. The atmosphere of Mars is very thin, so we need to have enough atmosphere to slow us down so that we can land. And because the InSight is powered by solar energy, we need to be near the equator. And then, lastly, we don't want our spacecraft to land on rocks or to have rocks under the surface we want to drill. We went for the flattest, safest, most boring landing site ever on Mars, we were not interested in exploring the geology of various areas, as previous missions had done.

**Paul:** When the Curiosity spacecraft landed on Mars about six years ago, the landing was described as the seven minutes of terror. Is it less risky now?

**Dr Halliday:** Well, not really. Every time you land on Mars it's always very risky. When it works, it looks smooth and easy, but, in fact, at least a third of the missions that have been sent to Mars have failed.

**Paul:** And how is the landing achieved?

**Dr Halliday:** Well, first we need a heat shield, because we are going at 12,300 miles per hour when we hit the atmosphere of Mars. This slows down the craft quite a bit. Then, when it is pretty near the surface, the parachute is released. This makes the craft go quite slowly, and finally, in the last one hundred meters or so we remove the parachute and we come down on landing rockets. And so if everything goes well, it's quite a gentle touchdown.

**Paul:** But it's still a precision landing really, isn't it?

**Susan:** It is, and it's all automated. Because of the one-way flight time to Mars, we can't command anything when this is happening, we just have to rely on getting the sequence of commands correct in advance and we just sit in the control room and wait to hear back.

**Paul:** So, now that the landing was successful, what happens next?

**Dr Halliday:** Our initial mission lasts one Mars year, that is, two Earth years. The first thing we are going to do is spend a few months choosing the right place to put our instruments down in the ground. So it will be a while before we actually start acquiring data.

**Paul:** I am sure that data must be very interesting and revealing.

**Dr Halliday:** We hope so.



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**Paul:** I'm afraid we've run out of time. Many thanks for talking to us about the InSight mission.

**Dr Halliday:** My pleasure.

*Sources:*

*Adapted from:*

<https://www.abc.net.au/radionational/programs/scienceshow/mars-insight-lander-to-monitor-mars-interior/10548156#>

*ABC Radio National (Australian Broadcasting Corporation)*



### Listening comprehension

1. The InSight mission is unique in that it will investigate
  - the geology of the interior of Mars.**
  - Mars' surface and atmosphere.
  - whether Mars can support human life.
  - the early history of Mars' atmosphere.
  
2. According to Dr Halliday, this mission will help scientists understand how
  - the activity of volcanoes developed on Earth millions of years ago.
  - layers of different types of rocks were formed on Earth.
  - rocks separate into different layers.**
  - long ago planets like Mars and the Earth were formed.
  
3. Why does the InSight spacecraft need to stay in one place?
  - To detect quakes.**
  - To detect wind.
  - To avoid making noise.
  - To avoid breaking instruments.
  
4. The seismometer of the Viking spacecraft
  - could not detect Mars quakes well.**
  - could not measure wind gusts well.
  - was better than the one on the InSight lander.
  - was handled by astronauts.
  
5. The InSight makes use of a shield
  - to help put the InSight instruments underground.
  - to protect the seismometer from wind gusts.**
  - to protect astronauts while they drill holes.
  - to protect the spacecraft from seismic waves.
  
6. The choice of the InSight's landing location was partially determined by
  - the orbit of Mars.
  - the amount of fuel left in the rocket.
  - the type of surface of the landing spot.**
  - the speed of the spacecraft when reaching Mars.
  
7. A gentle touchdown of the spacecraft is achieved by
  - removing all rockets.
  - removing the heat shield.
  - using a parachute to slow it down.**
  - separating the craft into 2 parts to make each part lighter in weight.
  
8. When will Dr Halliday and her team start receiving data from Mars?
  - One year after InSight lands.
  - Two years after InSight lands.
  - Almost immediately after InSight lands.
  - After the instruments have been placed underground.**



### Reading comprehension

1. According to professor Todorov

- we only make first impressions about people we don't know.**
- we make first impressions only if they are misleading.
- our first impressions about someone are usually wrong.
- we usually share our first impression with many other people.

2. Once people have made their first impressions

- they may change them quite quickly if their opinions are not accurate.
- they will change their opinion if they are not sure of the person they have just met.
- they will hardly ever change their first opinion about a person they have just met.**
- they always change their mind soon afterwards if given more time to judge a person.

3. Which one of these sentences is **TRUE**?

- In first impressions women and men make similar judgments.**
- In first impressions women and men are judged similarly.
- In first impressions feminine-looking men are badly considered.
- In first impressions masculine-looking men are badly judged.

4. According to the text, the photos people publish on their dating profiles are

- their best ones in order to reflect their personalities only.
- a mixture of fake and real ones; people don't want to show how they really are.
- very superficial in order not to show one's real personality and generosity.
- chosen to show physical and personality traits.**

5. Prof. Todorov affirms that

- first impressions are always reliable even when our date starts speaking.
- people can change their first impressions when they start talking to their date.**
- talking to our date reinforces our first impressions, making them more certain.
- people in general make good predictions from their first impressions.

6. According to Professor Todorov, the conversational strategies used in online dating show

- that women talk more about themselves than men do.
- that men talk more about their profession than women do.
- that men and women use quite different approaches to dating.
- that men and women take similar approaches to dating.**

7. If you want to find your perfect date, prof. Todorov recommends that you be

- talkative when you meet your date.
- honest when you talk to your date.**
- a little vague when talking about your interests.
- responsible when you talk about your wealth.

8. At the end of the article we can come to the conclusion that speed-dating meetings

- are the only way to get married successfully.
- are successful only if you want to have children.
- sometimes fulfil people's expectations.**
- are a very flawed system of meeting people.