Website Sample Reading Task: True/False with Justification

Read the text below about space exploration. Then decide whether the statements (1-9) are true (T) or false (F) and put a T or F in the first box. Then identify the sentence in the text which supports your decision and write the first four words of this sentence in the second box. There may be more than one justification; write only one in the box. The first one (0) has been done for you.

NASA mission set to orbit Mercury

The planet's shadowy craters, tenuous atmosphere and iron core are targets of the **MESSENGER** probe.

It's a long road to the Solar System's innermost planet. Because of Mercury's position deep in the Sun's gravity well, NASA's MESSENGER spacecraft has needed a six-year flight, passing Earth once, Venus twice and already passing Mercury itself three times, to shed enough energy to orbit the planet.

If all goes well, the craft will reach its goal on 18 March, dipping as close as 200 kilometres to Mercury's surface and beginning a long-awaited survey of this sun-scorched world.

"All of us are extremely excited to have reached this milestone and we are anxious to learn the secrets that Mercury will finally reveal to us," says Sean Solomon, a geophysicist at the Carnegie Institution for Science in WashingtonDC and the mission's principal investigator. Earlier glimpses suggest that the planet is far from the inert lump of rock that scientists once imagined.

MESSENGER (Mercury surface, space environment, geochemistry and ranging) - a nod to the vocation of the Roman god Mercury — is only the second spacecraft to reach the planet. The first, Mariner 10, made three fleeting passes in 1974 and 1975 and glimpsed only 45% of the planet's surface. Its grainy close-ups of a heavily cratered landscape endured in textbooks for the next 30 years.

The new mission has already transformed this view by imaging 98% of Mercury during the 2008 and 2009 fly-bys. Once in orbit, MESSENGER will map the entire surface, recording its topography and composition on scales as small as a few tens of metres. Over the oneyear mission, MESSENGER will also measure changes in Mercury's tenuous atmosphere of hydrogen, helium and metal ions, information that might reveal how the thin atmosphere is replenished as ions escape into space.

Beneath the surface, Mercury presents a puzzle in the form of an oversized iron core, three-quarters the size of the planet. This is utterly different from other rocky planets, whose cores are small relative to their mantles.

A long-standing theory proposes that a massive collision with another rocky body blasted the bulk of Mercury's mantle away, but an alternative model blames the loss on a possible flare-up of the Sun very early in the Solar System's history, which could have vaporized the planet's outer layers. Each scenario would have left a surface with different proportions of elements, allowing MESSENGER to weigh in on the matter.

The oversized core is somehow responsible for Mercury's weak but intriguing magnetic field. First observed by Mariner 10, the field could be a frozen remnant from a geologically active past. During its fly-bys, however, MESSENGER detected changes in the field, suggesting that some of Mercury's core might be molten. A year of magnetometer observations from orbit could confirm magnetic field fluctuations — and reveal the structure of the core.

The probe will also explore the counterintuitive possibility of water ice on Mercury, where daytime temperatures approach 450 °C. Earth-based radar observations indicate the presence of reflective material in permanently shadowed craters near the poles. MESSENGER's spectrometer could confirm whether ice lies hidden there. "There's still a lot to learn about Mercury and there will probably be some interesting surprises," says Robert Strom, a planetary scientist at the University of Arizona in Tucson and an investigator on the mission's science team.

The wealth of new data expected from MESSENGER isn't likely to be topped for a while, as NASA has no plans for another Mercury mission. BepiColombo, a joint project between the European Space Agency and the Japan Aerospace Exploration Agency, aims to orbit Mercury with two probes simultaneously in 2020, but has cancelled plans to place a lander on the planet's surface.

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2	Statements		
0	The Sun has had an effect on the duration and length of MESSENGER's journey to Mercury.		
Q1	MESSENGER will not land on Mercury.		
Q2	MESSENGER has already provided evidence that has changed researchers' opinions about Mercury.		
Q3	An earlier space mission failed to photograph Mercury.		
Q4	MESSENGER will provide data on the variations in the airabove Mercury.		
Q5	Mercury's centre is small compared to its rocky outer layer.		
Q6	Scientists have agreed that the heat from an explosion on the Sun partially destroyed Mercury' surface.		
Q7	Measurement of Mercury's magnetic field suggests that the planet's centre is solid.		
Q8	There is a chance that MESSENGER will prove that ice exists on Mercury.		
Q9	Other countries are planningto collaborate with NASA to explore Mercury later this century.		

	True [T] or False [F]	First four words
0	Т	Because of Mercury's position
Q1		
Q2		
Q3		
Q4		
Q5		
Q6	NY	
Q7	H H	
Q8		
Q9		

