

IH Reading Website Sample Task

Justifications: True/False with Justification (Mercury Messenger)

Example 0

The statement says: “The Sun has had an effect on the duration and length of MESSENGER’s journey to Mercury”, thus establishing a link between the spacecraft’s journey and the Sun.

In sentence two of paragraph one, the text states: “Because of Mercury’s position deep in the Sun’s gravity well, NASA’s MESSENGER spacecraft has needed a six-year flight [...]”. This sentence explains that the spacecraft’s journey was long because its destination was located in the “gravity well” of the Sun. Therefore the statement is **true** and the justification should be the first four words of sentence two of paragraph one, namely **“Because of Mercury’s position”**.

Q1

The statement says: “MESSENGER will not land on Mercury”.

In paragraph two the text states that “the craft will reach its goal on 18 March, dipping as close as 200 kilometres to Mercury’s surface”. This means that the craft will only approach the planet, not touch down on it: it will remain at a minimum distance of 200 kilometres. Therefore the statement is **true** and the justification should be the first four words of paragraph two namely **“If all goes well”**.

Q2

The statement says: “MESSENGER has already provided evidence that has changed researchers’ opinions about Mercury”.

The text says that “Earlier glimpses suggest that the planet is far from the inert lump of rock that scientists once imagined”. The words “earlier glimpses” refer to what the spacecraft has already observed or photographed; the phrase “is far from” does not refer to distance but to the degree of similarity. The text is therefore saying that the spacecraft has already provided evidence that earlier ideas about Mercury were not correct. Since “researchers” and “scientists” can be assumed to refer to the same group of people, the text and the statement mean the same and therefore the statement is **true**. The justification should be the first four words of the last sentence of paragraph three namely **“Earlier glimpses suggest that”**.

The text additionally states in sentence one of paragraph five that “The new mission has already transformed this view [...]”. “The new mission” refers to Mercury Messenger. “This view” refers to the images obtained in 1974 and 1975 by the first craft to photograph Mercury, as described in the previous paragraph. The words “transformed this view” and “changed researchers’ opinions” mean the same and therefore this sentence also provides proof that the statement is **true**. The first four words which should be quoted are: **“The new mission has already”**.

Q3

The statement says: “An earlier space mission failed to photograph Mercury”.

The text states that “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 first” means the first spacecraft or the first space mission, the one that preceded Mercury Messenger. The words “glimpsed” and “grainy close-ups” suggest that photographs were taken by this spacecraft. Therefore the statement is **false** and the justification should be the first four words of either the second or the third sentence of paragraph four namely **“The first, Mariner 10,”** or **“Its grainy close-ups of”**.

Q4

The statement says: “MESSENGER will provide data on the variations in the air above Mercury”.

In paragraph 5, the text states that “MESSENGER will also measure changes in Mercury’s tenuous atmosphere”. The words “air above Mercury” and “atmosphere” mean the same, as do “provide data on the variations” and “measure changes”. Therefore the statement is **true** and the justification should be the first four words of the third sentence of paragraph five namely **“Over the one-year mission”**.

Q5

The statement says: “Mercury’s centre is small compared to its rocky outer layer”.

The text in paragraph six states that “Mercury presents a puzzle in the form of an oversized iron core, three-quarters the size of the planet”. The words “core” and “centre” mean the same in this context. The text and statement make opposite assertions about the size of the planet’s core and therefore the statement is **false**. The justification should be the first four words of sentence one of paragraph six namely **“Beneath the surface, Mercury”**.

The following sentence in the paragraph also confirms that the statement is **false** by saying “This is utterly different from other rocky planets, whose cores are small relative to their mantles”. “This” refers back to the geological features of Mercury, which are stated to be unlike those of other planets. Therefore an alternative justification is possible and the first four words to be quoted would be “**This is utterly different**”.

Q6

The statement says: “Scientists have agreed that the heat from an explosion on the Sun partially destroyed Mercury’ surface”.

Sentence one of paragraph seven says that there are currently two explanations for the loss of Mercury’s surface: “A long-standing theory proposes that [...], but an alternative model [...]”. The words “theory” and “model” both refer to the different explanations offered by scientists. Each explanation proposes a different cause or origin: “collision” in the first case and “flare-up” in the second. This is the opposite of what is claimed in the statement i.e.that scientists agree on what partially destroyed Mercury’s surface. Therefore the statement is **false** and the justification should be the first four words of this paragraph namely “**A long-standing theory proposes**”.

NB: “mantle” in this context meaning “outer layer” or “surface”.

Q7

The statement says: “Measurement of Mercury’s magnetic field suggests that the planet’s centre is solid”.

The text states in sentence three of paragraph eight that “some of Mercury’s core might be molten”. The words “molten” and “solid” mean the opposite and therefore the statement is **false**. The justification should be the first four words of the sentence namely ‘**During its fly-bys, however**’.

Q8

The statement says: There is a chance that MESSENGER will prove that ice exists on Mercury”.

The text states in sentence one of paragraph nine that “The probe will also explore the counterintuitive possibility of water ice on Mercury”. The words “chance” and “possibility” mean the same. The text goes on to say in sentence three that “MESSENGER’s spectrometer could confirm whether ice lies hidden there”. The use of the word “could” makes it clear that this is not certain. Therefore the text and the statement mean the same and the statement is therefore **true**. The justification should be the first four words

of either sentence namely **“The probe will also explore”** or **“MESSENGER's spectrometer could confirm”**.

Q9

The statement says: “Other countries are planning to collaborate with NASA to explore Mercury later this century”.

The text says in the final paragraph that “NASA has no plans for another Mercury mission”. Other countries (Europe and Japan) are planning “a joint project”, but NASA is not mentioned. Therefore the statement is **false**. The first four words of either sentence in this paragraph are acceptable as justifications: **“The wealth of new data”** or **“BepiColombo, a joint project”**.

