

SEVENOAKS SCHOOL



YEAR 9 (13+) SCHOLARSHIP

May 2021
for entry in September 2021

GENERAL PAPER

Your Name: _____

Your School: _____

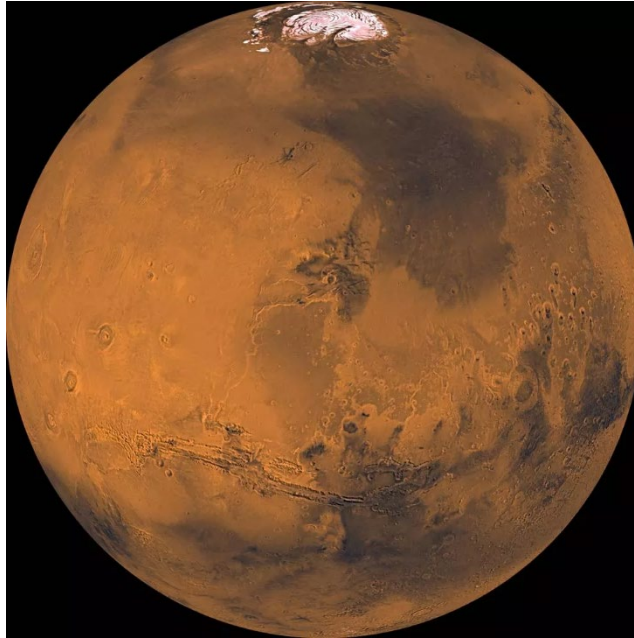
Time allowed: 1 hour (including 10 - 20 minutes reading time)

Equipment needed: Pen, pencil, lined paper, eraser.

Information for candidates:

1. Write your name and school on this page.
2. Write your answers on the **separate paper** provided. Please put your name on all the sheets of paper you use.
3. There are three questions, answer all of them.

IS THERE LIFE ON MARS?



Mars, as imaged by NASA's Viking 1 orbiter in the 1970s.

(Image: © NASA/JPL/USGS)

By Mike Wall May 09, 2019

<https://www.space.com/could-mars-support-life-today.html>

Four billion years ago, the Martian surface was apparently quite habitable, featuring rivers, lakes and even a deep ocean. Indeed, some astrobiologists view ancient Mars as an even better cradle for life than Earth was, and they suspect that life on our planet may have come here long ago aboard Mars rocks blasted into space by a powerful impact.

Things changed when Mars lost its global magnetic field. Charged particles streaming from the sun were then free to strip away the once-thick Martian atmosphere, and strip it they did. This process had transformed Mars into the cold, dry world we know today by about 3.7 billion years ago, observations by NASA's MAVEN orbiter suggest. (Earth still has its global magnetic field, explaining how our planet remains so livable.) But this turn of events doesn't necessarily mean that Mars is a dead planet today.

"If Mars had life 4 billion years ago, Mars still has life. Nothing has happened on Mars that would've wiped out life," said Michael Finney, co-founder of The Genome Partnership, a nonprofit organization that runs the Advances in Genome Biology and Technology conferences.

"So, if there were life on Mars, it may have moved around, it may have gone into hiding a bit, but it's probably still there," Finney said during a panel discussion at the Breakthrough Discuss conference at the University of California, Berkeley.

One of the most promising hiding places is the Martian underground. Though the Red Planet's surface has no liquid water these days — apart, possibly, from temporary flows on warm slopes now and again — there's likely lots of the wet stuff in buried aquifers. For example, observations by Europe's Mars Express orbiter suggest that a big lake may lurk beneath the Red Planet's south pole.

QUESTION 1

What evidence would convince you that there was life on Mars? What difference would it make to our lives here on Earth knowing that there was life on other planets?

QUESTION 2

Here are ten jokes. Pick one that you like and explain why you like it.

How do jokes like this work?

"I saw a documentary on how ships are kept together. Riveting!"

"As a kid I was made to walk the plank. We couldn't afford a dog."

"I've given up asking rhetorical questions. What's the point?"

"I have two boys, 5 and 6. We're no good at naming things in our house"

"I often confuse Americans and Canadians. By using long words."

"If you don't know what introspection is you need to take a long, hard look at yourself"

"Never Apologise! Never Explain!" – Sorry, that's my motto."

"A cowboy asked me if I could help him round up 18 cows. I said, 'Yes, of course. – That's 20 cows'"

"A thesaurus is great. There's no other word for it"

"I accidentally booked myself onto an escapology course; I'm really struggling to get out of it"

QUESTION 3

How different would your life be if you had no mobile phone and no access to the internet for a month?