Science with Sam – "Do Aliens Exist"

Reading comprehension

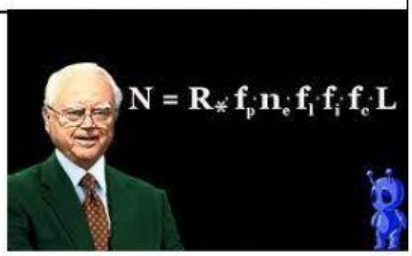
Vocabulary. Match the words with their descriptions.

obsessed	arouse or inflame (an emotion or situation)
assumption	a combination of statements, ideas, or features which are opposed to one another
to ignite	unable to stop thinking about something; too interested in or worried about something
vast	to invent a plan, system, object, etc.
contradiction	without limits; extremely large or great
infinite	a statement about what you think will happen in the future
prediction	something that you accept as true without question or proof
to devise	extremely big

LIVEWORKSHEETS

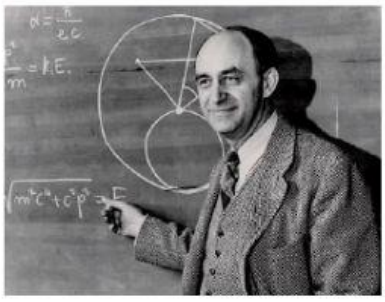
Fill in the blanks.

speculative	civilizations	communicate	answers
calculation	reality	obsessed	



We humans are _____ with the idea that we're not alone, that somewhere out there in the universe, there are other life forms intelligent enough to _____ with us. Or maybe even destroy us. But if there is life out there, why haven't we heard from them yet? Or have we?

In 1961, the astronomer Frank Drake devised a _____ that predicted the existence of millions of _____ out there among the stars. His Drake Equation used some fairly _____ assumptions, but it ignited our curiosity. Are we just one small part of a vast, cosmic zoo?



For physicist Enrico Fermi, the contradiction between this prediction and _____ made no sense, and it came to be known as the Fermi Paradox. "Where is everybody?", he wanted to know. There could be an infinite number of _____ to this question. Here are a few:

FIRST: Work with words

There is no paradox and we really are alone in the universe

Depressing though it may be, sometimes the simplest answers are the most plausible.

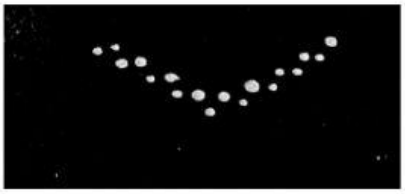
They're ghosting us

Maybe aliens have a policy not to interfere with less advanced cultures. A bit like the "prime directive", on *Star Trek*.

LIVEWORKSHEETS

They don't live long enough to get in touch

This idea, known as the Great Filter, says that no advanced civilisation survives long enough to still be around when its neighbours are thriving. For us, threats like nuclear war, climate change or pandemics might spell our doom.



They're already here

From Roswell to The Lubbock Lights, there have been plenty of UFO sightings on Earth. Is the government hiding the evidence? Or is it fake news?

The silence from other civilisations is not for want of looking on our part. In 1960, Drake pointed a radio telescope towards two nearby stars, and waited for that hotline bling. Instead of intelligent messages he got a load of static, and interference from a secret military experiment. Nevertheless, the Search for Extra Terrestrial Intelligence, or SETI, was born.

Then, on 15 August, 1977, another SETI program recorded a brief radio signal coming from the direction of Sagittarius. Jerry Ehman, the astronomer analysing the data at 'Big Ear' telescope that day, was so excited that he wrote "Wow!" in the margin of the print-out. So far, that 'Wow!' signal stands as our most hopeful sign of alien communication yet.

But listening for ET to phone home is a bit like standing by the payphone, waiting for the phone to ring. Maybe we have to make the first move.

Drake tried this too, sending a radio message towards globular star cluster M13. Known as the Arecibo message, it showed potential aliens our DNA structure, solar system and some of the biochemicals of earthly life.

Then, in 1977, we sent a more ambitious message, full of audio and images, on board the Voyager probes. We even included a mixtape of some of our favourite tunes, including Bach, Beethoven, Louis Armstrong and Chuck Berry, to impress any friendly lifeforms – or at least the ones with ears.

LIVEWORKSHEETS

By now aliens might know quite a lot about us – including what we need to survive and how to reach us. And you might be wondering whether it's such a good idea to be broadcasting our location all over the galaxy, when we don't know who's listening. "It's like shouting in a forest before you know if there are tigers, lions, and bears", says Dan Werthimer, a SETI researcher. Worse still, these bears might have planet-destroying interstellar missiles.

Putting aside the question of whether we should try to contact aliens, are we even doing it right? These alien societies might be millions of years old, so to them our radio messages might look as outdated as flip phones, pagers, and, well, radio.

If we do make contact with aliens, it would be a decisive blow to the idea that humans are the centre of the universe. But how much cooler would it be to discover that we're just one branch of a vast galactic tree of life?

True or False?

- Frank Drake predicted the existence of other civilizations TRUE FALSE
- Aliens may just ignore the human civilization TRUE FALSE
- Roswell and the Lubbock Lights are examples of alien proof TRUE FALSE
- Instead of intelligent message Drake heard a lot of static when he tried contacting other civilizations TRUE FALSE
- Wow-signal is not the only sign of alien communication TRUE FALSE
- Aliens may have data of human DNA TRUE FALSE

LIVEWORKSHEETS