

Imagine that sometime in the not-too-distant future, the U.S. government decides to send out teams of explorers to live on two newly discovered planets in a nearby solar system. Both of these planets have environments that are similar to Earth's in two important ways: They have the same kind of gravity and breathable air. But each of the planets is also very different from Earth.

PLANET X

An underground source of light means that it's never dark on Planet X. Instead, it's very bright all of the time. There's no water, just a liquid that's similar to extra sweet orange juice. A large population of plants are safe to eat, but the only edible creatures are fast-moving, high-jumping insects. A strong wind blows all of the time. Temperatures range from 15 to 20 degrees Celsius, similar to a comfortable fall day here on Earth.



PLANET Y

Due to a black, fog-like layer that surrounds Planet Y, it's never light. There's a little glow in the air every once in a while, but otherwise it's pitch dark. Water is plentiful. In fact, water covers 80% of the planet. There are many different populations of underwater creatures that are good to eat, but there's very little edible plant-life. A high-pitched, whiny sound is constant. Temperatures are much warmer than on Earth, on average 50 degrees Celsius.



Fast forward to the even more distant future. You and your team are descendants of those original explorers. You've journeyed here to planet Earth to teach us about how natural selection has helped your species evolve over these many, many years.

(Your teacher will divide the class into groups and assign each group a birthplace of either Planet X or Planet Y.)

Working as a team, think of five things that you know about the environment on your planet and write them down.

Next, read this list:

EYES	FEET	HANDS
NOSE	TEETH	HEART
FINGERS	LUNGS	VEINS
BLOOD	MOUTH	SKIN
HAIR	BONES	TOES

Now, keeping in mind the things you know about your environment and the list of body parts, talk as a group about what traits would help a person survive on your planet. Would it be useful to have longer fingers? A smaller nose? What kinds of adaptations would be useful? Feel free to get creative and come up with adaptations that we've never heard of! (Please focus on changes in the body, not on technological solutions.)

Greetings Earthlings: How Our People Have Evolved over the Years

Fill in the blanks, using the following as an example:

On our planet, our people have evolved to have flaps over our ears in order to keep the strong wind from hurting our eardrums.

On our planet, our people have evolved to have

_____ in order to _____

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