The Final Frontier (answer)

Starting positions of planets inferred by graphic:

Then, we trace out each voyager’s journey, keeping in mind each planet has the same period.

Can’t wait to leave Neptune! I’m making my trip to Venus soon. Don’t worry, I’ll only be there for half a year.
... we’ll be stationed on Uranus for a diplomatic mission that will last an eighth of a year, then make our way back to Venus and stay for another year.

The Martians are keeping us captive... we have an escape opportunity in about a fourth of a year. We’ll stow away on a cargo ship headed home to Earth.

... mom! I’m about to go on a study abroad program! I’m doing meteorological studies on Jupiter for another 3/8 of the year, then I’ll spend the same amount of time on Mercury learning about cool rocks. Our professor ...
I’m leaving Earth for Titan today... I can’t wait to see the rings for the first time. I have to stay there for just short of a year.

I can’t wait to backpack across Mercury-- it’ll be an amazing experience! I think it will take me about three quarters of the year-- I can’t wait to tell you about my adventures!

Answer: PARSEC