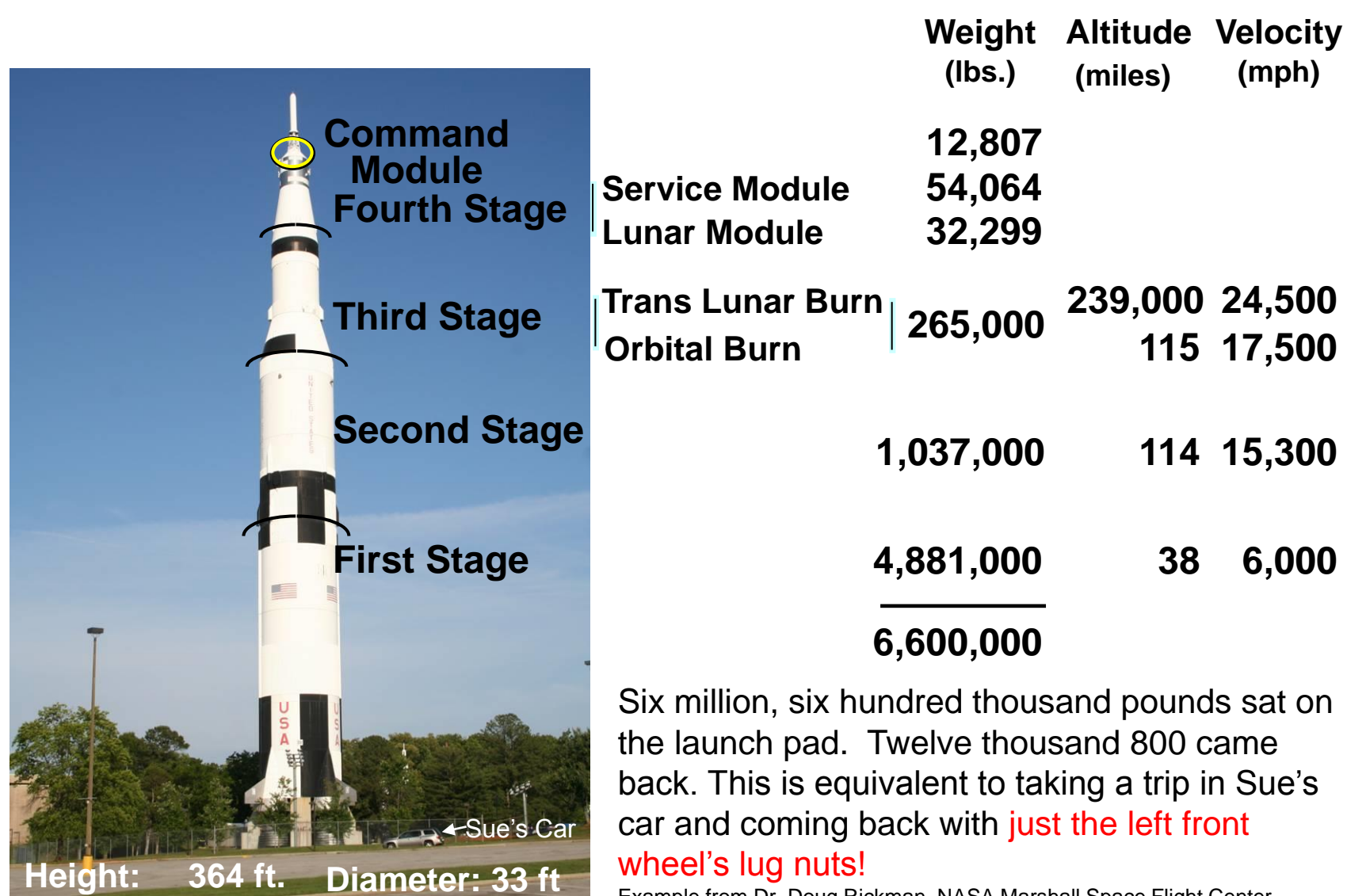


## Why Should We Use In-Situ Resources?

It takes A LOT of mass (in rocket and fuel) to get A LITTLE bit of mass returned to Earth after a mission.

Below is an example of the amount of mass it took to launch and Apollo mission to the Moon, and how much of that mass was returned to Earth.



Six million, six hundred thousand pounds sat on the launch pad. Twelve thousand 800 came back. This is equivalent to taking a trip in Sue's car and coming back with **just the left front wheel's lug nuts!**

Example from Dr. Doug Rickman, NASA Marshall Space Flight Center

Mars is more than 580 times farther away from the Earth than the Moon.

It takes about 3 days to reach the Moon.

It takes about 6 months to reach Mars.

Imagine how much fuel and mass would be needed to launch an entire Mars mission from Earth. What if we could build what we needed on the surface of Mars? What if we could get what we needed from the material available on Mars? The use of in-situ resources can significantly reduce the mass launched from Earth (and thus cost), and significantly increase the potential for sustained human exploration of other planetary surfaces.