The Heavy Nuclei eXplorer (HNX) mission will measure the abundances of nuclei from Carbon (Z=6) to Curium (Z=96) in the cosmic radiation with the resolution to identify the atomic number of each detected nucleus. HNX will measure a significant number of actinides, providing the first abundance measurements of many of these elements. HNX utilizes two high-precision instruments, the Extremely-heavy Cosmic-ray Composition Observer (ECCO) and the Cosmic-Ray Trans-Iron Galactic Element Recorder (CosmicTIGER), which are to be located in a SpaceX DragonLab capsule orbiting the Earth. In this talk, I will discuss the motivating science: to determine if Galactic Cosmic Rays (GCRs) are accelerated from new material or reservoirs of old material and what is the age of this material; to determine the nucleosynthesis and acceleration processes responsible for the of Ultra-Heavy GCRs (UHGCR, Z ≥30), to determine their traversed galactic pathlength, and to search for extremely heavy components in the cosmic rays. I will also discuss the design and performance of the HNX instruments.