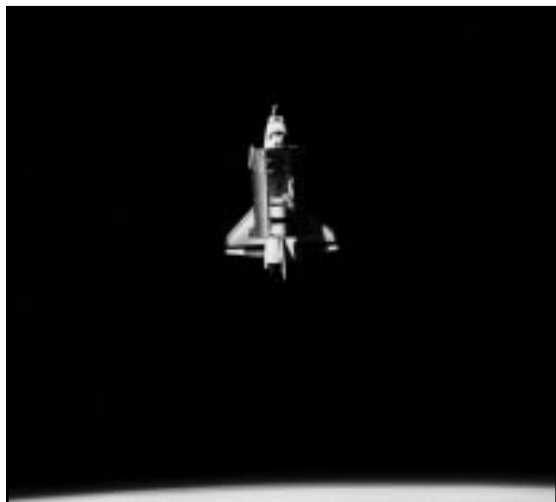


Space Shuttle

For the Space Shuttle program, a more Earth-like feeding approach was designed by updating previous food package designs and hardware items. Food variety expanded to 74 different kinds of food and 20 kinds of beverages. The changes were driven by the relatively large crews and regularly scheduled space flights. A standard Shuttle menu is designed around a typical 7-day Shuttle mission. Astronauts may substitute items from the approved food list to accommodate their own tastes or even design their own menus, but these astronaut-designed menus are checked by dietitians to ensure that they provide a balanced supply of nutrients.



STS-7 SPAS view of Challenger

On the Shuttle, food is prepared at a galley installed in the orbiter's middeck. This modular unit contains a water dispenser and an oven. The water dispenser—which can dispense hot, chilled, or ambient water—is used for rehydrating foods, and the galley oven is used to warm foods to the proper serving temperature. The oven is a forced-air convection oven and heats food in containers different in size, shape, and material. A full meal for a crew of four can be set up in about 5 minutes. Reconstituting and heating the food takes an additional 20–30 minutes. A meal tray is used as a dinner plate. The tray attaches to the astronaut's lap by a strap or can be attached to the wall. Eating utensils consist of a knife, a fork, a spoon, and a pair of scissors to open food packages. Many astronauts will tell you that one of the most important things they carry in their pockets is a pair of scissors. They could not eat without them!

Weight and volume issues have always driven the design of any hardware to be taken into space. Food and beverage packaging is no exception. As Shuttle mission length increased, certain food and beverage packages required



Prepared foods on Shuttle food trays Velcroed to middeck stowage lockers.

modification. Rigid square rehydratable packages were being used but proved cumbersome and problematic on longer missions. Packages made of a lighter flexible material were developed and first tested on STS-44 (1991). These Extended Duration Orbiter (EDO) packages are made of flexible plastic and have a valve for inserting water. These eventually replaced the rigid square rehydratable packages on a permanent basis. In addition, a trash compactor was developed to reduce the volume of the trash, and the new packages were designed to be compatible with the compactor.

Visit <http://spacelink.nasa.gov/space.food> to see and download the Space Shuttle Food List and Shuttle Standard Menu.



STS-91 onboard view: Astronaut Dominic Gorie prepares a meal on the middeck of the Space Shuttle Discovery. Gorie prepares to use the nearby galley to add water to one of the rehydratable packages.

