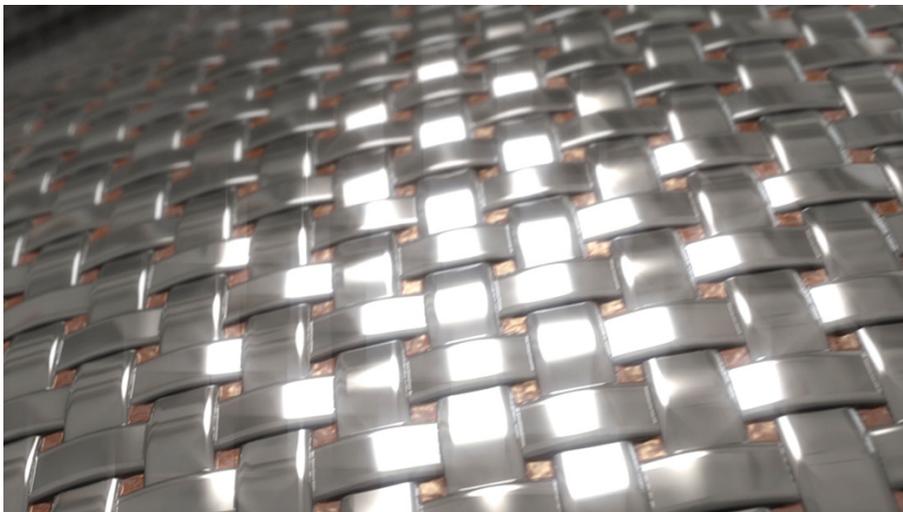




Space Technology Mission Directorate Game Changing Development

NASA Space Technology Mission Directorate's Game Changing Development (GCD) Program investigates innovative ideas and approaches that have the potential to revolutionize future space missions and provide solutions to significant national needs.

GCD takes a high-risk, high-payoff approach to technology development, with the goal of creating disruptive and transformative technologies. GCD doesn't aim to incrementally improve a current technology, but rather revolutionize that technology.



Woven carbon fabric is a game changer in Entry, Descent and Landing (EDL) technologies. This innovative technology will be tested on Orion's compression pads during the Exploration Mission 1.



Advances in life support technologies will change the way astronauts live and work in space.

NASAfacts

To accomplish this, GCD incorporates a principal investigator-led investment strategy in specific technology areas, collaborates with outside agencies, industry and academia and takes an informed risk posture—recognizing that without failure there isn't progress.

The GCD Program funds more than 40 technology development projects across five technology themes, which are:

- **Lightweight Materials and Advanced Manufacturing**
- **Revolutionary Robotics and Autonomous Systems**
- **Future Propulsion and Energy Systems**
- **Affordable Destination Systems and Instruments**
- **Advanced Entry, Descent and Landing**

GCD focuses its efforts on the mid technological readiness level (TRL) range between 3 and 6. The general life cycle of a project within GCD begins with proof-of-concept (TRL-3) and usually ends with system testing in a relevant environment (TRL 5/6). These projects are typically 2 to 3 years long.

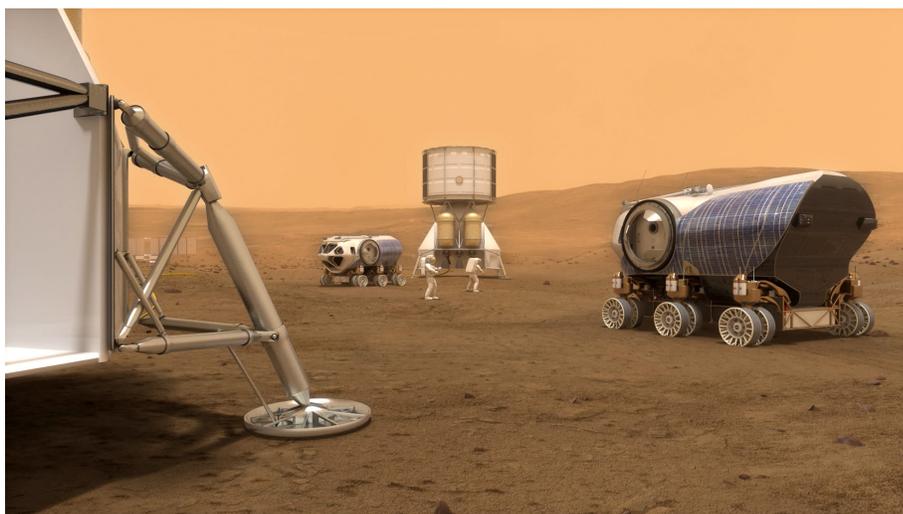
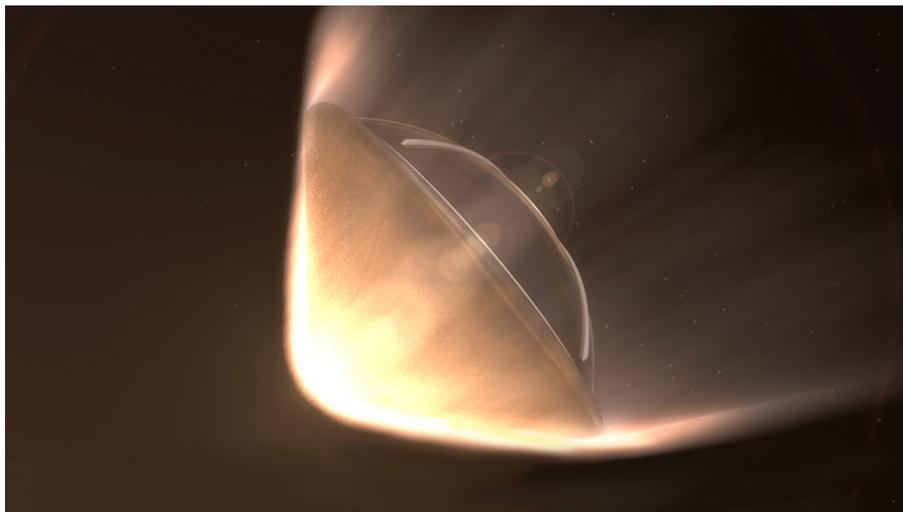
GCD's successful technologies will transition to other STMD programs, such as the Technology Demonstration Mission (TDM) Program or directly to flight missions under NASA's Mission Directorates. The technologies can also transfer to other governmental agencies or support national needs.

With a focus on game changing technologies, in a high-payoff, high-risk environment, success is not expected with each investment. However, over time, dramatic advances in space technologies

will enable entirely new NASA missions and provide potential solutions for a wide variety of our society's grand technological challenges.

The Game Changing Development Program is located at NASA's Langley Research Center in Hampton, Va., and employs more than 340 employees across 9 centers.

For more, visit: www.nasa.gov/spacetech



NASA's Game Changing Development program is investing in a suite of technologies that will revolutionize efforts in Entry, Descent and Landing. Woven fabrics, deployable rigid heat shields, advanced instrumentation and new modeling capabilities are just a few examples of these investments.

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