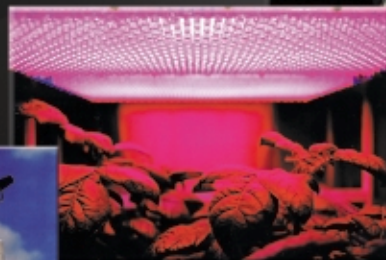
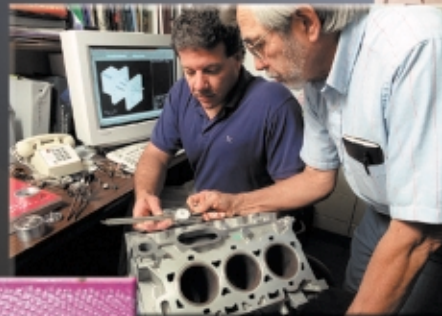
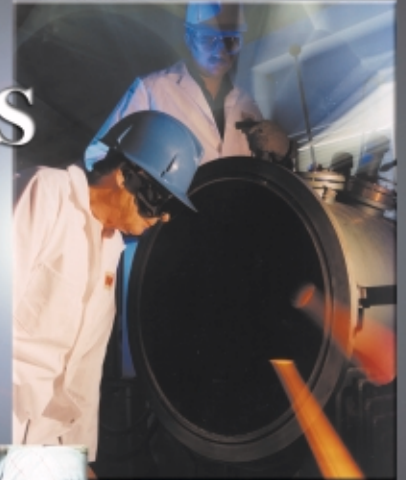




Space Product Development
Space For Business to Grow

Bringing the Benefits of Space down to Earth



Partnering With Industry For Out of This World Results



This question is often asked by people seeing coverage of a launch or other space activity. Work being done by industry through **NASA's Space Product Development Program** and its **Commercial Space Centers** provides one answer to this important question: It can mean down-to-Earth benefits in the form of new and improved products, new or improved manufacturing processes, new technologies, and jobs.



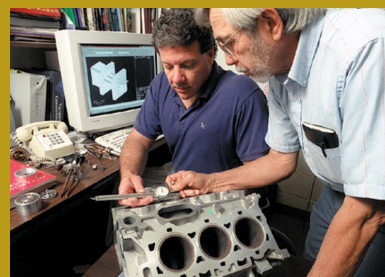
This is being done by partnering with industry to help them discover the benefits that can come from

microgravity research investigations done in an environment where the effects of gravity are reduced or eliminated. By making use of the unique conditions available on aircraft flying special trajectories, sounding rockets, the Space



Shuttle, or the **International Space Station**, businesses are able to get the information they need to deal with problems they face today, and to develop new ideas for future exploration and development.

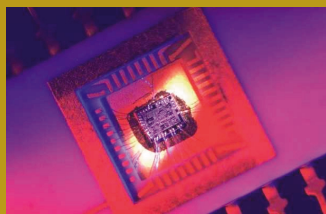
The program already has resulted in products that are available to the public. The **Ford Motor Company** has used the program to help improve its cast automotive parts, resulting in more reliable products that cost less to produce. Research done by **Water Technology Corporation/WTC-Ecomaster** has produced a new generation of water purification technology that is benefitting everyone from hikers to municipal water



treatment operations. **Chiron Corporation** has done research that has produced a treatment for bladder cancer and metastatic melanoma. Light emitting diodes (LEDs) developed by **Quantum Devices, Inc.**, are being used in a special type of cancer treatment called photodynamic therapy, where they provide a more reliable and efficient source of light.



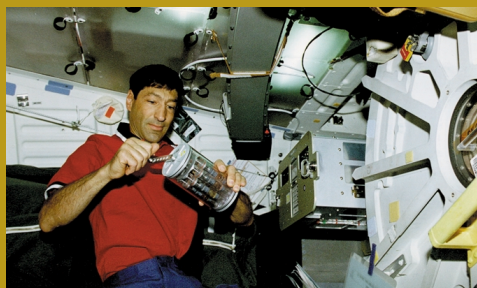
Other Down-To Earth Benefits Are On The Way As Well.



Advanced electronics research is providing devices that range from special semiconductor lasers for use in applications such as environmental monitoring

and aircraft safety, to a special optical detector that may offer the hope of sight to the approximately 2 million people in the U.S. with retinal eye problems.

Investigations are underway to determine if the LEDs used in cancer therapy may also aid in the healing of wounds. Medical companies are currently testing several new drugs, including a potential treatment for the flu. Commercial research by **International Flavors and Fragrances** resulted in the discovery of an entirely new scent produced by a rose, opening the way to new perfumes and food flavors. Other companies,



including **ALCOA**, **Howmet Corporation**, and **Brush Wellman, Inc.**, are—like **Ford**—discovering the benefits that microgravity research can bring to Earth-based production.

All of this is made possible through the unique partnership offered through the **Space Product Development Program**. The program is charged with helping commercialize space by educating companies and businesses of all sizes to the benefits of doing business in space and providing the access necessary to do this. This is being done through **Commercial Space Centers**.

Commercial Space Centers Support The Full Spectrum Of Commercial Research.

These centers, located at academic institutions such as universities, are currently funded by **NASA** and charged with developing industry partners to pursue specific areas of commercial research. These partners pay an increasing portion of the funding for operations and research, since the ultimate goal is to generate a demand for doing business in space.



That is the key to the difference between **Space Product Development** and traditional research programs: Industry is providing the funding for their own research. It is the responsibility of the companies involved to fund the research, analyze the data, and bring the results to the marketplace. In addition, industry is providing an increasing amount of funding for the **Commercial Space Centers**. As its part of the partnership, **NASA** is providing flight time for those projects that pass the selection process.

Industry gains new products and technologies while—in many cases—saving research time. As a result, the companies taking part often find ways to cut costs while improving products: providing a positive impact to their bottom line.

N**ASA** benefits on several fronts. While the amount of money provided by any one company is small, as more companies come into the program more money does as well. Just as pennies can quickly add up with compound interest, so to do the financial and other resources available for space operations.

In addition, **NASA** is able to help ensure the continued economic growth of the U.S. and that the opportunities for new processes, products, and jobs are brought down to the U.S. taxpayer.

The public benefits from improved products, new or improved medical treatments, and from the myriad other benefits that come from commercial research in space.

So the next time you see coverage of a space mission, you will know that it can mean a good deal to you, and have direct and down-to-Earth benefits in your everyday life.



For more information on the Space Product Development Program, please visit <http://commercial.nasa.gov> or write to:

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