

STARBASE Minnesota Overview & Stats



STARBASE Minnesota is: a 501(c)3 nonprofit organization founded in 1993 whose mission is to educate and inspire youth in science, technology, engineering and math (STEM). Since 1993, **STARBASE Minnesota has served over 80,000 Minnesota youth.** STARBASE is a program of the Department of Defense hosted



on two MN National Guard bases, St. Paul and Duluth, who provide state of the art facilities and technology-rich environments for STARBASE's exciting, 5-day programs that inspire and engage 5th grade students in STEM through authentic, hands-on, skill-building programs aligned with state standards. Students learn through the exciting and topical "real world" context of humans destined to explore and thrive on Mars. With support from the state legislature and MN Department of Education, STARBASE now provides "Destination Mars STEM Units & Kits" curriculum, materials, website all free to schools to serve an additional 26,000 fifth graders across Minnesota — schools unable to attend in person due to STARBASE's already full schedule/waiting list or far distance from STARBASE. STARBASE has a 24-member Board of Directors with backgrounds in business, education, military and government. STARBASE Minnesota recently received MN High Tech Association's Tekne Award for Community Impact. **STARBASE programs and kits are free to districts and schools.**

In STARBASE onsite programs students learn: scientific and engineering design concepts integrated with math and technology. They conduct authentic, "real world" experiments and investigations to learn about Newton's Laws, properties of air, energy transfer, renewable energy, mass, weight, density, chemistry, magnetism, properties of rocks, and the vacuum of Space. They gain skills in coordinate graphing, plotting, geometry, median, comparing decimals, fractions, percent, area, surface area, volume, estimating, data analysis, and coding. **Students learn to think like scientists and engineers** investigating robotics, vacuum pumps, simulations, temperature probes, rockets, circuits, energy systems, rock samples, generators, wind turbines, circuitry, CAD modeling, 3D printers and prototyping, AR, VR, and more. They learn about STEM careers and the contributions individuals have made in STEM, specifically from groups underrepresented in STEM; they interact with members of the MN Guard and local scientists/engineers to learn how STEM skills apply to the work in STEM industry and innovation.

Student & Teacher Results: (Last full year's results, measured by pre and post tests, surveys, Wilder Study)

- 95% students increased knowledge / skills in science, math, technology and engineering
- 80% average improvement pre to posttest: 4th gr- 30 percentage point gain; 5th gr-31
- 98% students reported STARBASE made learning fun; 88% have increased interest in STEM;
- 96% classroom teachers reported gains in own knowledge/teaching skills
- 99% teachers rated STARBASE excellent (91%) or very good (8%); 100% want to return.
- 8-10 yrs later 99% of former STARBASE students surveyed thought STARBASE a valuable learning experience; 83% felt it helped them understand STEM better and 79% said it increased their interest in STEM with positive impacts on graduation and college enrollment.

Partners in STEM Education: Department of Defense, MN Guard, MN Department of Education, and STEM industry, including: 3M, Abbott, BAE Systems, Boston Scientific, Cargill, Collins Aerospace, Cummins Power, Delta Air Lines, Ecolab, Endeavor Air, Medtronic, Microsoft, nVent, Pentair, Seagate, Stratasys, Toro, and Xcel Energy.

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