# SEP² The Search for Payloads

*by Greg Warren,*
*SEP Program Director*

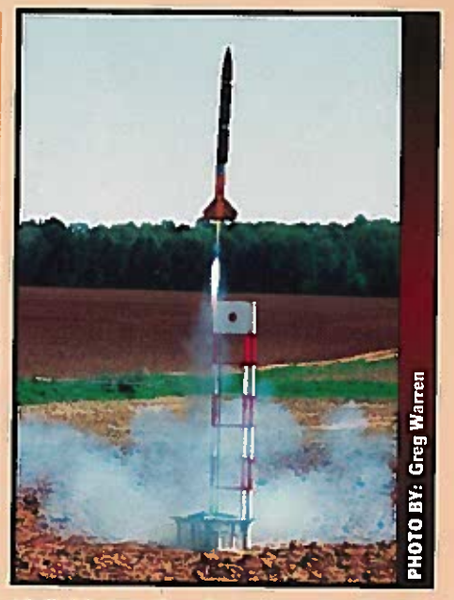
For the past three years, students participating in the Student Experimental Payload Program have geared up for the annual launches. In addition to an open range for anyone wishing to launch model rockets, high-power enthusiasts who wish to take advantage of the 10,000 foot waiver make an appearance. The day is filled with fun and the sky with rockets, but the excitement of the day's activity culminates with the launch of the students' experiments on-board the SEP Rockets. The launches take place throughout the month of April and early May on Saturdays so as many of the school kids as possible can attend. During 1993, the SEP Program conducted ten missions with a total manifest of sixty-six payloads from students in three states. This year, the numbers are on the increase.


*SEP I with typical manifest for one flight. Each canister contains one experiment.*

Students by nature do not begin construction of their payload experiments until after the Christmas break. In fact, the abstracts are not even submitted until the end of January. Abstracts (for those of you just entering the world of payload launching) is a one page report on what your experiment is, what it is expected to do, and what the result will be. It should also include a brief description of how you plan to build the experiment including materials, how much it will weigh, and what size the completed experiment will be. Students participating in the SEP Program are required to file an abstract for approval before beginning construction on their experiment.

Probably the most asked question for our team members is "what kind of experiments do you get?" Kids seem to have a creative block when it comes to developing an idea for a payload. But anyone wishing to conduct an experiment with rocketry should realize the following – even if it's been done before, if YOU haven't ever done it, it's new! At the SEP Operations Center we do have to turn a payload away every now and then. This is usually because of a safety code violation, never because of duplication. In fact, we have launched so many duplicate "cricket" containers that we should have bought stock in the industry, or consider raising our own crickets. Other favorite payloads include home-built accelerometers, air sampling experiments, mixing incompatible chemicals, and measuring G forces. Among the life science experiments there was a trend last year to launch fish eggs, frog eggs, and even chicken eggs that had been soaked in vinegar to remove the hard shell and see if the yolk would remain intact. Other noteworthy life science experiments included observing the life habits of sea monkeys, timber ants and spiders before sending them off to the SEP Program for launch. Post launch activities were recorded by the students and compared with the "natural" pre-launch activities of the specimen.

On the more complex side, some experiments included electronic packages involved with telemetry, photography, video, measuring the doppler effect and experimental ground based tracking systems. Several requests were made for a night launch to open up more possibilities for optical tracking and strobe experiments. While that issue could not be resolved last year (the FAA nearly had a cow at the mere mention of it) things are looking a bit more promising this year.




*Liftoff of the SEP I. This is the smallest member of the fleet at 4"x69" but it still carries a full cargo up to several thousand feet.*

Every experiment launched by the SEP Program, no matter how simple or complex, is designed to do one thing: provide hands-on learning using the Scientific Method of Investigation. No one is expected to break new ground in the world of science, and we don't expect any student to discover amazing new scientific phenomena. The purpose is to have fun while applying the science that they learned in school, and to provide them with access to an otherwise unobtainable option to explore science. After all, not every school is willing to spend the time and money necessary to put together a program like SEP, and even if they did, launch fields are not easily obtainable and experience can't be bought at any price.

So, as abstracts and payloads begin to make their way to the SEP Operations Center, we will keep you informed as to the progress, manifest, launches and results. If you would like more information about the SEP Program, including how to participate, contact a SEP team member at:

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