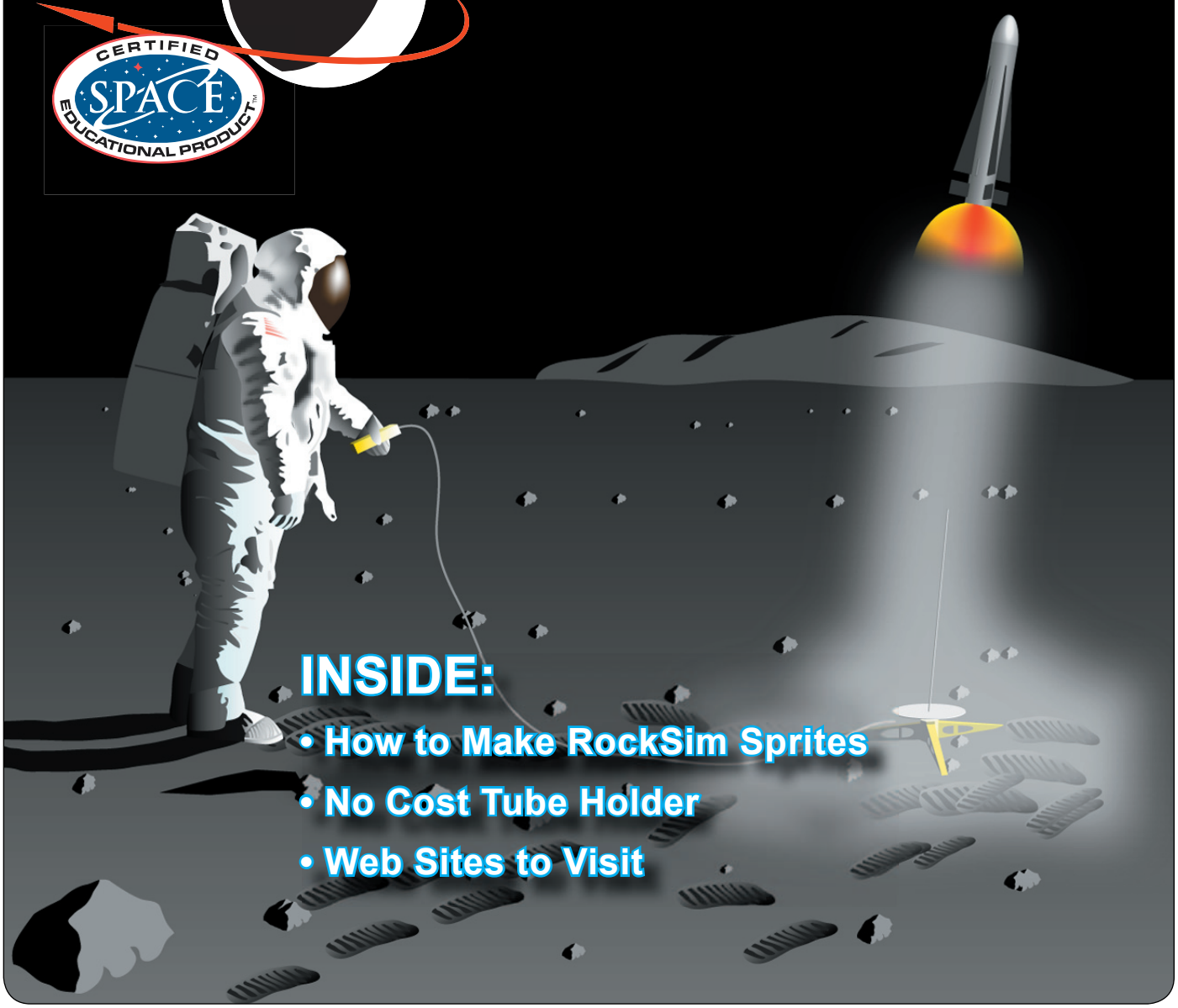
ISSUE 146 - AUGUST 1, 2005

APOGEE PEAK OF FLIGHT NEWSLETTER

ROCKSIM

CERTIFIED SPACE EDUCATIONAL PRODUCT™

RockSim Receives "Space Certification!"



INSIDE:

- How to Make RockSim Sprites
- No Cost Tube Holder
- Web Sites to Visit

APOGEE COMPONENTS

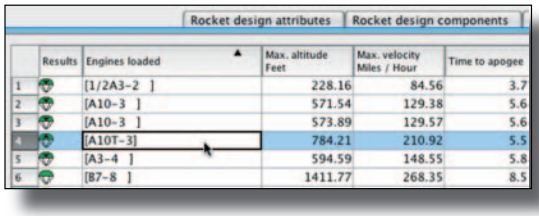
1130 Elkton Drive, Suite A
Colorado Springs, Colorado 80907 USA
www.ApogeeRockets.com e-mail: orders@ApogeeRockets.com
phone: 719-535-9335 fax: 719-534-9050

Creating Sprites in RockSim v8.0

by John Manfredo

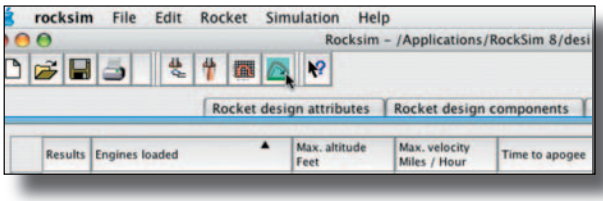
One of the neat features in RockSim v.8 is that you are now able to create rockets in your simulations that look just like the rockets you designed!

This is done by creating 'sprites', which are images of your rocket that are used in the flight simulator portion of the program. The first thing to do is to open any design you want and go to the flight simulations screen. From there you select the motor simulation that you would like *(in this case, it is an A10T-3 as in Illustration #1).*



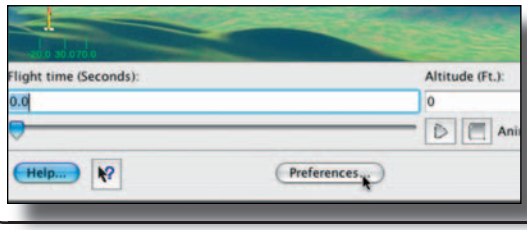
1

Next, click on the flight simulation button at the top of the screen *(see Illustration #2).*



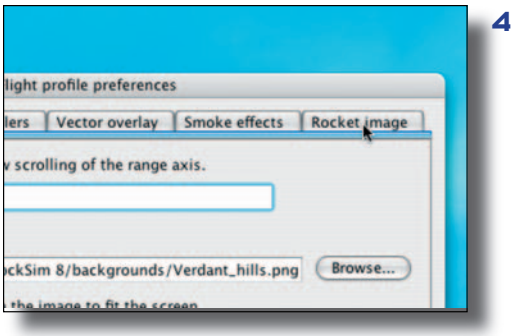
2

This will start a set-up mode that will run its course. After this is done, click the button that says "Preferences."



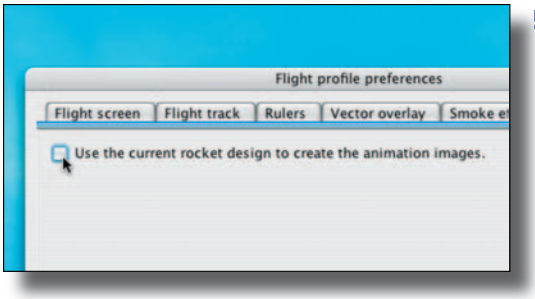
3

You will now be looking at the Flight Profile Preferences where you will want to select the tab that says "rocket image." *(see Illustration #4).*



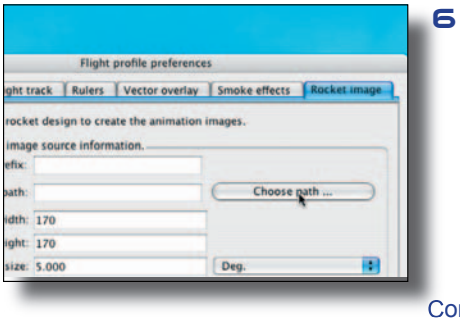
4

Check the button that says "use the current rocket design to create the animation images" *(see Illustration #5).*



5

At this point, quite a few things will pop-up on the screen. You will need to go to the 'choose path' button because you have to select a specific folder to place the sprites in that you are creating. *(see Illustration #6).*



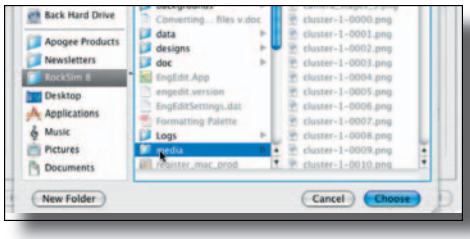
6

Continued on p. 3

About this Newsletter

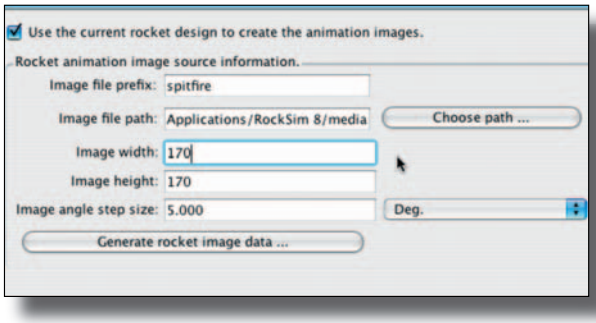
You can subscribe "FREE" to receive this e-zine at the Apogee Components web site (www.ApogeeRockets.com), or by sending an e-mail to: ezine@apogeerockets.com with "SUBSCRIBE" as the subject line of the message.

This folder will be titled 'media' From there, click on the 'choose' button to select that path. *(see Illustration #7)*



7

The 3 items below are things that will affect the look of the image in your simulation: *(see Illustration #8)*



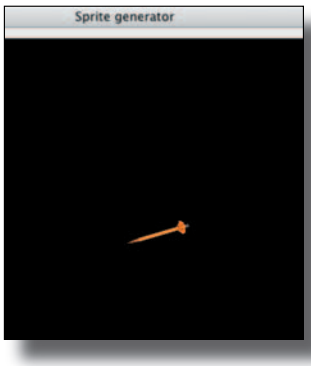
8

Image width is the width in pixels for the animation image. Image height is the height in pixels for the animation image. Image dimensions of 150 X 150 are a good starting point.

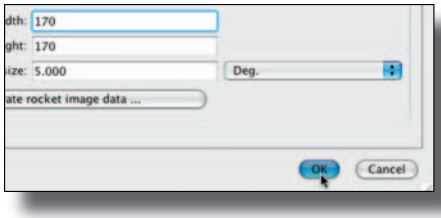
Image angle step size is a series of images created for each stage of the configuration. The purpose of this is to render the images at various angles from 0 to 360 degrees. This angle step size determines the number of images created for each stage configuration. Values between 5 and 10 degrees are a good starting point. Smaller angle step values produce more realistic flight animations at the expense of memory and increased load times. Also at this time, it is be a good idea to title the file prefix with the name of your design.

Now you are ready to create sprites for your rocket! Select the button that says 'Generate rocket image data.' This will start a process to generate the specified rocket animation images.

9

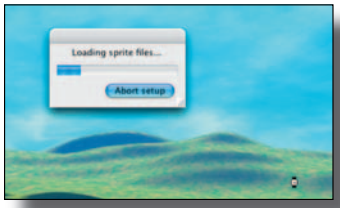


A small display window will open and you will see a series of images as they are created. Do not interrupt this process. *(see Illustration #9)*

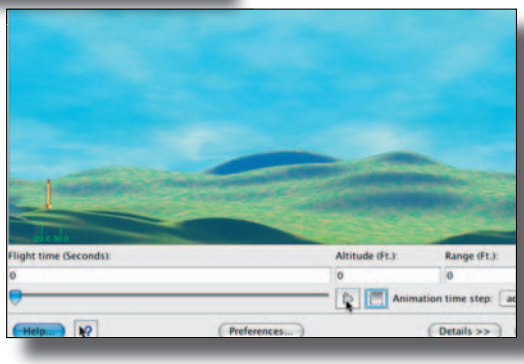


10

When it is finished, click "ok" *(see Illustration #10)* and a box will appear that says it is loading the sprite files. *(see Illustration #11a)*



11a



11b

As soon as it finishes, you can click on the play button and watch your rocket as it blasts-off, deploys the parachute, and floats gently down to the ground.....you hope! *(see Illustration #11b)*

RockSim Receives "Space Certification" Label

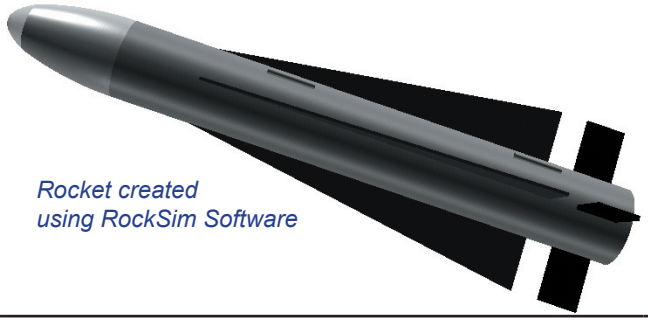
The National Space Foundation (http://spacefoundation.org) has certified RockSim – the model rocket design and simulation software – as a "Certified Educational Product." This is a major endorsement of the software, and indicates to teachers that RockSim can stimulate a student's interest and knowledge about Space.

Tim Van Milligan, president of Apogee Components, the software's developer said: "I'm thrilled that RockSim has received this special certification from the Space Foundation. RockSim does more than just getting students interested in space; it really sparks an interest in learning science. Why? Because they get hooked on rocketry and want to know more about how to make them go higher, faster, and straighter. You need to know some science to do that."

The RockSim software allows students to design a model rocket, and then simulate how well it will fly when launched. It not only predicts altitude, but the trajectory path the rocket will likely take on windy days. By using this CAD-like software, students can get creative and develop high performance rockets. Then they can actually build their design from the blueprint plans they print out. Finally, they can launch their rockets and compare the performance against the predictions made by the software.

"There have been literally tens of thousands of rockets designed using RockSim," said Tim Van Milligan. "When students have a rocket that flies different from what RockSim predicted, they want to know why. That nagging question keeps them interested in science even after they've flown their rockets."

"The whole process really mimics the real-world profession of aeronautical engineering," said Tim Van Milligan.



Rocket created using RockSim Software

"That is why teachers will find RockSim such a powerful tool in their classrooms. In fact, many professional engineers use RockSim too! They like it because it allows them to quickly test design concepts and gives them results that are accurate and reliable. That's not bad for a inexpensive software that was created for schools and hobbyists."

Model rocketry has a long history of sparking student interest in technical careers. Dr. Jay Apt, a former NASA Space Shuttle astronaut and model rocketeer, said in an interview with Sport Rocketry magazine that 81 percent of the astronauts he has flown into space with got their start by flying model rockets. "In a sense, model rocketry is the first step into Space! And using RockSim in schools insures a extra level of excitement and safety," said Tim Van Milligan.

According to Apogee Components, the software is already in use by over 856 schools throughout the United States. It simplifies the rocket design process by allowing students to stretch-and-pull common shapes into any size rocket they desire. Based on the shape, weight, and dimensions, the software then calculates how high and fast the rocket will fly with any commercially available model rocket engine. It also checks the stability of the rocket prior to flight, so that the designs will fly a straight and safe trajectory path.

The RockSim software is available for both Windows and Macintosh OS X computers. A free 30-day trial version can be downloaded at: www.ApogeeRockets.com/rocksim.asp

WEB SITES WORTH VISITING

By John Manfredo

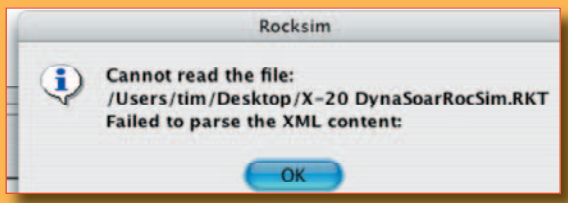
I was thinking recently about the whole concept of the term "paying forward" (taking the time to introduce others to the hobby of rocketry) and remembered the Blue Mountain Rocketeers club based out of Dayton, Washington. They have a web site at http://www.bmr615.org/ which shows that they really know the meaning of that term.

Created 11 years ago, the club has 51 members ranging in age from 3 to 73 years old. One point that sets the Blue Mountain group apart is the fact that they don't charge any pad fees or membership dues – quite a unique situation. Section Advisor, Tim Quigg states, "All of our funding comes from hard work and lots of volunteerism. Volunteer members of BMR mow the local Sheriff Department's gun range, earning the club $200 a year and the use of the gun range as a secondary launch site when needed. We also receive funding from Seneca Foods United Way and the local Kiwanis group. The remainder of the money we receive through public donations or we raise through bake sales, car washes and, in the near future, a community yard sale. Members will donate items for the yard sale and all proceeds will go to the club's fund. We usually maintain a balance of about $500 year-round in our club account, so we must be doing something right!" They have an on-site vendor and a local scout troop offers concessions. The Blue Mountain Rocketeers is a rocketry club operated by youth. The Board of Directors of BMR (President, Vice-president, Secretary/Treasurer and Junior Member at Large) are all boys and girls under the age of 19. It's great to see so many young people interested in this hobby.

The page with "Facts About the Blue Mountain Rocketeers" provides a lot of information about the club such as how it operates and the different types of community events it is involved in. All in all, this club has it all together. I hope many other clubs can use them to "model" their rocketry after.

QUESTION AND ANSWER CORNER

The question for this issue is in regard to RockSim v8.0 and one we are asked quite a bit here at Apogee. Customers call or e-mail us and ask, “Why is it that when I try to open a design file from 5.0 in 8.0, I get an error about being unable to open the file and how can I import my older files into version 8.0? Of course, it would be a shame to not be able to open all of your old designs if you upgrade to version 8.0.



The above error message will appear when you try to open designs in version 8.0 that were created in version 5.0 or earlier. They cannot be opened in version 8.0 due to the fact that the files were written in a different format. Apogee President Tim Van Milligan states, "We’re working on a web-based system that will allow you to upload your old designs, and then they would be downloaded back to you in the new format."

But in the mean time, e-mail the old designs to me at johnm@apogeerockets.com so that I can convert them for you and send them back. You can then use your older files in Rocksim 8.0.

DEFINING MOMENTS

Mid-body ejection is a method of ejecting the recovery system out of the rocket near the middle of the body tube. The tube is separated at that point instead of near the nose cone as a drag reduction technique and to reduce the chances of the “zipper effect.”

In order to incorporate this into a design you can get couplers and bulkheads from Apogee Components at http://www.apogeerockets.com/body_tubes_and_rings.asp#airframe-coupler

CHRISTMAS TREE ROCKET ORNAMENTS

By Francis Graham

Retail store owners know that, when it’s July, Christmas is only a short time away.

So it’s time to get creative and plan to decorate the Christmas tree. Most people use glass bulbs, and that’s fine, unless they have playful kittens about. But times change; recall only a century or so ago people decorated their real holiday trees with real burning candles. Then it was Christmas spirit while today it would be a massive fire regulation violation and child endangerment. When the library here at Kent State East Liverpool switched to on-line databases, the librarian decorated the tree with CD-ROMs. That kind of personalized touch and the need for catharsis after many model rockets landed in a tree, led me to ask my friend, Joe Peklicz, to construct a couple dozen mini-motor rockets as Christmas tree ornaments. He did a fine job and painted them orange-red and holly green to suit! *(See example)*

And, on New Years’, you can take them out, put A10-3T’s in them, and fire them all over the snow-covered field. Optionally, you can find them in the snow. Or have Bowser do it. It’s a Vinter Vunderlaunch!

A new twist on an old idea.

TIP OF THE FIN

My tip this time around is something I started doing some years back as an aid when attaching fins to the latest design or kit. There are different ways of doing this such as the pattern for a fin alignment jig that we print on the back of the "thank you" letters we send out with orders. My method is just another alternative that I find helpful. What I do is take two other body tubes (size dependent upon your rocket's body tube) and place them side-by-side on my favorite rocket building workbench or my wife's dining room table (just kidding – don't attempt this as you may damage the table and your relationship). Choose a table or other work area where it doesn't matter if you mess it up.

Place your rocket tube on two larger tubes that you'll use as a "holder" for the top tube.

The two body tubes that you choose should be large enough that when you place the rocket's body tube on them the rocket's body tube should sit in the divot. Also, hang the end of the rocket's tube over the end of the other two tubes. (See photo) Later in this article, you will see why this is important. Typically, the tubes that work the best are larger tubes; the larger in comparison to your rocket's body tube the more stable the setup is. In the picture is a 24mm tube atop two 29mm tubes. Brace the two tubes with anything weighty and handy that will stay out of the way. I chose two spray paint cans because I have a lot of spray paint hanging around the house.

Glue one fin on and rotate tube.

Next, to the left you can see my design after I glued one fin onto the body tube. Since the two bottom tubes are stable the design's tube can be rotated left or right to put the fin in a vertical position and hold it there until the glue is dry.

As you can see on the above photo, once the first fin is dry you can rotate it into the bottom position and glue on the next fin in the same manner. Now you can see why I hang the end of the rocket's body tube over the edge of the two bottom tubes. The last two fins can be attached in the same way. This method can be used for any amount of fins that you are planning to include in your design. The thing I like about this method is that it uses materials that are usually lying around the "rocket shop" and also makes fine adjustments to the angle of the body tube easier. If you need tubes or fins for your projects simply go to http://www.apogeerockets.com/body_tubes_and_rings.asp or http://www.apogeerockets.com/construction_supplies.asp#fins and order some for immediate shipping!

Rotate tube and glue on second fin. Continue until all fins are attached.

DO YOU KNOW A BARGAIN WHEN YOU SEE IT? CHECK OUT THESE GREAT DEALS TODAY.

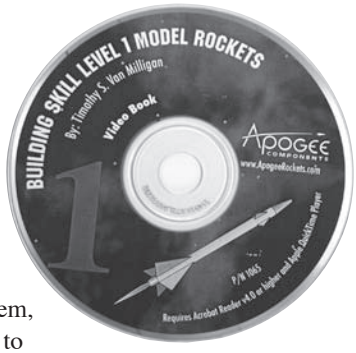
BUILDING COMPONENTS

Save $12.00

A Bountiful Bundle of Colorful Parachutes-

Our NEW combo pack contains a combination of our nylon 24" chute, 36" chute, 58" chute, and two DynaStar 32" plastic chutes. Five chutes in all!
$50.15
[Product #29230]

SOFTWARE



Building Skill Level 1-

In Building Skill Level 1 Model Rocket Kits, you will be guided through the construction and launch of your rockets with a series of short videos. By watching them, you will be on the short path to becoming a rocketry expert.
$12.95 [Product #01065]

***Coming Soon: Building Skill Level 2 CD-ROM!**

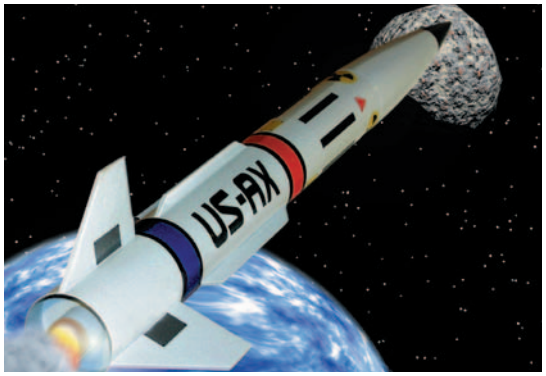
BOOKS & PUBLICATIONS

Save $7.00

Educators Ensemble-

Another NEW combo package that includes all you need to be on top of your lessons throughout the year. Why not make it easy on yourself with the 5 top selling publications from Apogee Rockets. All for the low price of **$52.30** [Product #01079]

ROCKET KITS



Stonebreaker, The Asteroid Killer-

Out of this world fun can be had with this mid-size rocket that flies on Estes "C-E" engines. You'll love the slow liftoffs and the big billowing plume of smoke. Being a Skill Level 2 kit, it's easy to build and sure to turn heads at your next launch!
$31.97 [Product #05028]

APOGEE COMPONENTS

To order visit us at our web site, www.ApogeeRockets.com, or call 719.535.9335
1130 Elkton Drive, Ste. A, Colorado Springs, CO 80907 USA