



Estes Industries, LLC

encourages membership in the National Association

of Rocketry for the active

model rocketry enthusiast.

As you increase your rocketry skills, you can progress to new and exciting

Whether you are a hobby beginner or expert, Estes Industries will help you

advance higher, further and faster in your adventures.

projects including multi-stage rockets, payload experiments and scale models.

your first rocket.



Hello! Penrose, Colo.

#### **Our Vision:**

To be the best model rocket company on the planet...

#### **Our Mission:**

To work relentlessly to create exceptional customer experiences. Everything we do is designed to ignite passion for creativity, exploration, and innovation.

#### **Our Values:**

#### Our safety record:

Over 60 years and over 500 million launches.

#### **Our uniqueness:**

In a growing digital world, little compares to the experience of building and launching a model rocket.

#### Our desire to teach:

We recognize the value of model rocketry as an educational tool.

#### **Our employees:**

Many of our current employees have been on this journey with us for decades!

### Welcome to Estes Industries and the Exciting World of Model Rocketry!

Since its creation by Vern and Gleda Estes 62 years ago, our company has made possible over 500 million rocket launches — with an amazing safety record.

#### What is a Flying Model Rocket?

Estes® flying model rockets are activity kits designed of lightweight materials such as paper tubing, balsa wood and plastic. Fins attached to the body tube help provide guidance and stability. An engine mount assembly holds the engine in place during rocket flight in most models.



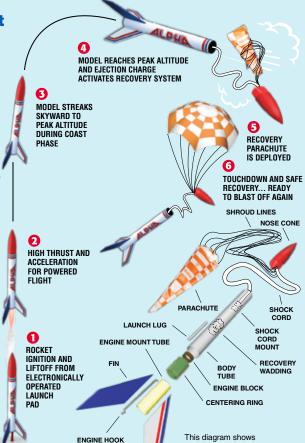
Vern and Gleda Estes, the founders of Estes Rockets.

#### Flight Sequence and Model Rocket Parts

# How Does a Model Rocket Work?

The Estes model rocket is propelled into the air by an electrically ignited model rocket engine. After its acceleration. the rocket continues upward emitting tracking smoke as it coasts. At the rocket's peak altitude (also called apogee), a recovery device, such as a parachute or streamer, is deployed to return the rocket gently to earth. The rocket can then be prepared for another flight.

Model rocketry is recommended for ages 10 to adult. Adult supervision is suggested for those under 12 years of age.



have been on this journey

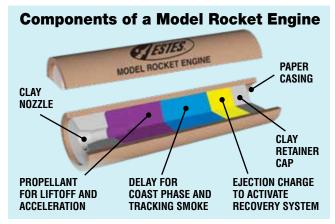
ENGINE HOOK
FIN

This diagram shows basic components found in most model rocket kits.

# C5-3

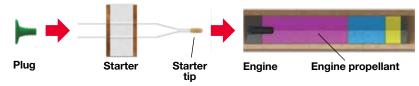
#### What is a Model Rocket Engine?

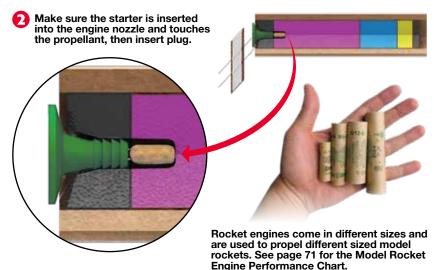
Estes® model rocket engines are used to thrust a model rocket into the air. They are factory-assembled and comply with the code requirements of the National Association of Rocketry. They are single use and range in power from A to F sizes. The engine is started using an electrical launch system that is powered by alkaline batteries.

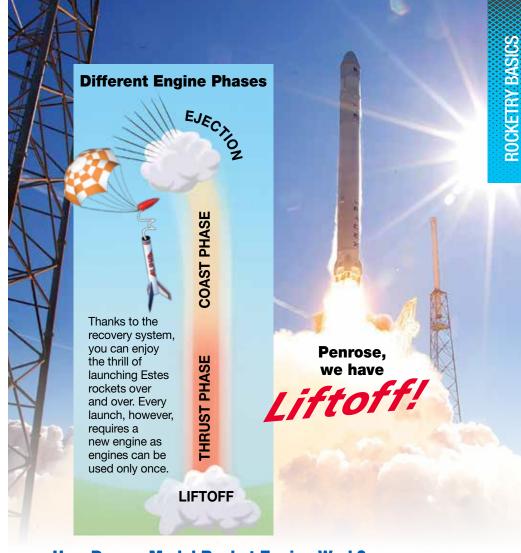


#### **How to Prepare Your Rocket Engine for Launch:**

Use the plug to secure the starter into the exhaust port of your rocket engine.







#### **How Does a Model Rocket Engine Work?**

- When the engine is started, it produces thrust and boosts the rocket into the sky.
- After the propellant is used up, the delay is activated, producing tracking smoke and allowing the rocket to coast.
- After the delay is used, the ejection charge is activated, which deploys the recovery system, such as a parachute or streamer.







#### **Where to Launch Model Rockets**

The chart below tells you what size field to use for each size engine. For launch information, look at the "NAR Model Rocket Safety Code". You should always check with your local city government for any special regulations that may apply to your area. Generally speaking, you can fly most Estes® model rockets in a clear area the size of a football field or soccer field. Launch in little or no wind, and make sure there is no dry grass close to the launch pad or in the flying field. Each engine size is designated by a letter and is up to twice as powerful as the letter before it. See the engine section (pages 70-73) of this catalog for more information.

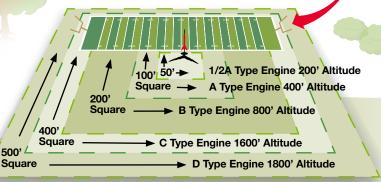
LAUNCH SITE DIMENSIONS		
Installed Total Impulse (N-sec)	<b>Equivalent Motor Type</b>	Minimum Site Dimensions (ft.)
0.00 - 1.25	1/4A, 1/2 A	50
1.26 - 2.50	Α	100
251 - 5.00	В	200
5.01 - 10.00	С	400
10.01 - 20.00	D	500
20.01 - 40.00	Е	1000
40.01 - 80.00	F	1000

#### **Recommended Launch Area**

Minimum launch site dimension for circular area is diameter in feet, and for rectangular area is shortest side in feet.

 Choose a large field away from power lines, buildings, tall trees and low flying aircraft. The larger the launch area, the better your chance of recovering your rocket. Football fields, parks and playgrounds are great. This diagram shows the smallest recommended launch areas.

Size of an American football field.



- Make sure the launch area is free of obstructions, dry weeds, brown grass or highly flammable materials.
- Launch only during calm weather with little or no wind and good visibility.

#### Where to Find Details About a Rocket Kit in the Catalog

- Measurement: length
- Special features
- Recovery system: parachute, streamer, tumble, spin, glide, featherweight
- Projected altitudes: estimates only
- Recommended engines
- Manufactured suggested retail price
- Building classification

### Example of a Rocket Kit Description

#### 7282 Tazz™

Length: 16.6 in. (42.2 cm) Recovery: 18 in. (45.7 cm) Streamer; Spin Projected Altitude: 700 ft. (213 m)

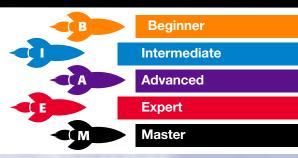
Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7 MSRP - \$22.99





#### **BUILDING CLASSIFICATIONS**

All model rocket kits in this catalog require assembly unless otherwise indicated. Building classifications are designated by a letter given to each kit.



### Get started with an Estes® Launch Set

The easiest entry point into the fun and exciting world of Estes model rocketry is to purchase an Estes Launch Set. Each launch set contains a rocket (or two) and a complete, high tech Estes launch system. In addition to the fun of building, launching and recovering your own model rocket, Estes flying model rockets have significant STEM educational value. STEM stands for science, technology, engineering and math, and model rocketry utilizes all four disciplines. So rocketeers often become scientists and engineers.

warning: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood

Morris

All Estes rockets that contain wood parts/components carry this warning.



#### Here's what's in the box:

One or two Estes® model rockets (either in kit form or almost ready to fly), one each Estes® Electron Beam® Launch Controller and Estes® Porta-Pad® II Launch Pad, recovery device, and instructions for assembly and use.

Here's what's not in the box: Recommended model rocket engines, starters and recovery wadding, tools, construction and finishing supplies for the rockets and 4 new AA 1.5V alkaline batteries for the launch controller sold separately.

Estes® model rocketry is recommended for ages 10 and up with adult supervision for those under 12.





1491 Taser<sup>™</sup> Launch Set

Length: 17 in. (43.2 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, B6-6, C6-5, C6-7

MSRP - \$28.99



Length: 12.1 in. (30.7 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 1150 ft. (351 m)
Recommended Engines:
1/2A6-2, A8-3, A8-5, B4-4, B6-4,
B6-6, C6-5, C6-7
MSRP - \$35.99





1441 Journey<sup>™</sup> Launch Set Length: 19.3 in. (49 cm)

Length: 19.3 in. (49 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

MSRP - \$32.99



#### 1478 Flash®! Launch Set

Length: 16.2 in. (41.1 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 925 ft. (282 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7 MSRP - \$28.99



#### 1469 Tandem-X™ Launch Set (Amazon™ and Crossfire™ ISX) MSRP - \$35.99 Amazon™ Length: 29.4 in. (74.7 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 600 ft. (183 m) Recommended Engines: B4-2, B4-4, B6-2, B6-4, C5-3, C6-3, C6-5 1499 Rascal™ & HiJinks™ Launch Set MSRP - \$35.99 Rascal™ Length: 14.5 in. (36.8 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, w/Engine Adapter (sold separately) - A10-3T The Rascal™ & HiJinks™ ROCKETS PACKAGE **Launch Set Comes with Two** Preassembled **Rockets!** HiJinks™ Length: 14.5 in. (36.8 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7 w/Engine Adapter (sold separately) - A10-3T Some Launch Sets, Like the Tandem-X™. **Come Equipped** with Two Crossfire™ ISX **Rockets!** Length: 15.6 in. (39.6 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1150 ft. (351 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

# Starter Sets

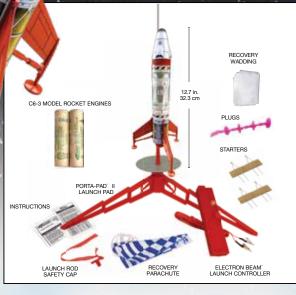
he Colonizer™ is a highly detailed rocket designed to transport humans to Mars!
Starter Sets differ slightly from Launch
Sets — they come equipped with the same launch equipment, but they also include two model rocket engines and required flight supplies. Starter Set packages provide everything you need to launch your rocket! For additional launches, you will need to purchase additional Estes® Engines and flight supplies.
Launch controllers require batteries (sold separately).



The Colonizer Starter Set includes two C6-3 engines! 5322 Colonizer™ Starter Set Length: 12.7 in. (32.3 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 250 ft. (76 m) Recommended Engines: C5-3, C6-3 MSRP - \$49.99



### COMES WITH EVERYTHING YOU SEE HERE!





The Easiest Rockets to Build and Fly



#### 7299 Illusion™

Length: 19.3 in. (49 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1125 ft. (343 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7 MSRP - \$19.99



Snap Together, No Glue!

#### 1260 No. 2 Estes Sky Writer®

"Draw" a crowd with a No. 2
Estes Sky Writer flying model
rocket. Sign your name on the clouds
and never worry about stray marks!

Length: 26 in. (66 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5

MSRP - \$14.99



#### 1256 Alpha III®

The high-flying Alpha III is another model rocketry classic! The iconic orange and black space model is easy to build and fun to fly!

Length: 12.1 in. (30.7 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 1150 ft. (351 m)
Recommended Engines: 1/2A6-2, A8-3,
A8-5, B4-4, B6-4, B6-6, C6-5, C6-7
MSRP - \$21.99



# 2452 Athena™ Length: 17 in. (43.2 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1125 ft. (343 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5 MSRP - \$13.99 **Assembly** Required!

#### 2603 Sundancer™

Length: 16.5 in. (41.9 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, B6-6, C6-5, C6-7

MSRP - \$13.99



#### 2008 Generic E2X®

Length: 13.5 in. (34.3 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 1100 ft. (335 m)
Recommended Engines: 1/2A6-2, A8-3, A8-5,
B4-4, B6-4, B6-6, C6-5, C6-7
w/Engine Adapter (sold separately) - A10-3T
MSRP - \$12.99





#### 0803 Bandito™

Length: 11.2 in. (28.4 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 600 ft. (183 m) Recommended Engines: 1/4A3-3T, 1/2A3-2T, A3-4T, A10-3T

MSRP - \$10.99





2492 Spirit<sup>™</sup> Length: 21 in. (53.3 cm) Recovery: 15 in. (38.1 cm) Parachute Projected Altitude: 700 ft. (213 m) Recommended Engines: B4-2, B4-4, B6-2, B6-4, C5-3, C6-3, C6-5



#### 2169 Dragonite™

Length: 16 in. (40.6 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1125 ft. (343 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7 MSRP - \$16.99



#### 0804 Firehawk™

Length: 11.2 in. (28.4 cm) Recovery: 6 in. (15.2 cm) Parachute Projected Altitude: 550 ft. (168 m) Recommended Engines: 1/4A3-3T, 1/2A3-2T, A3-4T, A10-3T

MSRP - \$10.99



#### 2495 Chiller™

Length: 19.4 in. (49.3 cm) Recovery: 15 in. (38.1 cm) Parachute Projected Altitude: 600 ft. (183 m) Recommended Engines: B4-2, B6-2, B6-4, C5-3, C6-3, C6-5

MSRP - \$18.99

#### 2482 Solaris™

Length: 18.5 in. (47 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1125 ft. (343 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

MSRP - \$18.99



#### 2481 Power Patrol™

Length: 20.5 in. (52.1 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

MSRP - \$18.99



# Challenge Yourself a Little More!

These Rockets Take More Time to Build.

#### 2178 Hi-Flier®

Length: 12 in. (30.5 cm)
Recovery: 12 in. (30.5 cm) Streamer
Projected Altitude: 1500 ft. (457 m)
Recommended Engines: 1/2A6-2,
A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7
w/Engine Adapter (sold separately) A10-3T

MSRP - \$11.99

#### 1261 Baby Bertha™

Length: 12.8 in. (32.5 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 575 ft. (175 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5

MSRP - \$14.99

#### 2442 Mini Fat Boy<sup>™</sup> Length: 8.5 in. (21.6 cm)

Length: 8.5 in. (21.6 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 250 ft. (76 m)
Recommended Engines: A10-3T

MSRP - \$13.99



#### 1345 Mosquito™

Length: 3.8 in. (9.7 cm)
Recovery: Featherweight
Projected Altitude: 800 ft. (244 m)
Recommended Engines: 1/4A3-3T, 1/2A3-2T, 1/2A3-4T, A3-4T, A10-3T

MSRP - \$6.99

#### 7244 Indicator™

Length: 21.2 in. (53.8 cm)
Recovery: 9 in. (22.9 cm) Parachute
Projected Altitude: 200 ft. (61 m)
Recommended Engines: A3-4T, A10-3T

MSRP - \$16.99



#### 1225 Alpha®

Length: 12.3 in. (31.2 cm)
Recovery: 12 in. (30.5 cm) Parachute
Projected Altitude: 1000 ft. (305 m)
Recommended Engines: 1/2A6-2,
A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7
w/Engine Adapter (sold separately) - A10-3T
MSRP - \$18.99



#### 3031 Star Trooper™

Length: 7 in. (17.8 cm)
Recovery: 6 in. (15.2 cm) Streamer
Projected Altitude: 900 ft. (274 m)
Recommended Engines: 1/4A3-3T. 1/2A3-2T.

1/2A3-4T, A3-4T, A10-3T **MSRP - \$6.99** 



# **Swift Flight Sequence** FLUTTER LIFTOFF!

The 220 Swift™ is lightweight and gently flutters to the ground without a parachute. During the ejection phase, the engine pops out. Insert another and you're ready to launch again!

0810 220 Swift™

MSRP - \$9.99

Length: 4.5 in. (11.4 cm)

Recovery: Featherweight

Projected Altitude: 850 ft. (259 m)

Recommended Engines: 1/4A3-3T,

1/2A3-2T, 1/2A3-4T, A3-4T, A10-3T

#### 1381 Yankee™

Length: 11 in. (27.9 cm) Recovery: 18 in. (45.7 cm) Streamer Projected Altitude: 1700 ft. (518 m) Recommended Engines: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5,

w/Engine Adapter (sold separately) - A10-3T

MSRP - \$13.99

#### 1292 Wizard™

Length: 12 in. (30.5 cm) Recovery: 18 in. (45.7 cm) Streamer Projected Altitude: 1600 ft. (488 m) Recommended Engines: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7 w/Engine Adapter (sold separately) -A10-3T

7220 Crossfire™ ISX Length: 15.6 in. (39.6 cm) Recovery: 12 in. (30.5 cm)

Projected Altitude: 1150 ft. (351 m)

Recommended Engines: A8-3,

B4-4, B6-4, C6-5, C6-7 MSRP - \$13.99

Parachute

#### 0651 Der Red Max™

Length: 16.3 in. (41.4 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 600 ft. (183 m) Recommended Engines: B4-2, B4-4, B6-2, B6-4, C6-5

MSRP - \$19.99



#### 1949 Viking™ Length: 12.1 in. (30.7 cm)

Recovery: 18 in. (45.7 cm) Streamer Projected Altitude: 1600 ft. (488 m) Recommended Engines: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7 w/Engine Adapter (sold separately) - A10-3T

MSRP - \$13.99



#### 7237 Goblin™

Length: 14.4 in. (36.6 cm) Recovery: 2 x 36 in. (91.3 cm) Streamers Projected Altitude: 1400 ft. (427 m) Recommended Engines: C11-3, C11-5, D12-5, D12-7

MSRP - \$19.99



#### The Viking has 48 various fin configurations to choose from:

It's up to you to decide how to build the Estes® Viking! How many fins? Where to place them? It's your choice to create the rocket YOU want!

MSRP - \$13.99



The Estes® Airborne Surveillance Missile packs a lot into a small package! Great flights on Estes® mini engines (not included)! You'll enjoy building this highly detailed, scale-like military missile.

#### 7257 Airborne Surveillance Missile™

Length: 11.3 in. (28.7 cm) Recovery: 9 in. (22.9 cm) Parachute Projected Altitude: 375 ft. (114 m) Recommended Engines: A3-4T, A10-3T

MSRP - \$16.99



#### 0865 Mini Mean Machine™

Recommended Engines: A3-4T,

Length: 39 in. (99.1 cm) **Recovery:** 9 in. (22.9 cm) Parachute Projected Altitude: 225 ft. (69 m)

A10-3T

#### 1295 Mean Machine™

Length: 79 in. (200.7 cm) Recovery: 24 in. (61 cm) Parachute Projected Altitude: 700 ft. (213 m) Recommended Engines: D12-3, D12-5, E12-4, E12-6 Requires 3/16 in. (5 mm) Maxi™ Launch Rod PN 2244; sold separately.

MSRP - \$32.99





#### **Mean Machine Sizes**



**Mini Mean Machine** 



#### 7289 Low-Boom SST™

Based on current research into aerodynamics to reduce the effect of breaking the sound barrier. Long and sleek with the same wing profile found on research aircraft making headlines today. Will you be able to hear the "Boom" when flying yours?

Length: 30 in. (76.2 cm) Recovery: 15 in. (38.1 cm) Parachute Projected Altitude: 400 ft. (122 m) Recommended Engines: C5-3, C6-3 MSRP - \$26.99

#### 7000 Bull Pup 12D

1:9 Scale

Length: 15.6 in. (39.6 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 675 ft. (206 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5

MSRP - \$20.99



#### 7266 Red Nova™

The Red Nova™ flying model rocket is impressive up close and in the sky! Features include a unique nose cone and great waterslide decals

Length: 21.6 in. (54.9 cm)
Recovery: 15 in. (38.1 cm) Parachute
Projected Altitude: 800 ft. (244 m)
Recommended Engines: D12-5, C11-3, D12-7
w/Engine Adapter (sold separately) - C5-3, C6-3
Requires 3/16 in. (5 mm) Maxi™ Launch Rod PN 2244; sold separately.

MSRP - \$21.99

INGE



Parachute
Projected Altitude: 850 ft.

(259 m) Recommended Engines: B4-4, B6-4, C6-5

MSRP - \$20.99



Featherweight Attitude: 100 ft. (30 m) aded Engines: B6-0, C6-0

# Model Rocket Payloads

--"A flying model rocket is a scientifically-designed educational aero model, not a toy."

 G. Harry Stine, Founder of the National Association of Rocketry

Watching a model rocket that you've crafted zip off the pad and into the sky is super fun, but it is also always an educational experience! Because all Estes® model rockets are uniquely suited for teaching science, technology, engineering, and math, they are frequently used in students' science fair projects. But which are the best model rockets for science experiments? Payloaders, of course!

What is a payload? A payload is the cargo that a model rocket carries into the atmosphere. Payloads can be grasshoppers, raw eggs, or scientific measurement devices, such as altimeters that measure the altitude rockets achieve in flight.

The best thing about Estes payloader rockets is that they are designed with clear payload sections so that you can see the cargo you're launching. The possibilities are endless!

A Payload Section is a Feature that Allows the Rocketeer to Launch Cargo! 7300 Ghost Chaser™

All the molded plastic parts in this rocket are molded in translucent color. Insert the rocket engine and you can see it inside! Truly something unique for your rocket collection.

Length: 23 in. (58.4 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1000 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

#### 7261 Air Walker™

Length: 21.7 in. (55.1 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 950 ft. (290 m) Recommended Engines: B4-4, B6-4, C6-5 MSRP - \$18.99

**7301 Green Eggs™**Length: 23.6 in. (59.9 cm)
Recovery: 18 in. (45.7 cm) Parachute
Projected Altitude: 400 ft. (274 m)
Recommended Engines:
w/eag: C11.3 D12-3

w/egg: C11-3, D12-3 w/out egg: C11-5, D12-5 MSRP - \$21.99

#### 3227 Loadstar II™

Length: 23.3 in. (59.2 cm)

Recovery: 18 in. (45.7 cm) Parachute; Tumble

Projected Altitude: 1000 ft. (305 m) Recommended Engines:

Rocket Only: B4-4, B6-4, C6-5

Two Stages:

Rocket: A8-5, B6-4, B6-6, C6-7

Booster: B6-0, C6-0 MSRP - \$22.99





Recruit Your Own Fleet of Insectronauts!

Multi-Staged Rockets Fly Higher!

With the Loadstar II™ Payload Section, You Can Blast Bugs up to 1000 Feet In The Air!

#### Become an Eggspert Rocketeer!

#### 7265 Space Crater™

Length: 18.5 in. (47 cm)
Recovery: 15 in. (38.1 cm) Parachute
Projected Altitude: 650 ft. (198 m)
Recommended Engines:
With egg: C5-3, C6-3

Without egg: B4-4, B6-4, C6-5 MSRP - \$22.99

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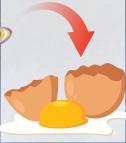
#### Hurl an Egg at the High Heavens







But be sure to prepare the parachute recovery system correctly, or you may end up with an egg-citing mess to clean up!



#### 7248 Supernova™

Length: 27.5 in. (69.9 cm) Recovery: 9 in. (22.9 cm) Parachute; Tumble Projected Altitude: 1550 ft. (472 m) Recommended Engines: Rocket Only: A8-5, B4-4, B6-4, C6-5, C6-7 Two Stages: Rocket: A8-5, B6-6, C6-7 Booster: B6-0, C6-0



MSRP - \$22.99

# Multi-Stage Rockets

any full-size rockets that leave earth's atmosphere are multi-staged rockets. The amount of fuel required to lift millions of pounds of mass requires huge rockets that have multiple stages (segments) stacked on top of the main booster stage. Each upper stage requires its own rocket engine and fuel and each subsequent stage is used to increase velocity to escape earth's gravitational pull and reach Low Earth Orbit (LEO is 99 to 1200 miles). Estes® multi-stage rockets will not get to LEO, but they are designed to increase a model rocket's maximum altitude.

A two stage model rocket uses a first-stage booster engine (it has no ejection charge) to get the rocket moving vertically. When the booster engine uses up its propellant, it then ignites the upper stage engine. The booster separates from the upper stage and it tumbles to the ground. After the upper stage is ignited (also called a sustainer stage), it then accelerates to its maximum height (or apogee) and an ejection charge at apogee deploys the recovery system.

A three stage model rocket (like the Mini Comanche-3™) uses a first stage booster engine to get the rocket moving vertically. When the booster engine uses up its propellant, it then ignites the second stage engine. The first stage separates from the second stage and it tumbles to the ground. After the second stage is ignited, it carries the rocket higher until it uses up its propellant, and then it ignites the third stage. The second stage separates from the third stage, and it tumbles to the ground. The third stage then accelerates to its maximum height (or apogee), and an ejection charge at apogee deploys the recovery system.

> While a full-size rocket can take several minutes to burn through the various stages to obtain LEO, in an Estes® rocket, the boost and upper stage burnouts can be measured in a matter of seconds. Multistage rockets are challenging and exciting to launch. Recovering a small three stage rocket on a streamer from over 2500 feet altitude can be a task!



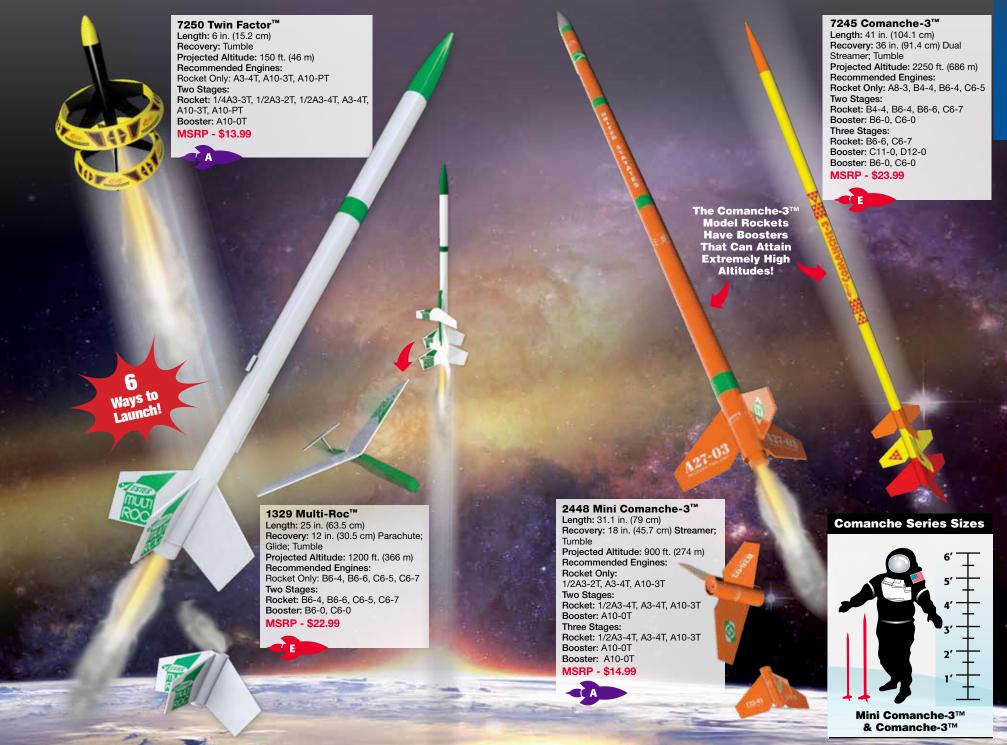


**Multi-Stage Rocket** Flight Sequence **STREAMER** RECOVERY **BOOSTER SEPARATES** AND TUMBLES THIRD STAGE, **ROCKET ENGINE IGNITES BOOSTER SEPARATES** AND TUMBLES SECOND STAGE. **BOOSTER IGNITES** FIRST STAGE, **BOOSTER IGNITES** LIFTOFF!

2448 Mini Comanche-3™







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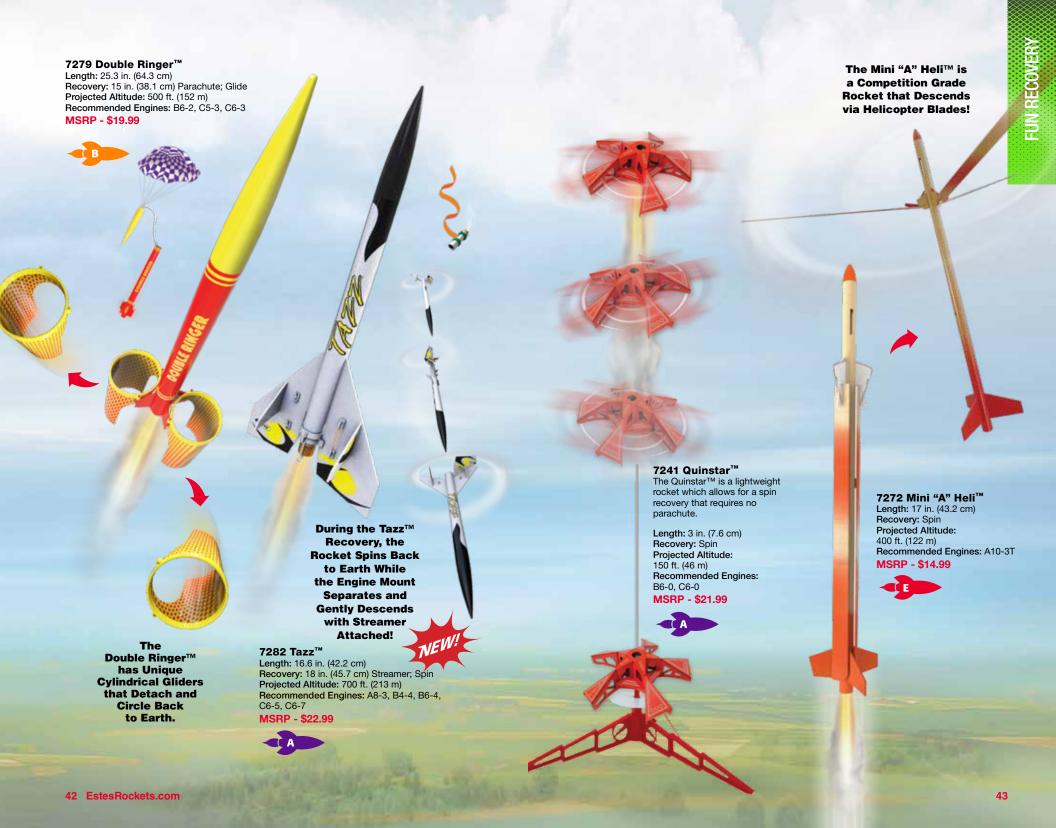
39



atching your model rocket liftoff is only part of the fun — seeing the whoosh – pop of the parachute when the rocket reaches apogee is equally thrilling! Estes® model rocketry recovery systems vary depending upon each rocket's specifications and engineering design. Most model rockets rely on traditional parachute or streamer recovery. Factors, such as rocket size, engine power and launch site dimension, are used to determine the size or number of parachutes to be used or if a streamer should be used to keep a high-performance rocket from drifting too far from the launch site and becoming lost. A few model rockets are so light that they either simply tumble or flutter gently back to earth; in essence, their lightweight construction is the recovery system.

And then there are combinations of recovery systems and other unique methods of recovery. These include spin and glide recovery. Spin recovery is created by the rocket's spinning (usually with helicopter blades), creating drag. And glide recovery utilizes lift created by varying wing shapes and designs, requiring careful trimming for optimum performance.







n 1960, Vern Estes, founder of Estes Industries, designed the Astron Scout, which was the first Estes® model rocket packaged for sale as a complete kit.

The Orange Bullet™ was the prototype for the famous Astron Scout™. This rocket used metal weights alued to the end of the fin tips to shift the center of gravity back after the engine popped out at apogee resulting in the rocket tumbling gently instead of streamlining in nose first. It worked, but after many experimental flights. Vern realized he could achieve the same thing without ejecting the engine. He could use the weight of the rocket engine itself to shift the center of gravity backwards. During a span of more than 20 vears. Estes® sold tens of thousands of Astron Scout kits, inspiring countless young people to pursue technical careers.



Estes President
Ellis Langford (top),
Estes General Manager
Bill Stine (lower left), and
Estes Industries founder
Vern Estes are pictured
with Vern Estes' very
first rocket design —
the Orange Bullet.



7295 Orange Bullet<sup>™</sup> Length: 5.9 in. (15 cm)

Recovery: Featherweight
Projected Altitude: 500 ft. (152 m)
Recommended Engines: 1/2A6-2, A8-3

\$11.99



Featherweight Recovery - No Parachute Required!

Wesigner Signature Series™

A series of kits designed by some of the most famous pioneers of model rocketry. Some will be re-introductions of lesser-known classics and others will be never-before-seen designs that never made it out of the R&D room. Every serious model rocket collector will want the complete series for their own museum!

# Tmagine New Voorlds! Snap Together Construction Means



Snap Together Construction Means You are Ready to Fly in Minutes!

#### 7284 Starship Octavius™

Length: 20 in. (50.8 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1100 ft. (335 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5, C6-7

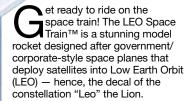
MSRP - \$16.99



#### 7285 Leo Space Train™

Length: 17 in. (43.2cm)
Recovery: 18 in. (45.7 cm) Parachute
Projected Altitude: 300 ft. (91 m)
Recommended Engines: C5-3, C6-3

MSRP - \$24.99



Not unlike the Space Shuttle, real space planes land on runways and are prepared once again for further flights. Our model can be launched over and over again using Estes® engines and each time, gently return back to earth via parachute recovery!

#### 7234 Crossbow SST™

Length: 15 in. (38.1 cm) Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 1600 ft. (488 m) Recommended Engines: A8-3, B4-4, B6-4, C6-5 MSRP - \$15.99

#### 1250 Interceptor™

Standing over 2 feet tall, this model rocket features laser cut precision balsa parts, a slotted body tube for extra secure wing and fin mounting, a detailed blow molded nose cone and three 5-color decal sheets that will finish this model with eyepopping décor!

Length: 26 in. (66 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 525 ft. (160 m) Recommended Engines: B4-2, B6-2, B6-4, C6-5 MSRP - \$29.99

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**ERREC** 

## 7260 Protostar™ Length: 24 in. (61 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 1350 ft. (411 m) Recommended Engines: C11-3, D12-5, Requires 3/16 in. (5 mm) Maxi™ Launch Rod 2244; sold separately MSRP - \$30.99

rom the first moments that man embarked from Earth to colonize the solar system, the Astron Explorer<sup>™</sup> was a critical in furthering mankind's space explorations. Equipped with long, hefty fuel tanks, the rocket's design aims to carry passangers and payloads safely across vast reaches of the galaxy.

When mankind built its first outpost on Saturn's icy moon Europa, the Astron Explorer™ took us there. When astronauts first journeyed beyond the outskirts of Pluto - to the 10th planet of our solar system, 2003 UB313 - the Astron Explorer™ took us there.

So no matter where your imagination leads you throughout the cosmos, let the Astron Explorer™ be your steadfast guide!

#### 7264 Astron Explorer™

Length: 42.2 in. (107.2 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 1200 ft. (366 m) Recommended Engines: C11-3, D12-3, E12-4

Requires 3/16 in. (5 mm) Maxi™ Launch Rod 2244; sold separately

MSRP - \$27.99



7253 Explorer Aquarius™

A scale-like model of the future, the interstellar voyager Explorer Aquarius! Stretch your skills with this unique and challenging kit. A great looker on the pad and in the air!

Length: 21.8 in. (55.4 cm)

Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 750 ft. (229 m) Recommended Engines: D12-3, D12-5,

E12-4. E12-6

Requires 3/16 in. (5 mm) Maxi™ Launch Rod 2244; sold separately.

MSRP - \$38.99



**Our Longest Rockets!** 

One of

7249 Expedition™

Length: 25.6 in. (65 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 1100 ft. (305 m)

Recommended Engines: C11-3, D12-5, E12-4, E12-6 Requires 3/16 in. (5 mm) Maxi™ Launch Rod PN 2244;

sold separately





# Destination Mars™ Imagines a Future Timeline for Mars Exploration, Colonization and More. Join the Adventure Now and Travel With Us to Mars, Its Moons and All Points Along the Way!

MARS LONGSHIP™

he workhorse of the colonization fleet and a marvel of dynamic engineering, the Destination Mars™ Mars Longship™ planetary transport is the lifeline connecting old Earth to new Mars! Add it to your Mars fleet today!

First deployed in 2052 to support the expanding Mars outpost, the Mars Longship™ carries crucial supplies and eager colonists from Earth to Mars orbit, completing a circuit between planets every 18 months. But to the colonists the massive vessel is more than a cargo ship – with each return, it's a vital link to the old planet and a reminder of home. Build and launch your own Mars Longship™ and follow the full story of the human exploration and settlement of the red planet in Estes® Destination Mars!

7296 Destination Mars™ Mars Longship™

Length: 27.2 in. (69.1 cm)
Recovery: 18 in. (45.7 cm) Parachute
Projected Altitude: 500 ft. (152 m)
Recommended Engines: D12-3, E12-4

**MSRP - \$34.99** 

#### MAV LANDER TM

he Destination Mars™ MAV™ (Mars Ascent Vehicle) has one job: bring the Mars Expedition crew back from the surface of the red planet and get them home safely! The MAV is the first release in Estes' latest series. Destination Mars™. It's 2035 and after a second global space race humanity has taken another "giant leap" and Mars is the prize. While it may require the efforts of an entire nation to reach Mars, the return is much simpler: a single rocket the MAV - must lift off successfully from the dusty red plains and carry the crew back home. The highly-detailed MAV is a snap to assemble, featuring a colorful body wrap, highly detailed nosecone, realistic landing struts, and a large 18" parachute. Do you have what it takes to build and launch the Estes MAV?

#### 7283 Destination Mars™ MAV Lander™

Length: 12.8 in. (32.5 cm)
Recovery: 15 in. (38.1 cm) Parachute
Projected Altitude: 250 ft. (76 m)
Recommended Engines: C5-3, C6-3

MSRP - \$16.99

Launches Up to 100 Feet on the Porta-Pad II™ Launch Pad!

#### **THE LEAPER**™

t doesn't just fly... it leaps! The Leaper helps Mars explorers get to where they need to go fast!

Officially it's the LAMPMU – Low Altitude Mars Personal Maneuvering Unit – but no one ever calls it that. To most people, on Earth and on Mars, it's simply "The Leaper™." Developed for the first Mars Expedition of 2035, the jetpack was envisioned as a way to rapidly travel between surface habitats. What the engineers didn't count on was just how fun it would be! Why walk when you can leap!

#### 7290 Destination Mars™

The Leaper™
Length: 4.1 in. (10.4 cm)
Recovery: Featherweight
Projected Altitude: 100 ft. (30 m)
Recommended Engines: A10-0T, A10-3T
MSRP - \$24.99





Address to Space Corps Academy Incoming Class, September 15, 2061

Welcome new cadets, to Space Corps and Space Corps Academy! I am Admiral Beard, superintendent of this fine academy and your commanding officer for the next four years. You have been selected to join an elite group of young men and women representing every settled human planet, moon, and orbital habitat. You are the bravest and brightest from one end of the Solar System to the other, and you will do great things. Starting today!

Before you begin your academy careers, let me remind you of the heroes and events that preceded you. It was barely a century ago that humanity first flew into space and only eight short years after that we were leaving footprints on Luna. What followed was the era of space stations, space shuttles, and space tourists. What an exciting time that must have been! Eventually, humanity decided to return to the moon to stay - first a moon base, then a colony, and now magnificent Armstrong City. We sent your parents' generation to Mars - five expeditions starting in '35 and now a permanent colony is underway! Today we're exploring the Asteroid Belt and the outer planets in ways that wouldn't have been possible even ten years ago. Humanity is pushing ever outward into the

solar system and to the stars... and that's where you come in!

As you surely know, Space Corps was established in 2033 by the space-faring nations of Earth to support the exploration of our solar region and provide defense against any dangers, should they arise. Upon graduating from this academy, you will be fully prepared to take your place alongside those already serving Space Corps. The opportunities are boundless! You may be assigned to a Corvette crew patrollling the moons of Mars, or aboard a survey vessel mapping the asteroids for vital resources, or even supporting a Centurion interceptor exploring the rings of Saturn up close. And someday – perhaps sooner than you think – you could be leading a mission beyond our own planets and moons to the nearest stars... and beyond. We're just getting started!

So, cadets, once again welcome to Space Corps! Work hard, learn all you can, and stay hungry for adventure. There's a universe out there waiting for you!

Admiral K. Beard, Superintendent, Space Corp Academy

Space Corps™ is Here! This Thrilling New Estes® Series Takes You to the Front Line of Space Exploration and a Future of Non-Stop Excitement!



#### **CORVETTE CLASS™**

he Estes Corvette Class military rocket is an agile "ship of the line" of the Space Corp fleet. This versatile rocket serves as the primary vessel for all functions of the Corps – from patrol missions, to transport duty, to intercept activities, the Corvette Class crews are ready to take on any task, no matter the danger!

Standing more than two feet tall from the tip of its extended nose cone to the end of its threaded engine retainer, the Corvette Class is an impressive flying model rocket! Laser-cut, multipiece balsa fins tipped with simulated particle-beam cannons and a large sheet of red, white and blue insignia water-slide decals complete the stylish look. Join Space Corp and launch your own Corvette Class flying model rocket today!

#### 7281 Space Corps™ Corvette Class™

Length: 25 in. (63.5 cm)

Recovery: 12 in. (30.5 cm) Parachute Projected Altitude: 650 ft. (198 m)

Recommended Engines: B4-4, B6-4, C5-3, C6-3, C6-5

MSRP - \$24.99



#### **CENTURION**<sup>TM</sup>

7291 Space Corps™ Centurion™

Length: 11.1 in. (28.2 cm)

Recovery: 9 in. (22.9 cm) Parachute

Projected Altitude: 250 ft. (76 m)

Recommended Engines: A8-3 for first

launch; B4-4, B6-4, B6-6,

C6-5, C6-7 MSRP - \$29.99

В

his Space Corps
Agile Space
Interceptor
Fighter was designed for one
purpose: defend Earth and its
Solar Colonies from a mysterious
visitor lurking in the asteroid belt. Fly
the Centurion fighter and do your part to
safeguard humanity!

With no choice but to prepare for the worst, Space Corps commissioned Project Centurion to meet the defense needs of Earth and the colonies. We are happy to report that after years of development and testing, the Centurion Agile Space Interceptor is now operational.

#### **LUNAR SCOUT** ™

he Lunar Scout series of remote space probes was critical to the success of the new lunar landing program of the late 2020s. These automated probes mapped out the moon's surface in detail to identify prospective landing sites for the "Second Giant Leap" as that series of lunar missions became known. Inexpensive to manufacture and reliable to operate, Space Corps later adapted the Lunar Scout to explore Mars and its twin moons Phobos and Deimos.

The Estes Lunar Scout is a lightweight model of this future historic space probe. The highly detailed, Intermediate-level kit features laser-cut cardstock fins and other structural parts, with colorful water-slide decals for added realism. With flights up to 200 feet on an Estes mini A10-0T engine and featherweight recovery, this rocket makes for a great small field launcher. No need to wait for NASA to create their Lunar Scout – build and fly yours today!

7290 Space Corps™ Lunar Scout™

Length: 4 in. (10.2 cm)
Recovery: Featherweight
Projected Altitude: 200 ft. (61 m)

Recommended Engines: 1/2A3-4T, A3-4T, A10-OT, A10-3T

MSRP - \$9.99





Scale Model Rockets
Make History and Your
Hobbies Come...

... to Life!



# Scale Model Rockets

n this category are detailed, miniature replicas of full-scale military, commercial, or space agency rockets, which come in a variety of scale sizes and model rocket engine requirements. Rockets in this class usually require advanced-level building skills using many handcrafted or molded detail parts. These rockets often require rocketeers attempting to build these models to have mastered a variety of skills in assembly, painting and launching techniques.

#### 2160 Saturn V 1:200 Scale

he Estes® 1:200 scale Apollo 11 Saturn V model is almost 2 feet tall and comes fully assembled with many scale details and markings carefully reproduced for exceptional realism. This historical model of the Saturn V is suitable for launching and display.



The 2160 Saturn V Rocket **Comes Almost** Ready to Fly Out of the Box.

#### 2160 Anniversary Saturn V

#### 1:200 Scale

Length: 21.8 in (55.4 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 200 ft. (61 m) Recommended Engines: C5-3, C6-3 MSRP - \$69.99



SATURN V

**DISPLAY STAND** 

**INCLUDED!** 



7243 Black Brant II

#### 1:13 Scale

The Estes® Black Brant II is a 1:13 scale replica of one of the earliest of the Black Brant sounding rockets. Loaded with scale details, this rocket really moves using the recommended Estes® D12 engines (not included).

Length: 24.9 in. (63.2 cm)

Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 1300 ft. (396 m)

Recommended Engines: C11-3, D12-5, D12-7 Requireds 3/16 in. (5 mm) Maxi™ Launch Rod

(2244) sold separately. MSRP - \$23.99





The Canadian **Black Brant line of** sounding rockets is one of the most successful launch vehicles ever flown. Since the late 1950s, several hundred Black **Brant rockets** have completed research missions for Canada and NASA.

#### 1293 Black Brant III

#### 1:10 Scale

A STATE OF THE PARTY OF THE PAR This detailed, 1:10 scale model rocket is straightforward to build and an excellent kit for the first-time scale modeler.

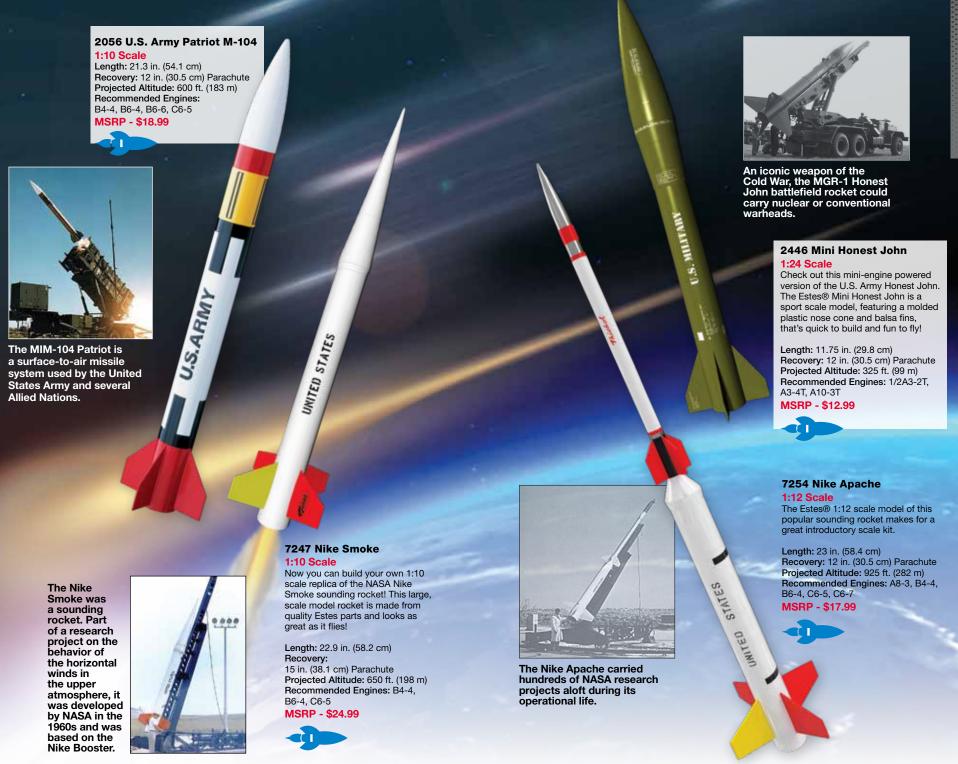
> Length: 20.4 in. (51.8 cm) Recovery: 9 in. (22.9 cm) Parachute Projected Altitude: 1300 ft. (396 m) Recommended Engines: 1/2A6-2, A8-3, A8-5, A10-3T, B4-4, B6-4, B6-6, C6-5, C6-7

MSRP - \$14.99





In service for nearly 22 years, the Black Brant III was a reliable sounding rocket for the Canadian Space Agency and NASA.



1921 Mercury Redstone 4/

Liberty Bell 7 1:34 Scale

MSRP - \$26.99

Length: 28.6 in. (72.6 cm) Recovery: 15 in. (38.1 cm) Parachute Projected Altitude: 200 ft. (61 m) Recommended Engines: C5-3, C6-3



artillery rocket, the Honest John was mounted on the backs of military trucks. It had a range of 15.4 miles with a 20 kiloton nuclear warhead or a 1500 pound

conventional

warhead.

The Little Joe I booster was the first rocket designed solely for manned spacecraft qualifications and to measure critical parameters in flight.

1:34 Scale

Length: 17.6 in. (94.8 cm) Recovery: 15 in. (38.1 cm) Parachute Projected Altitude:

400 ft. (122 m) Recommended Engines: B4-4, B6-4, C5-3, C6-3, C6-5

MSRP - \$32.99

The Mercury-Redstone 4 was the second United States human spaceflight.
Piloted by
astronaut Virgil
"Gus" Grissom, it
launched on July 21, 1961.

MSRP - \$26.99

64 EstesRockets.com

Rod PN 2244; sold separately.

#### Fly Big! **Attain Great Heights With These Challenging Builds and Flights.** 7271 SA-2061 Sasha™ Length: 31.5 in. (80 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 2300 ft. (701 m) **Recommended Engines:** Rocket Only: C11-3, C11-5, D12-5, E12-6 Two Stages: Rocket: D12-5, D12-7, E12-8 Booster: D12-0, E12-0 Requires 3/16 in. (5 mm) Maxi™ Launch Rod 2244; sold separately MSRP - \$29.99 3226 Hi-Flier® XL Length: 31 in. (78.7 cm) Recovery: 18 in. (45.7 cm) Parachute Projected Altitude: 1325 ft. (404 m) Recommended Engines: C11-3, D12-5, D12-7, E12-6, E12-8 w/Engine Adapter (sold separately) - C5-3, C6-3 Requires 3/16 in. (5 mm) Maxi™ Launch Rod 2244; sold separately MSRP - \$21.99 2162 Big Daddy™

Length: 19 in. (48.3 cm) Recovery: 24 in. (61 cm) Parachute Projected Altitude: 900 ft. (274 m) Recommended Engines: C11-3, D12-3, D12-5, E12-4, E12-6

Requires 3/16 in. (5 mm) Maxi<sup>™</sup> Launch Rod 2244; sold separately.

MSRP - \$34.99

9719 Super Big Bertha™

Length: 36.8 in. (93.5 cm) Recovery: 24 in. (61 cm) Parachute Projected Altitude: 1200 ft. (366 m) Recommended Engines: E16-4, F15-6

w/Engine Adapter (sold separately)
- D12-3

MSRP - \$39.99

SERIES II



The Doorknob was a sounding rocket manufactured from Lacrosse rocket motors for the Projected Altitude: 1800 ft. (549 m)

Recommended Engines: E16-6, F15-8 w/Engine Adapter (sold separately) - D12-3, E12-4

MSRP - \$24,99

project Hardtack

**Nuclear Test Series.** 

SERIES II

9706 Ascender<sup>™</sup> Pro Series II<sup>™</sup>

Length: 42.1 in. (106.9 cm)
Recovery: 18 in. (45.7 cm)
Nylon Parachute
Projected Altitude:
2000 ft. (610 m)
Recommended Engines:
E16-6, F15-6, F15-8
W/Engine Adapter (sold separately) - D12-3, E12-4

MSRP - \$44.99

SERIES II