

LIVE YOUR DREAMS OF FLIGHT

Have you ever dreamed of fiving your own airplane or blasting off into space in a rocket? Now you can make your dreams come true with exciting flying models from Estes and Cox. Feel the rush of launching a high performance rocket or a military style missile thousands of feet into the sky! Experience the thrill of taking off and landing your own business jet or attack helicopter. Realize the power of a catapult launched F-15 glider or the fury of a rubber band powered airplane slicing through the air. Live your dreams of flight with real flying models from Estes and Cox:

ENCOUNTER THE EPIC ADVENTURE OF STAR WARS

Combine the enchantment of Star Wars with the technology of aerodynamics and you'll find a true-life adventure with Estes and Gox Star Wars flying models. Blast-off into the universe in your X-wing™ starfighter rocket or skim low over the ground in a Rebel snowspeeder control line fighter. Whether you're a part of the Alliance or the Empire, you'll find the perfect flying model spacecraft to transport you to a galaxy far, far away! Estes and Cox flying models are sure to provide you with a real Star Wars adventure!









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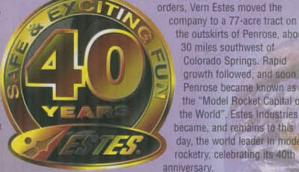
ESTES FLYING MODEL ROCKETS

The History of Estes Industries

Estes Industries was founded by Vern Estes and his wife Gleda in Denver. Colorado. Starting in 1958 with the manufacturing of solid propellant model rocket engines on a machine of his own design, Vern Estes (pronounced "Ess-tess") later branched out into mass production of balsa nose cones and adapters for model rockets. He and his wife began selling model rockets by mail in 1960.

United States Space Foundation

Estes has partnered with the United States Space Foundation to promote space and science to K-12 educators and the public. Estes rockets are the Official Rockets of the United States Space Foundation and are used in



Official Rockets of the United States Space Foundation

Space Discovery, the USSF graduate course for K-12 educators. Estas worked closely with USSF to co-develop the "Ignite the Imagination"134 video and curriculum guide for teachers and call 1-800-691-4000.

U.S. Space & Rocket Center

with the U.S. Space & Rocket Center. Estes rockets are the Official Rockets of CAMP® education programs. For more



Official Rockets of U.S. SPACE CAMPR





In 1961, due to a steady increase in

the outskirts of Penrose, about

growth followed, and soon

Penrose became known as

the "Model Rocket Capital of

the World". Estes Industries

became, and remains to this

rocketry, celebrating its 40th

day, the world leader in model

30 miles southwest of

Colorado Springs, Rapid

THE WORLD LEADER IN MODEL ROCKETRY

Look to Estes when you're ready to build a stellar looking display model AND feel the exhilaration of launching a real rocket! Estes flying model rockets are micro-versions of authentic rockets flown all over the world. From scale NASA-based transports to military styled missiles, from futuristic alien spacecraft to high performance sport fliers, Estes rocketry is the only way to go!

Experience the roar of an Estes rocket lifting off the launch pad, screaming into the sky and then safely floating back to earth on a colorful, plastic parachute. Replace the engine and igniter and you are ready to launch again in minutes! You can build all types of Estes rockets and send them skyward with your reusable launch system. All you typically need for additional flights would be extra engines, igniters and recovery wadding.

IS IT SAFE?

Estes model rocketry is one of the safest outdoor activities in the world. Over 300 million model rockets have been launched safely since 1957. It is safer than most sporting activities. Estes has provided 40 years of sale, innovative and breathtaking fun to people of all ages. Whether you're into flying rockets for sport or competition. Estes rockets offer you a truly rewarding experience. And remember, it's up to each and everyone involved to keep model rocketry a safe activity well into the next millennium. You can do your part by following the Model Rocketry Safety Code at ALL times (see page 5 for Safety Code).

HOW DO I START MY OWN ESTES ROCKET FLEET?

The best way to embark in model rocketry is with an Estes flying model rocket starter set. You can either begin with a Ready To Fly Starter Set that has a fully constructed model rocket or an E2X® Starter Set that requires assembly prior to launching. Both of these sets come complete with an electrical launch controller, adjustable launch pad, engines, flight supplies and an information booklet to get you up and flying in no time. You'll need four AA alkaline batteries and possibly some glue, depending on which set you select.



HOW EASY AND HOW MUCH TIME DOES IT TAKE TO BUILD MY ROCKETS?

Estes kits range from ready to launch in several minutes to those that provide many enjoyable hours of building fun. Our kits are classified into six categories:

READY TO FLY: No paint, no glue and no tools, just the pure enjoyment of flight, Assemble the launch pad, prepare the engine, attach and pack the parachute and get ready for a thrill. These models are a perfect introduction for the beginning rocketeer.

ALMOST READY TO FLY (E2X® SERIES): No painting or special tools required! These rocket kits require minor assembly and can be constructed in one or two hours. E2X kits are complete with out-of-this-world. colorful self-adhesive decals and pre-colored parts.

LEVEL 1 (BETA™ SERIES): Quick and easy to build kits with some sanding, cutting and painting required. Easily built on a lazy Saturday afternoon! Most kits feature our TTM Fin System (Through-The-Tube) - giving you strong and precisely mounted fins.

LEVEL 2 (EXPLORER™ SERIES): This is the first tier of craftsman kits. These kits require more time in building and painting. In this series, you will find rockets that use Estes' largest engine - the powerful "D"

LEVEL 3 (CHALLENGE™ SERIES): The second category of craftsmanship includes kits that combine challenging construction techniques with a high level of flying enjoyment.

LEVEL 4 (MASTERS™ SERIES): These kits require a high degree of modeling involvement from building. to painting. The result is a rocket with museum-like qualities that really files!





HOW DO ESTES MODEL ROCKETS WORK?

Estes model rockets are activity kits designed out of lightweight materials such as paper tubing, balsa wood and plastic. Balsa or plastic fins are glued to the airframe for guidance and stability. A model rocket engine holder is also part of the airframe to keep the engine in place during thrust.

Estes was the first to develop a safe, mass produced model rocket engine and has produced the engines for 40 years.

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 plastic parachute or streamer, is deployed to return the rocket safely to earth. The rocket can then be prepped for another flight.

WHERE DO I FLY ESTES MODEL ROCKETS?

The chart on the next page tells you what size field to use for what size engine. 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 42-44) of this catalog for more information.

WHAT DO I NEED TO KNOW?

In this catalog, each description lists important INFORMATION:

- → Something fun about the rocket
- → Specifications how tall, wide and heavy
- → What engines we recommend, especially for that all important very first flight!
- → How high, on the largest engine recommended, the rocket flies (in feet and in meters)
- → The sort of recovery system that brings the rocket back parachute, streamer or other
- → The type of fin material plastic, balsa or fiber

Pick out your favorite rockets...and watch for the Rocket Tips for valuable info on model rocketry. Remember - Estes model rocket kits offer you a wide spectrum of building and flying. Best of all, they are all **FUN** to assemble, build and fly!

PEAK ALTITUDE &

COAST & TRACKING

ACCELERATION

ELECTRICAL

PLEASE READ: IMPORTANT STUFF!

Estes model rocketry is recommended for ages 10 years and up. Adult supervision is recommended for those under 12 years of age.

Unless otherwise specified all models require assembly. Engines, launch system, glue and finishing supplies are not included with the kits unless specified otherwise.

Prices subject to change without notice.

USE ONLY WITH ESTES PRODUCTS

Caution: Use of this Estes product with any other brand-name rocket product containing any defect or causing any damage may void the Estes warranty.

Maximum altitudes are projections only, your rocket's actual performance may vary.

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RECOVERY SYSTEM

TOUCHDOWN

FLIGHT

SEQUENCE

In most cases.

baseball, soccer

or football fields

are great launch

areas!

DEPLOYED

Boys and girls enjoy building and launching Estes model rockets.

FULL ONE YEAR WARRANTY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product, except computer software, which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage to persons or properly caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state,

For repair or replacement under this warranty, please return the defective part of your Estes product with proof of purchase to: Estes Industries, Customer Service Department, 1295 H Street, P.O. Box 227, Penrose, CO 81240-0227.

MODEL ROCKET SAFETY CODE (EFFECTIVE 10-91)

- Materials—My model rocket will be made of lightweight materials such as paper, wood, rubber, and plastic suitable for the power used and the performance of my model rocket. I will not use any metal for the nose cone, body, or fins of a model rocket.
- Motors/Engines—I will use only commercially-made NAR certified model rocket engines in the manner recommended by the manufacturer. I will not after the model rocket engine, its parts, or its ingredients in any way.
- Recovery—I will always use a recovery system in my model rocket that will return it safely to the ground so it may be flown again. I will use only flame-resistant recovery wadding if required.
- 4. Weight and Power Limits—My model rocket will weigh no more than 1500 grams (53 oz.) at lift-off, and its rocket engines will produce no more than 320 Newton-seconds (4.45 Newtons equal 1.0 pound) of total impulse. My model rocket will weigh no more than the engine manufacturer's recommended maximum lift-off weight for the engines used, or I will use engines recommended by the manufacturer for my model rocket.
- Stability-I will check the stability of my model rocket before its first flight, except when launching a model rocket of already proven stability.
- Payloads—Except for insects, my model rocket will never carry live animals or a payload that is intended to be flammable, explosive, or harmful.
- 7. Launch Site—I will launch my model rocket outdoors in a cleared area, free of tall trees, power lines, buildings, and dry brush and grass. My launch site will be at least as large as that recommended in the following table.

LAUNCH SITE DIMENSIONS

Installed Total Impulse	Equivalent Engine	8	imum lite ension	
(Newtons-seconds)	Туре	(feet)	(meters	(
0.00- 1.25	1/4A & 1/2A	50	15	
1.26- 2.50	A	100	30	
2.51- 5.00	В	200	60	
5.01-10.00	C	400	120	
10.01- 20.00	D	500	150	
20.01-40.00	E	1000	300	P
40.01-80.00	F	1000	300	
80.01-160.00	G	1000	300	
160.01-320.00	2Gs	1500	450	

8. Launcher-I will launch my model rocket from a stable launching device that provides rigid guidance until the model rocket has reached a speed adequate to ensure a safe flight path. To prevent accidental eye injury, I will always place the launcher so that the end of the rod is above eye level or I will cap the end of the launch rod when approaching it. I will cap or disassemble my launch rod when not in use and I will never store it in an upright position. My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly. I will always clear the area around my launch device of brown grass, dry weeds, and other easy-to-burn materials.

- 9. Ignition System—The system I use to launch my model rocket will be remotely controlled and electrically operated. It will contain a launching switch that will return to "off" when released. The system will contain a removable safety interlock in series with the launch switch. All persons will remain at least 15 feet (5 meters) from the model rocket when I am igniting model rocket engines totalling 30 Newton-seconds or less of total impulse and at least 30 feet (9 meters) from the model rocket when I am igniting model rocket engines totalling more than 30 Newton-seconds of total impulse. I will use only electrical igniters recommended by the engine manufacturer that will ignite model rocket engine(s) within one second of actuation of the launching switch.
- 10. Launch Safety—I will ensure that people in the launch area are aware of the pending model rocket launch and can see the model rocket's liftoff before I begin my audible five-second countdown. I will not launch a model rocket using it as a weapon. If my model rocket suffers a misfire, I will not allow anyone to approach it or the launcher until I have made certain that the safety interlock has been removed or that the battery has been disconnected from the ignition system. I will wait one minute after a misfire before allowing anyone to approach the launcher.
- 11. Flying Conditions—I will launch my model rocket only when the wind is less than 20 miles (30 kilometers) an hour. I will not launch my model rocket so it flies into clouds, near aircraft in flight, or in a manner that is hazardous to people or property.
- 12. Pre-Launch Test—When conducting research activities with unproven model rocket designs or methods I wIII, when possible, determine the reliability of my model rocket by pre-launch tests. I will conduct the launching of an unproven design in complete isolation from persons not participating in the actual launching.
- Launch Angle-My launch device will be pointed within 30 degrees of vertical. I will never use model rocket engines to propel any device horizontally.
- 14. Recovery Hazards—If a model rocket becomes entangled in a power line or other dangerous place, I will not attempt to retrieve it.

As a member of the Estes Model Rocketry Program, I promise to faithfully follow all rules of safe conduct as established in the above code.

Signature

*This is the official Model Rocketry Safety Code of the National Association of Rocketry and the Model Rocket Manufacturers Association.

Important Note: "G" engines must be sold to and used by adults (18 and up) only.

To launch large model rockets weighing more than one lb. (453 g) but no more than 3.3 lbs. (1500 g) including propellant or rockets containing more than 4 oz. (113 g) but no more than 4.4 oz. (125 g) of propellant (net weight), you must notify and perhaps obtain authorization from the Federal Aviation Administration (FAA). Check your telephone directory for the FAA office nearest you or contact Estes Industries for further information.

HOW DO ESTES MODEL ROCKETS WORK?

Estes model rockets are activity kits designed out of lightweight materials such as paper tubing, balsa wood and plastic. Balsa or plastic fins are glued to the airframe for guidance and stability. A model rocket engine holder is also part of the airframe to keep the engine in place during thrust.

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WHAT DO I NEED TO KNOW?

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- → Something fun about the rocket
- → Specifications how tall, wide and heavy
- → What engines we recommend, especially for that all important very first flight!
- → How high, on the largest engine recommended, the rocket flies (in feet and in meters)
- → The sort of recovery system that brings the rocket back parachute, streamer or other
- → The type of fin material plastic, balsa or fiber

Pick out your favorite rockets...and watch for the Rocket Tips for valuable info on model rocketry. Remember - Estes model rocket kits offer you a wide spectrum of building and flying. Best of all, they are all **FUN** to assemble, build and fly!

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PLEASE READ: IMPORTANT STUFF!

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RECOVERY SYSTEM DEPLOYED

TOUCHDOWN

FLIGHT

SEQUENCE

In most cases.

baseball, soccer

or football fields

are great launch

areas!

Boys and girls enjoy building and launching Estes model rockets.

FULL ONE YEAR WARRANTY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product, except computer software, which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state,

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2.51- 5.00	В	200	60	
5.01- 10.00	C	400	120	
10.01- 20.00	D	500	150	
20.01-40.00	E	1000	300	1
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4



model rocket starter set. Each starter set comes complete with a high flying rocket and dependable launch system. Just add four AA alkaline batteries and you're ready to fly! (Some sets may require glue.) Each starter set contains:

- . A high flying rocket
- . The highly reliable Electron Beam® launch controller
- . The versatile Porta-Pad® II launch pad
- . Engines and flight supplies for your first launch mission
- · Model rocketeer's guide booklet
- · Model rocketry safety code and full one year warranty

ESTES RTF STARTER SETS

TIDAL WAVET EST 1811

The Tidal Waver Starter Set will sweep over you with its deep, dark blue air frame, white tins and nose cone. Visually stimulating on the ground and in the air, the Tidal WaveTM will make waves at your next launch. Powerful liftoffs are followed by soft. parachute landings for maximum fun!

SPECS: Length: 18' (45.7 cm); Dia.: 1.35' (34.3 mm); Wt.: 2.7 oz (75 g); Recovery: 12" (30 cm) assembled parachute; Fins: Plastic molded: Max. Altitude: 600 ft (183 m): Recommended Engines: A8-3 (flist flight), B4-4, B6-4, C6-5 (includes three engines)

IONIZER EST 1812

The lonizer M Starter Set is hot! With its metallic green body. yellow tins and nose cone, the lonizer to looks like it's flying at hyperspeed! This is the perfect rocket to start you flying in minutes!

SPECS: Length; 181 (45.7 cm); Dia.: 1.35" (34.3 mm); Wt.: 2.7 oz (75 g); Recovery: 12" (30 cm) assembled parachute: Fins: Plastic molded: Max. Altitude: 500 ft (183 m): Recommended Engines: AB-3 (first Hight), B4-A, B6-4, C6-5 fincludes three engines?

CODE REDT EST 1824

A great new rocket from Estes With its high tech look, the Code Red will put everyone on alert! The prismatic red air frame is highly visible in tilght! The ideal way to get into the air fast!

SPECS: Length: 18' (45.7 pm); Dia.: 1.35' (34.3 mm). Wt. 2.7 oz (75 g), Recovery, 12 (30 cm) assembled parachute; Plastic molded, Max. Altitude: 600 ft (183 m); Recommended Engines: A8-3 (first (light), B4-4, B6-4, C6-5 (includes three engines)

QUICKSILVER™ EST 1800

The Quicksilver™ is a lightning fast way to get Dving! This Ready-Built rocket flies straight and true to incoglible altitudes. before deploying its colorful parachite for a soft, safe recovery. By again and again! Available in silver gold, green or blue SPECS: Length: 16.6' (42.2 cm); Dfa.: 1.35' (34.3 mm) WL 2.3 oz (64 g); Recovery: 12' (30 cm) assembled parachete: Fins: Plastic molded: Max. Altitude: 1000 ft (305 m); Recommended Engines: A8-3 (first flight); 84-4

STARDUST" EST 1817

Do you want to go to the stars? The Standust " Starter Set will take you there! Not only does the rocket feature a prismatic. finish, it deploys "glitter stars" at the high point of flight. Enough

SPECS; Length 18.6 (42.2 cm); Dia.; 1.0' (25.4 mm); Wt. (1 6 oz (45 g); Recovery; 12" (30 cm) assembled parachute; Fins: Plastic molded: Max. Altitude: 1000 ft. (305 m) Recommended Engines: AB-3 (first flight), B4-4.



ASTROCAM® RTF IST IN 18

The Astronamon RTF Starter Set features a real camera that allows you to take aboutgreeins of your launch area from 500 feet up! You'll be anapping pictures right away! You'll be a factor with this easy, his infroduction to areas photography. Uses 110 film — our sicinose.

SPECS: Length: 18.35 (46 / cm), Dim.: 1.34 (34.0 mm); Wt. 2,7 or (76 g). Recovery: 12 (30 cm) examilies parachute First Plante molded Max Allifutio 500 ti (152 in) Recommended Engine: C5-7 only (Includes three engines)

RECONTAL EST 1814

SPECS: Length: 17.5" (44.5 cm); Dia:: 1.35" (34.3 mm); WL-3.0 or (85 g), Recovery, 12" (30 cm) assembled parachule, Fins: Plastic molded; Mex. Attitude, 557 ft (170 m). Recommended Engines: 84-2, 86-2 (first Sight) C5-3-C6-3

SHELLSHOCKED EST 1815
For payload fluit, try the Shellshocked against imaging the fun of lotting an egg to attitudes in excess of 200 test, and then safely recovering it on a Tully assembled 24" parameter 11

SPECS: Length: 18" (45.7 cm); Dia.: 1.35" (34.3 mm); Wt.: 2.5 oz (71 g); Recovery: 24" (61 cm) assembled parachute; Fins; Plastic molded;

Max. Altitude: Without egg 358 ft (109 m) With egg: 243 ft (74 m)

Recommended Engines: (includes turer engines) Without Egg. 84-2 (first flight), BB-2, Gb-5 With egg. G5-3, CB-3 only

FREE FALL** EST 1816
The Free Fall** Statter Set recket geets a ckythyer on a separate parachite at apoges. The booster rocked is recovered by a parachate, while the none contacting at temper more, being recovered on a separate streamer. The author floure is

SPECS: Length: 18: (45.7 cm): Dia:: 1.64 (41.0 cmm): Wt.: 3.0 oz (65 p). Recovery: 12 (50 cm) amenables. parachute Fina Plastic molded: Max. Alliante: 500 ft (152 mr. Recommended Engines: B4-2, B8-2 (first (kgriff) £5-3, £8-3.

MISSILE COMMAND™ ESTIMA

(40 f um) (Ha., 4 m) 10 (25.4 mm) (50) 16 (25.4 mm) Wt., 4 m) 15 u; (45 j) New 17 u; (5 g) Recovery Two 12 (50 cm) essential paradians. First Planta is all us. Max. Allinge: Army - 1100 ft (335 m); Key - 1000 ft (300 m)



StarterSets &



E2X® Starter Sets

- · Almost ready to fly rocket
- · Assembled parachute
- Self-adhesive decals
- · Complete launch system with engines
- Colored parts



MEGA MAXXIM STARTER SET ← GOLIATH™ SPITFIRE™ ↓

HEW!

FLIGHTS TO 1000 FEET (305 M)!

SABREM STARTER SET



Resommended for ages 10 years and to Adult supervision for those under 12. Assembly, plus and four AA alkaline balleries required - not included.

ESTES E2X® STARTER SETS

MEGA MAXXIM EST 1474

package. The easy to build Gollathire delivers a mill as it flies kit, which screams to over 900 feet. (Includes two engines.)

GOLIATH*

Specs; Skill Level: Almost Ready to Fly (EZXO) Senest: Length: 28 (71.1 cm); Dia:: 1.34 (34 mm); Will 3 oz (85 g); Recovery: 16" (46 cm) Parachute: First T Plastic molded, Max. Allitude: 500 feet (152 m); Recommended

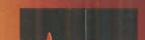
SPITFIRE SSIT

Spocs: Skill Level: 1 (Beta?" Series), Length: 18:25' (41.0 cm); Dia:: 0.98" (24.9 mm): Win 1.7 oz. (48 g); Recovery: 12: (274 m): Recommended Engines: Ab 3 most mobile B4-4

SABRET EN LED LAD

ALPHA III EST 1466

SPECS: Length: 12.25" (31"1 cm), Dia., 12.00" (24.9 mm) Wt., 1.2 oz (34g); Recovery: 12 (30 cm) Parachine Flos. One piece plastic molder: Max. Altitude: 1105 ft (335 m) Recommended Engines: U2A6-2, A8-3 (first hight), 84-4



ALPHAIII® STARTER SET





StarterSets &

Apogee is the highest

point in a

rocket's

flight.



SUPER SHOT™ STARTER SET ← SUPER SHOT™ TWISTER™ ↓



SPACE SHUTTLE™ STARTER SET





HELICAT™ STARTER SET



AIRWALKER™ STARTER SET

SUPER SHOT EST 1449

A two rocket combo with superb performance and a sky full of fun! The Super Shift* rocket delivers high performance and parachute recovery in an easy to build kill. The second rocket, this fluits to a simple to build and paint kill featuring a recovery with a different spin—after an odf-a-sight flight, the Twister** separates two two helicoper recovered pieces. Three engines included for three super flights!

SUPER SHOT

SPECS: Skill Level: Almost Randy To Fig. (E2X/R Series); Length: 16.5" (41.9 cm); Dia.: 1.0" (25.4 mm); Wt.: 1.6 or (46.0); Recovery; 12" (30 cm) Parachine; Fins. T²⁷ Photo molde); Max. Altitude: 1000 ft (305 m); Recommended Engines: A8-3 (first flight) ; 84-4, 86-4, 86-6, C8-5, C6-7

TWISTER"

SPECS: Skill Level: 1 (BetaTM Series), Length: 9.5" (24.1 cm), Dia.: 0.74" (18.8 mm); WL: 0.5 oz (14.g); Recovery: Helicopter: Fins: Die out balsa: Max. Allitude: 1000 ft (305 m); Recommended Engines: 1/ZA6-2 (first flight), A8-3, B4-4, B6-4, B6-6

HELICATT EST 1465

A huge, rip-roaring rocket with helicopter recovered nose cone. The nearly three foot tall rocket has a colorful, extra large decal sheet and engines for your first three flights!

SPECS: Length: 33.5' (85.1 cm); Dia.: 1.35' (34.3 mm); Wt.: 3.7 oz (105.9); Recovery: Rocket: 18' (46.cm) Parachute. Nose Cone: Helicopter; Fins: T*** plastic molded; Max. Altitude: 485 ft (148 m); Recommended Engines: 84-2, 86-2. (first flight), C5-3, C6-3, C6-5 (includes three engines)

SPACE SHUTTLET EST 1467

Sport scale of the actual Space Shuttle Orbiter. Flies like the real thing! Rockets to 300 feet and glides back to Earth! The power pod returns with a parachute. Includes two engines for two missions!

SPECS: Length: 14.75" (37.5 cm); Wingspan: 10" (25.4 cm); Wt.: 7.0 oz (199 g); Recovery: Shuttle: Glider, Power Pod: 18" (46 cm) Parachute. Max. Allitude: 300 ft (91 m); Recommended Engine: C6-3 only (includes two engines)

AIRWALKER™ EST 1410

Sleek high performance payload rocket. The Airwalker™ can carry bugs, flowers or toy figures into the sky, Launch payloads to over 1000 feet high; get 'em back on a 'chute! Special chrome colored reflective body tube.

SPECS: Length: 20° (50.8 cm), Dia: 1.0° (25.4 mm).
Wt.: 2.0 oz (57 g), Recovery: 12° (30 cm) Parachute.
Fins: TTM plastic molded, Max. Altitude: 1000 ft (305 m);
Recommended Engines: A8-3 (first flight), B4-4, B6-4, C5-3.
C6-3, C6-5 (includes three engines)

Resummended for ages 10 years and or Adult supervision for three under 12. Assembly, plue and four AA what is botteries required – not lacteded.

ESTES. ← X-FLYER™ 1 X-FLYERT 2 HYPER XTM RED STORM™ ASTEROID **HUNTER™** INVADER** Recommended for ages 10 years and up. Adult supervision for those under 12. Launch equipment and flight supplies required -

READY TO FLY (RTF) ROCKETS

RED STORM EST 1803
The Red Storm True a bright red promatic body table and stands over 19.5 high. This yed manace of the sky is said to be a high flying taxante. It recovers with an assembled 12" parachute.

SPECS: Length: 19.6" (49.8 cm) Dials 1.35" (34.3 mm) Wt.: 2.7 oz (75 g); Racovery: 12" (30 cm) bisembles parachute, Fins: Tim Plastic molded, Max, Altitude, 600 ft (183 m): Recommended Engines: 84-4, 86-4 (first ffight), 06-6

HYPER XTM EST 1804

The Hyper X™ is sure to complement your rocket arsena. The Hyper XIM is 19.5' tall and has a two way recovery system. The booster returns to earth using an assembled 12" parachite while the nose cone helicopters down gently using rotor blades It's great fun to watch and fly!

SPECS:Length: 19.5' (49.5 cm) Dia:: 1.35' (34.3 mm) Wh: 3 1 oz (88 g); Recovery: 12' (30 cm) assembled parachute; Fins: Tittle Plastic molded, Max. Allitude: 536 ft (163 m); Recommended Engines: 84-2-86-2 (limit flight). B8-4, C8-5

ASTEROID HUNTER™ EST 1805

The Asteroid Hunter's is an attractive aport rocket at 19.5" in length and has a sleek, text design built for allitude. Attach the assembled 12" parachute and you can be our flying in minutes!

SPECS:Length: 19.5" (49.5 cm); Din.: 0.98" (24.6 mm); WL: 1.8 oz (50 g): Recovery: 12' (30 cm) assembled parachute: Firs: One piece plastic molded: Max. Altitude: 1025 ft (312 m); Recommended Engines: AB-3 (first flight). 84-4, 86-4, C6-5, C6-7

X-FLYERST EST 1808

The X-Flyers is a spectacuter twin pack of Ready-Bulli rockets; These two terrific, high performance rockets will tear up the skies. Both are equipped with an assembled 12' parachute. They can scream to over 1,200 feet!

SPECS:Length: #1 - 15 3' (38.7 cm), #2 - 15.8' (40.0 cm)). Dia.: #1 - 0.74" (18.7 mm), #2 - 0.74" (18.7 mm); WL: #1 - 0.7 oz (21 g). #2 - 9.7 oz. (21 g); Recovery: Two 12" (30 cm) assembled parachules; Fires libre piece plastic molded. Max. Allitude: #1 - 1425 ft (434 m), #2 - 1280 ft (390 m) Recommended Engines: 1/2A6-2, A8-3 (first flight) 86-6, 86-7

REDIROCS™ INVADER™ ESTERIO

SPECS Length: 35' (8.9 cm), Wt.: 3 ez (85 d), Recovery. Featherweight Max. Attitude: 100 ft (30 m), Recommenced

Almost Ready to Fly ESTES. MK-109 STINGRAY™ ASTROSAT LSXTM FLASHTM -BANDIT RATTLER-7TM Recommended for ages 10 years and up. Adult supervision for those under 12. Assembly, glue, faunch equipment and Hight supplies required – not included.

RATTLER-7™ EST 2150

Hidden deep in the army bunkers of the depart in the Hartley T in uniter an floor with as colored body times, plastic party and the cut, self-adherive campulation decals. It can reach attitudes of over 1,000 feet (305 m).

SPECS: Length: 16.5 (38.4 cm), Dia.: 0.98 (24.6 mm)
WL: 1.5 oz (42.g); Recovery: 12 (30 cm) assembled
parachute: Fins: Che meda plastic molded: Max. Allitude:
1000 ft (305 m); Recommended Engines: 1/246-2, 48-3
(first flight); 84-4, 80-4, 86-6, Co-5, Co-7

ASTROSAT LSX¹⁰ EST 2183
AstroSat LSX¹⁰ (Light Satellite Experimental rejects two should equipped satellites at the end of its argent, This futuristic vehicle flies missions up to 300 feet. Easy to assemble no painting and authentic looking self adjective decalal

SPECS: Length: 19" (48.3 cm) Dia. 1 35" (34.3 mm) Wt: 3.2 oz (91g); Max Altitude: 300 ft (91 m). Recovery: 18" (46 cm); Parachute: Fins: Tim plastic molded. Recommended Engines: 84-2, 86-2 (first hight), 05-3, C6-3, D8-5

BANDITEM EST 2060 Rugged, sleek and merciless partermance every time—every a to over 1000 feet and every flight recovers with a 'chute!

SPECS: Length: 16.6" (42,2 cm); Dia.: 1.0" (25.4 mm); // Wt.: 1.6 oz (45 g); Recovery: 12' (36 cm) Pauchide: Pins: T79 plastic molded: Max. Alfande, 1000 ft (305 m). Recommended Engines: A8-3/Just tright). 84-4-86-4 86-6, C6-5, C6-7

MK-109 STINGRAY EST 2131
Ship-to-Air missionic as authorized on its Novy Markings Easy to build! No platfing! Lauriches to over 1000 feet a "lines"

SPECS: Length 167 (40.6 cm); Dial. 1 0" (25.4 mm WC 17 or (47 g), Recovery 12 (30 cm) Pyrachate, Flos. The plantic moldest, Max. Albaide, 1000 (1005 mg. Recommended Engines: A8-3 (first flow), 84-4, 88-4

FLASHTM EST 2137

A stillar pirturnier with a plant, pos-vicapieri priemule prylond accion. The blige Flash^{or} will be noticed anywhe on the ground or in the inc

SPECS: Langto: 28 J. (7) 3 cm): Bla > 18 (25.4 mm) Vii. 20 oz 67 g); Recovery: 12 (30 cm) parachule. Fina: Recommended Engines: A8-3 (first highr), 84-4-88-



ATHENAM EST 2020

Plastic chionia nose cone, one-piece lie unit and a high perfermance design combine to make one con-locking steel rocket

SPECS: Lingth: 15' (36.1 cm); Ota 2 0.80' (24.8 mm) Will: L3 or (36.9); Recovery: 12' (30 cm) Paracoute: Fine One place state: molecul Max. Altitude: 1000 ft (306 m); Recommended Englack: 1/246-2, A8-3 (that right); 04-4, 85-2; BI-6, Go-5, C6-7

GNOMETA EST MINE

Minkpowerd, almost ready to fly rooket. Super althodos on mink-upones — grout for hying on small holds! Features entered between the same a one place first first.

SPECS: Length: 10.5 (25.0 pm); Dts.: 0.64-(13.6 mm); Wt.: 0.8 of 12 pr. Recovery; Strainer; Film: Dns place distle moldet; Max. Attlantic: 820 ft (264-m); Recommended Engineer; 1.243-27 (first night); 1/243-47, 43-47, 450-57

NIKE ARROW EST MAS

Siene and taid with solid appearance. Refertive commits colored policy little first two one-pends placific the units — (45, to mind Single stype mins anythe power and observer appearant.)

SPECS: Langth: 17: 143.2 cm/s. Dia 10.741 (18.1 mm); Wt. 1.0 ct. (28.0). Resovery, Etropole Tine: One previously, molder, Max. Attitude: 305.0 (25.0); Recommended Engines: 1/243-21, A3-41, A10-21 (to st bloom).

ALPHA III EST 1256

The very first exten amoust-ready-to-fly except (the piece flo unit! Millions have started with this classes design, Still a favorital.)

SPECS: Length: 12.7' (31.1 cm) Dia.: 0.98' (24.8 mm); Wt.: 1.2 oz (34.g); Recovery: 12' (38 cm) Perachute, Fins: One piece plastic molded; Max. Altitude: 1100 ft (335 m). Recommended Engines: 1/2Alj-2, A6-3 (first liight), 84-4. 86-4, 86-6, C6-5, C6-7.

RAMPAGE™ EST 2061

No painting, plastic fins, builds in under an hour! A quick way to get into phyloading, Gool, pre-colored body tubes and wild decals finish up this hot performer.

SPECS: Length: 19.5" (49.5 cm), Dia: 1-0" (25.4 mm), WL: 1.8 oz (50 g), Recovery: 12" (30 cm) Parachute, Fins: T¹¹⁹ plastic molded: Max. Allitude: 985 ft (300 m), Recommended Engines: A8-3 (first light), B4-4, B5-4, C5-3, C6-3, C6-5, C6-5.

BANSHEEM EST 2132

How at the sun with this screaming bad boy! Lean and mean! Quick to build! The high performance design assures maximum altitude every time. Features parachute recovery!

SPECS: Length: 16.6* (42.2 cm); Dia.; 1.0* (25.4 mm); WL: 1.6 oz (45.p); Recovery; 12* (30 cm) Parachute; Fins: 17** plastic molded; Max. Allitude; 1100 ft (335 m); Recommended Engines; A8-3 (first flight); B4-4; B6-4; B6-6; C6-5; C6-7





Payloading is the science of carrying "stuff" into nearearth orbit. Launch toy action figures, flowers, glow sticks, marbles, eggs, real science experiments, etc.

X-RAYTH

HIJAX**

BAIL-OUT EST 2078

SPECS: Length: 24.5 (62.2 cm), Dig: 1.64 (41.6 mm) WL (without figure), 3.1 oz (87 g), Recovery; Rocket 12' (30 cm) Paractista Nose Cone; Steamer, Nos 24' (61 cm) parachutes (one spare) for figure; First One piece plante: molded; Max. Altitude; 500 ft (152 m); Recommended

OMLOID™ EST 2078

Empty Wf.; 2.5 oz (71 g), Recovery; 10" (45 cm) Parachure. Fire: The plastic molded, Max. Allttude; 309 ft (93 m); Recommended Engines: (With Egg) = C5-3 CE-3

MACH-12TM EST-2130
Be different with every flight1 12 different fin configurations are possible. Transform the Mach-12 between flights. Great

SPECS: Length: 21.3' (54.1 cm); Dia.: 1.35' (34.3 mm); Wt: 1.9 oz (55 g). Recovery: 18* (45 cm) Parachute. Fins: The plastic molded; Max. Altitude: 650 ft (198 m), Recommended Engines: A8-3 (first flight), B4-4, B6-4, C6-5

X-RAY*** EST 9834
Mini-engine boosted rocket with its clear payload capsule! Pre-colored, one-piece fin unit for a quick assembly! Streamer allows for quick, easy and safe recovery!

SPECS: Length: 14.8' (37.6 cm), Dia.: 0.74' (18.8 mm): Wt: 0.6 ez (17 g). Recovery: Streamer, Fins: One piece plastic molded: Max Altitude: 500 ft (152 m); Recommended Engines: 1/2A3-2T(first flight), A3-4T, A18-3T

HIJAX™ EST 2105

Clear payload capsule, high performance design and simple to build with no painting makes this an ideal first cargo

SPECS: Langth: 20" (50 8 cm): Dist 1.0" (25 4 mm) Whit 2.0 oz (57 g) Recovery: 12" (30 cm) Parachule: Free: F plastic molded. Max. Allitude: 800 ft (244 m); Recommended Engines: A5/3 (nrst.tlight), 84-4 (86-4 (55/3 (66/3 06/5)







MACH-12™

BAIL-OUTM

Recommended for ages 10 years and up. Adult supervision for those under 12. Assembly, glue, launch equipment and flight supplies required – not included.

ESTES. Level 1 (Betath Series) Quick and easy-to-build kits with some sanding, cutting and painting required. Most kits feature our T3-(Through-The-Tube) Fin System Featherweight recovery means the rocket is so lightweight, the engine ejects and the rocket returns safely to the MOSQUITO™ **SKYWINDER™** 0 USAF QUARK** MANTATM TURBO COPTER™ Recommended for ages 10 years and up. Adult supervision for those under 12. Assembly, construction supplies, glue, launch equipment and flight supplies required — not included. NINJA® 22

ALMOST READY TO FLY (E2X SERIES) ROCKETS

SKYWINDER™ EST 2077

The easiest way to get into bull-decoupt To the later to skyward, at apogee the blades hold cut and the out-place received copters back to earth. Easy to build one five no painting

SPECS: Length: 20" (50.8 cm); Dia: 1.35" (34.1 mm) Rotor span: 20.0" (50.8 cm); Wt.: 2.5 oz (71.g). Recovery, Helicopter: Fins: T^{MM} Plastic molded, Max. Allium 531 ft (162 m); Recommended Engines: 84-2 (first liight) 86-2, C6-3

TURBO COPTER™ EST 2096

Hot Stuff! With a wild helicopter recovered nose cone and an ultra performance design, this rocket is out-of-sight! Features a one-piece fin unit and no painting required!

SPECS: Length: 13.9' (35.3 cm); Dia: 0.74' (18.7 mm); Wt.: 0.9 oz (26 g); Recovery: Nose cone: Helicopter, Rocket: Streamer, Fins: One piece plastic molded; Max. Altitude: 1400 ft (427 m); Recommended Engines: 1/2A6-2 (first flight), A8-3, B4-4, B6-4, B6-6, C6-5, C6-7

MANTA EST 2097

Futuristic-looking foam gilder rives piggyback on the booster.

At apogee the glider detaches for its long glide name. Easy to build, no painting!

SPECS: Length: 16.5" (41.9 cm); Dia.; 0.98" (24.8 mm); Wt.; 1.8 oz (51 g); Recovery; Glider, Booster: streamer; Fins: One piece plastic molded, Max. Altitude: 690 ft (210 m); Recommended Engines; A8-3 (first flight); B4-2, B6-2

LEVEL 1 (BETA™ SERIES) ROCKETS

QUARKT EST 0802

Mini-engine powered mighty mite. With incredibly simple construction (only seven parts), a little spray paint and decals, and whoosh – out-a-sight flights to 700 feet! Safe feather-weight recovery for this micro rocket!

SPECS: Length: 5.2" (13.2 cm); Dia.: 0.54" (13.7 mm); Wt.: 0,1 oz (3 g); Recovery: Featherweight; Fins: Balsa; Max. Altitude: 700 ft (213 m); Recommended Engines: 1/2A3-4T (first flight), A3-4T, A10-3T

MOSQUITO EST 0801

Mini-engine powered bug of a rocket with screaming high altitude performance. Featherweight recovery for safe returns.

SPECS: Length; 3.9: (9.9 cm), Dia.; 0.54" (13.7 mm); WL. 0.1 oz (2.8 g), Recovery: Featherweight: Fins: Balsa; Max. Altitude: 800 ft (244 m); Recommended Engines: 1/2A3-4T (first light), A3-4T, A10-3T

NINJA® EST 0882

Lightning quick performance and super allitudes on miniengine power. Die cut card fins and not salt adhesive decaret

SPECS: Length: 10.6" (26.9 cm); Ota : 0.74" (18.7 mm); Wt.: 0.6 oz (16.9); Recovery: Straamer: Fins: Die cut card, Max. Altitude; 525 h (760 m); Recommended Engines: 1/2A3-47 (first tlight), A3-47, A10-37

ESTES. HEW! HGAN DAIGIG

BIG DAWG™



These rockets have the TTM Fin System. The body tube on the rocket has been slotted and the fins fit through the slot. This makes the fin joint strong and properly aligned.

This a trademark of Estes Industries.

HEW!

PROWLER**

HEW!

AIM-120 AMRAAM

WILDFIRET

PROWLER™ EST 2155

BIG DAWG™ ESI 2161

With 4.2 oz (120 m); ffectivery: 240 (61 cm) himmenored (110 m); Recommended Engines: 84-2, 86-2 (first flight).

this steek, menacing looking rocket in designed to seek out the darkest maches of the universe. The Province to over these

SPECS: Length: 12.8' (3) 5 cm); DIA: 1 33' (23.8 min) WE 1 G oz (45 p): Recovery: 121 (70 cm) assembled parachute; Fine: 1111 Die sin hatia: Max. Allitude: 700 n. (213 m), Recommended Engines: A8-1 (first fight), B4-4.

C5-3, C6-3

ZENIX SSRVTM EST 2152

Soar into the future with the Zenix SSRV^{ee}, a highly interactive model rocket. The Zenox SSRV^{ris} launches hundreds of tret into the air and then deploys its external boosters to be recovered by streamers. The main booster is safely recovered visparachule. Witness action in the sky with the Zenic SSRVMI

SPECS: Length: 31.8 (80.8 cm); Dia.: 1.32 (83.5 mm). WL: 4.5 oz (130 g); Recovery: External populers - streamers, Main booster - 18" (46 cm) assembled parachute; Fins: Plastic molded: Max. Affiliade: 380 ft (118 m), Recommended Engines: 84-2, 86-2 (first flight) C5-3, C6-3

AIM-120 AMRAAM EST 2153
This is a stellar-looking scale military rocket of the US Air Force. air-to-air missile. The Estes version of the AMRAAM features detailed, self-adhesive decais (taken from actual blumprints). Create excitement in the air with this autheritic air combat flying

SPECS: Length: 27.5 (69.0 cm); Dia;: 1:33 (33.8 mm); Wt.: 4/2 oz (120 g); Recovery: 18" (46 cm) assembled parachute, Fins: Time Die out balsa, Max. Altitude: 401 ft (122 m). Recommended Engines: 84-2: 86-2 (first light).

WILDFIRET EST 2154

streamer (parastream) combination for high visibility and

SPECS: Laugth: 15' (38.1 cm), Dia.: 0.98' (24.9 mm); Wt.: 1 az (29 g): Recovery: 12" (30 cm) assembled parachute and 18" (45 cm) streamer; Fins; The Circuit Inlead Max. Altitude: 1027 h (313 m): Recommended Engines:

ZENIX SSRVTM

Assertiony, construction repetitor, given liberal membered and trade complete required—and included



YELLOW JACKETT EST 2008

A rocket with a lot of zip, All-round great performance highlights this sport rocket. Easy to build with water transferable decals!

SPECS: Length: 16.8 (42.7 cm); Dia:: 0.98*(24.9 mm); Wi.: 1.1 oz (31 g); Recovery: 12*(30 cm); Parachute; Financia Die cut balas; Max. Altitude: 1400 ff (427 m); Recommended Engines: A8/3 (first flight); 84-4, 86-4, 86-6, 66-5, 66-7.

WIZARDT EST 1292

No tricks here - the Wizard** is an easy-to-build, highperformance kit. Featuring die cut balsa ninc and serfadhesive docats, the Wizard** is recovered via a bright streamer for soft, safe tandings. A great first or second kit that promises real excitament and four!

SPECS: Length: 12' (30.5 cm); Dia;: 9,74' (18.8 mm); Wt.: 0.8 oz (22 g). Recovery: Streamer, Fina: Die zuf finite; Max. Allitude: 1500 ff (457 m); Recommended Engines: 1/2A6-2 (first flight), A6-3, 84-4, 86-4, 86-6. 66-5

BIG BERTHA™ EST 1948

Burly, big and beautiful Over the decades this in the first big (two feet fall) rocket for many modeleral Slow realistic litt-offs from this tree classic)

SPECS: Length: 24" (61 cm); Dia.: 1 64" (41.7 mm); Wt.: 2.2 cz. (62 g); Recovery; 18" (45 cm); Parachute: Fins: Die cut bolen: Max. Attitude: 503 ft (152 m); Resommended Engines: 64-2, 84-4, 86-2 (first filefu); 86-4, 66-5

YANKEEM TEST 1381

A rocket with All-American performance — screams to 1400 foot attitude! Comes with cool self-authority decals for that red, white and blue look.

SPECS: Length: 11* (27.9 cm); Dia.: 0.74* (18.8 mm); Wt.: 0.4 oz (12 g); Recovery: Streamer, Fins: Die cut balsa; Max. Altitude: 1400 ft (427 m); Recommended Engines: 1/2A6-2 (first flight), A8-3, B4-4, B6-4, B6-6, C6-5, C6-7

ALPHA EST 1225

For over 30 years, the Alpha® has been the first choice for millions of rocket modelers. Easy to build, rugged high performance, parachute recovery – the perfect rocket to get you started!

SPECS: Length: 12.3" (31.2 cm), Dia.; 0.98" (24.9 mm); Wt.: 0.8 oz (23.9), Recovery: 12" (30 cm) Parachute, Fins: Die cut balse; Max. Altitude: 1000 ft (305 m); Recommended Engines: 1/2A6-2, A8-3 (first flight), B4-4, B6-4, B6-6, G6-5, G6-7

NOVA PAYLOADER M EST 1980

Clear payload capsule, lightweight design with balsa fins and high altitude performance combine to make this a great cargo carrying rocket!

SPECS: Length: 21.1' (53.6 cm); Dia.: 0.98' (24.9 mm); Wt.: 1.5 oz (38.g); Recovery: 12' (80 cm) Parachute; Fins: Die cut balsa; Max. Allitude: 1000 ft (305 m); Recommended Engines: A8-3 (first flight); B4-4, B8-4, C6-5; (With payload); B4-2, B6-2, C5-3, C6-3



FIREBIRDTM EST 2138

SPECS: Length: 23.9" (60.7 cm): Dia.: 1.33" (33.8 mm); WL: 2.1 oz (60 g), Recovery: 18' (46 cm) Parachide. Fins: Till Die out balsa. Max. Altitude: 1080 ft (329 m). Recommended Engines: A8-9 (first flight), 84-4, 86-4,

FATBOY™ EST 2139

Fat boy, and proud of it! Over 2-1/2 inches in diameter and

SPECS: Length: 12.9" (32.8 cm); Dia.: 2.50" (56.0 mm); Wt.: 3.0 oz (85 g): Recovery: 18 (45 cm) Paractiute: First Time Die out balsa; Max Allitude: 325 ft (99 m); Recommended Engines: 54-2, 86-2 (first flight), C5-3, C6-3

SIZZLER® EST 2127

Hot looking rooket over two feet tail! Fantastic performance - blazes to 400 feet. Features a rear ejecting engine pod;

SPECS: Length: 27 8' (70 6 cm); Dia : 1.64' (41.7 mm) Wt.: 3 9 oz (110 g), Recovery: 18' (46 cm) Parachule. Fins: Tim Die out bulsa, Max Attitude: 400 ft (122 m). Recommended Engines: 84-2, 86-2 (first flight),

FIRE STREAK** EST 2107
Two long metallic-looking red and gold receivery

SPECS; Length: 14.8' (37.6 cm) Dia.: 1.0' (25.4 mm); Wt.; 1.4 oz (39 g); Recovery: Doil Streamers; Fins: T^{oo} Die cut balsa; Max. Altitude; 1000 ft (305 m); Recommended Engines: 1/2A6-2, A8-3 (hist flight), 84-4, 86-4, 86-6, 08-5

CORKSCREW™ EST 2114

SPECS: Length: 21 3' (54.1 cm); Dia.: 1.0' (25.4 mm); Wt.; 1.9 oz (53.g); Recovery: 12' (30 cm) Paractude. Fins: 1^{ms} Die cut belsa; Max. Altitude: 200.ft (244 m). Recommended Engines: A8-3 (Brat (Bght), B4-4, 86-2



TRANSWINGTH SUPER GLIDER

no painting! Flights over one minute are possible!

SPECS: Length: 22" (55.9 cm); Dia.: 0.98" (24.9 mm); Gilder Wingspan: 24" (61 cm), Total Wt.: 3.8 oz (108 g) Recovery: Glider, Power Pod. Streamer, Fins: Die cut balsa; Max. Altitude: 305 ft (93 m); Recommended Engines: 84-2, 86-2 (first flight), C6-3

ASTROCAM 110 EST 1327

What's it look like from up there? This camera rocket gives you the big picture - hundreds of feet up! EASY to hulld, NO painting - almost ready to fly! Simple to use and fly! Kit includes cameral Uses 110, 200 ASA film - not included.

SPECS: Length: 19.1' (48.5 cm); Dia.: 1.34' (34 mm); WL: 3.7 oz (106 g); Camera shutter speed: 1/500 sec. 1-stop: 11; Recovery: 12* (30 cm) Parachute; Fins: One piece plastic molded: Max. Altitude: 500 ff (152 m); Recommended Engine: 08-7 only

VIKINGTM EST 1949

Fantastic rocket with multiple possible tin configurations -48 in all. Features the cut card fine, self-adhesive decals and

SPECS: Length; 12.11 (80.7 cm); Dia:: 0.74" (18.8 mm); Wt.: 0.6 ez (17 g); Recovery: Streamer Fins: Die cut card-Max: Allitude: 1470 ft (448 m), Recommended Engines A8-3 (first flight) B4-4, B6-4, C6-5, C6-7

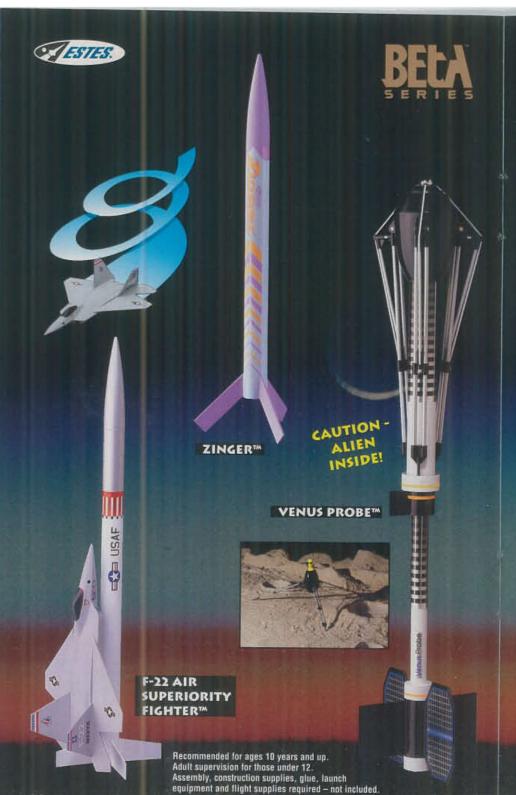
MONGOOSE™ EST 2092
Snakes won't get close to this one! Perfect first two-stage rocket! Super-quick to build with high attitude performance - over 1600 feet! Pre-colored with two one-piece fin units, crazy-looking self-adhesive decals.

SPECS: Length: 26.5' (67.3 cm); Dia.: 0.98' (24.9 mm); Wt.: 2.3 oz (65 g): Recovery: Streamer: Fins: One piece plastic molded: Max. Altitude: 1600 ft (485 m); Recommended Engines: Single Stage flights - AB-3 (first (light), 84-4, 86-4, C6-5; Two Stage Flights: Booster Stage -B6-0 (first flight), C6-0, Second Stage - 86-5 (first flight), C6-7

VENOM EST 2140

No one knows what part of the universe this rocket comes from, but it's got attitude, altitude and sneaky good looks quick strikes to 1100 feet.

SPECS: Length: 18.5" (47 cm), Dta.: 0.98" (24.9 mm), Wt.: 1.2 oz (34g): Max Altitude: 1100 ft (335 m); Recovery: 12" (30 cm) Parachute; Fins: Title Die cut balsa: Recommended Engines: A8-3 (first flight), B4-4, B6-4, B6-6, C6-5, C6-7



F-22 AIR SUPERIORITY FIGHTER™

EST 2124

The fighter arccaft of the Ester Space Corpel The 6-22 rockets skyward on a flooster straight into the air. At apogee, booster falls away and goder excops them out of the sky. Easy-to-build glider and booster.

SPECS: Glider Length: 16.5° (34.3 cm); Wingspen: 9.3° (23.5 cm); Büder Wt.: 1.6 or (45.9); Booster Length: 25.5° (84.8 cm); Dia:: 1.33° (33.5 mm); Wt.: 1.9 or (55.9); Recovery; Blider & Booster 18° (46 cm) Parachute. Fins: 17° Die our halas, Max. Attitude: 250 tr (76 m); Becommended Engines: 84-2 (first flight); 86-2, 45-3 (6-3)

ZINGER™ EST 1917

A great super light-weight rocket with sizyling heavy-most performance – 2000 feet affilinget Cornes with cool well adherive decals and lightweight balss her.

SPECS: Length: 10.57 (26.7 cm); Diaz: 0.741 (18.8 mm); Will 0.3 az (9.3); Recovery: Streamer; Fina: Balsa: Max. Allitude: 2003 if (8.0 m); Resummended Engines: 172AS-2, A8-3 (first tight); 84-4: 86-5; C6-7

VENUS PROBE™ EST 2120

Find the Truth! Mothership deploys alien lander (alien included!). Lander extends legs and descends under its own parachute – lands upright every time! Mothership returns on its own 'chute!

SPECS: Length: 27' (68.6 cm); Bia.: 1.33' (33.8 mm); Wt.: 5.1 oz (145 g); Landing Gear Span; 24' (61 cm); Alien Lander Ht.: 10.5' (26.7 cm); Recovery; 12' (30 cm) and 18' (46 cm) Parachute; Fins; T^{orn} Die cut balsa; Max. Altitude: 250 ft (76 m); Recommended Engines: C5-3 (first flight), C6-3

AIM-9 SIDEWINDERT EST 2125

Giant 1/4 scale model of the famous air-to-air missile. Model comes complete with plastic detailed nose cone and the T^{ole} Fin Mounting System for main and nose cone mounted final

SPECS: Length, 30.2 (76.7 cro); Dia:: 1.33' (33.8 mm); Wt.: 4.2 oz (120.0); Recovery; 12' (30 cm) and 18' (46 cm); Parachales, Fine: 1" (the cut barea, Max. Altitude; 35cm); 118 m); Recommended Engines, 84-7 (that Report), 86.2 (5-3.16-3.

AIM-9 SIDEWINDER™





SILVER COMET™ EST 2141

Attention all fans of Tretro" science fiction, your space ship has landed! Great details, blow molded tall and nose cone and "D" engine power are featured in this giant nostalgicstyled spacecraft

SPECS: Length; 25' (63.5 cm); Dia.: 2.60' (66.0 mm); WL: 5.1 oz (145.g); Max Allitude: 500.ft (152.m). Recovery: 18' (46 cm) Parachute; Fins: Tim Die cut balsa. Recommended Engines: D12-3 (tirst llight), D12-5 Requires a 3/16" (5 mm) Maxim launch rod (EST 302244) available separately.

SM-3 SEAHAWK** EST 2149
This 'D' engine powered, single stage rockef stands over three feet tall and uses the mighty Estes D12 rocket engine to launch it hundreds of feet into the air. The SM-3 Seahawk™ utilizes two fully assembled 18' parachutes for recovery, it incorporates plastic fins with slotted body tubes for easy assembly and quick finishing. This is a most for every big rocket enthusiast

SPECS: Length: 39.5" (100.3 cm) Dia.: 1.84" (46.7 mm): Wt.: 6.2 oz (175 g); Recovery: Two 18" (46 cm) assembled parachutes; Fins: Time Plastic molded; Max. Altitude: 465 ft (142 m), Recommanded engine: D12-5 only Requires a 3/16' (5 mm) Maxim launch rod (EST 302244)

GEMINI DCTM EST 2136

Twin parachutes are rear-ejected from the side pods on thin stunning rocket. Nearly out of this world flights. Easy to build! A great flier! A unique rocket!

SPECS: Length: 21.5" (54.6 cm); Dia.: 0.98" (24.9 mm), Wt.: 3.4 oz (95.9): Recovery: Dual 12" (30 cm) Parachutes: Fins: Tim Die cut balsa, Max Altitude: 800 ft (244 m). Recommended Engines: 84-2, 84-4, 86-2 (first flight). B6-4, C6-5

PYTHON** EST 2129
The main air-to-air missile of the Estes Space Corpst High performance plastic fins and scale-like decate. Big "D" engine power!

SPECS: Length: 33.3" (64.6 cm); Dia.: 1.84" (46.7 mm); Wt.: 5.6 oz (160g); Recovery: 18" (46 cm) Parachute. Fins: Tow Plastic Molded; Max. Altriude: 500 ft (152 m); Recommended Engines: 012-5 (first flight), D12-7 Requires a 3/16" (5 mm) Maxi³¹ (aunch rod (EST 302244) available separately.

SUPER NOVA PAYLOADER™ EST 2185
Using the powerful Estes "D" engine, the Super Nova The large, clear payload section allows you to stock it with exciting cargo. Pre-colored body tubes and plastic parts make this "D" engine powered payloader super to build and fly SPECS: Length: 46.5" (118.1 cm): Dia.: 1.64" (41.7 mm) Wt.: 6.2 pz. (175 g); Recovery: 24" (61 cm) parachute: Fins: Tim Plastic molded: Max. Allitude: 500 ft (152 m): Recommended Engines: D12-5 only

Requires a 3/16' (5 mm) Maxi- launch rod (EST 302244) -

MEAN MACHINE™ EST 1295

kick-in-the-pants "D" power to boot. Its long Jean looks and great searing flights make this one of our most

SPECS: Length: 78 8" (200.2 cm); Dia:: 1.64" (41 7 mm); Wt.: 5.8 oz. (164 g), Recovery: 24' (61 cm) Parachule. Fins: Die cut balsa; Max. Altitude: 600 ft (183 m); Recommended Engine: D12-5 only

Requires a 3/16" (5 min) Maxi¹⁹ launch rod (EST 302244) -



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SA



A.R.V. **CONDOR™**

BULL PUP 12D™

MANIACTM

SR-XTM

TORNADO**

Her amounted for ages 16 years and up. Adult supervision for those under 12: Assumbly, construction supplies, plus, January operations and tright supplies regarded - not included.

MANIAC" ITTE

A.R.V. CONDOR™

TORNADO**

BULL PUP 12D™

SR-X** EST 2115

Mynterious, sleak and dark—the Estea Space Corps: Proper Airora. Uniquely shaped lifting body made from a two-piece neralgorie shall Great performing goder.

SPECS, Length: 18: (46 / 2.cm); Windspain: 11.5* (29 2.cm); Wt. 5.5 or (185 d); Recovery; Glute, Power Pod; 12 (30 cm) Paraching. First Die sur balls, Max. Attitude: 200 ft. (185 d); Recovery; Children Max. Attitude: 200 ft. (185 d); Recovery; Recovery 250 ft (61 m). Recommended Engineer (84-2 (Gref (No)m) 86-2, C5-3, G6-3

LONG SHOT! EST 2128
Never but applied this rocket! Province two stage face A 10 booster/regular upper stage engine combo riga this rocket.

SPECS Langue: 46' (116 8 cm); Dia : 1.38' (34 9 mm) Wt. 5.7 or (161 g): Recovery: Strammer, Final Complications (161 g): Recovery: Strammer, Final Complication resided: Max Attitude: 1300 in (365 m).

Recommended Engines: Single Stage Block: G5-3 (Best Bight): U8-5; Two stage flights: Booster stage - 012-0; Sepond Salige - 86-4 (Best Bight): U6-7 (Bagdins a).

3/16* (5 mm): Maxi^{17*} bluesb tod (EST 502244) -

BLACK BRANT II PS 1958
Boarding 1/12 scan model of a Canadian teacach according missile used in the 1950. High withhole highes on D moines. Breat detailing!

SPECS, Length: 24 57 (63.2 cm); Dist. (1.33 03.3 6 mm); Wt.: 2.3 of (65.9); Recovery; 157 (46.cm) Paraconte: First Dis out hash. Max. Attitude: 1170 0 1357 mg.

BLACK BRANT IIM

LONG

SHOT™



1998 CATALOG PRICE L Items are listed in part number sequence

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Set	Code Red™ RTF Starter Set	1824	4.79	A10-0T Engines (4 pack)	0
	RTF Starter Set	- Allo	4.79	A3-4T Engines (4 pack)	7
	Missie Command™	8181	4.79	1/2A3-4T Engines (4 pack)	4
0	Stardust™ FTF Starter Set	1817	4.79	1/2A3-21 Engines (4 pack)	G
et	Free Fall™ RTF Starter Set	1816	30.56	Mega Maxx™ Starter Set	4
ter Set	Shellshocked ^{IM} RTF Starter Set	1815	29.99	Sabre ^{1M} Starter Set	Cá.
	Recon™ RTF Starter Set	1814	36,99	Space Shuttle™ Starter Set	3
) e	AstroCam® RTF Starter Set	1813	33.89	HeliCat TM Starter Set	-
	Ionizer ^{na} RTF Starter Set	1812	44.09	Designer's Special ^{rM}	
Sel	Tidal Wave™ RTF Starter Set	1811	38.95	Teacher's Starter Set	
	X-Flyers Tar RTF	1806	34.99	Super Shot ^{ria} Starter Set	-
	Asteroid Huntern RTF	1805	32.89	Airwalker** Starter Set	0
	Hyper X TM RTF	1804	31,79	Alpha III® Starter Set	đ
	Red Storm™ RTF	1803	14.79	Comanche-3 ^{rm}	N
Set	Quicksliver™ RTF Starter Set	1800	5.09	Yankee	1 2
	Bulk Pack (12 Pack)		24.39	Phoenix TM	Ö
th THOR	ULL too task Cita-	1798	30,69	Astrocam® 110	77
Bush	Ch 3 Engines Bull Deal S	1785	23.29	Mean Machine TM	ih.
DK	13 aach ner Back)	1784	5.09	Wizardim	22
4 Pack)	86-4 Engines Bulk Pack (24 Pack)	1783	27.59	Space Shuttle***	34
4 Pack)	A8-3 Engines Bulk Pack (24 Pack	1/81	9.99	Alpha III®	ŏ
	(24 Pack)		8,09	Alpha®	ch
H	1/2A3-2T Engines Bulk Pack	1780	5.29	Gnome TM	6
	Bulk Pack (6 Pack)		5.09	Ninja®	12
*	Star Wars X-wing™ Fighter	1773	6.99	Nike Arrow TM	5
ack)	Omtoid ¹⁶ Bulk Pack (12 Pack)	1771	5.49	X-Ray TM	34
ack)	Venom™ Bulk Pack (12 Pack)	1770	3.49	Quark TM	72
Pack)	Mach-12 ^{3M} Bulk Pack (12 Pack)	1769	\$3,19	Mosquitore	ı
ick)	X-Ray™ Bulk Pack (12 Pack)	1768	CIS	ESTES® MODEL ROCKETHY PRODUCTS	ST
	Description	No.	Retail	Description	

Challenge

STAN POST

AstroSat LSX ^{TIM} Gernini DC ^{TIM} Fat Boy ^{TIM} Fat Boy ^{TIM} Fat Boy ^{TIM} Venom ^{TIM} Silver Cornet TM SM-3 Seahawk TM Rattler-7TIM Big Dawg TM Zenix SSRV TM AIM-120 AMRAAM Wildfire TM Super Nova Payloader TM Super Nova Payloader TM Prowler TM Super Nova Payloader TM Super Nova Payloader TM Prowler TM Super Nova Payloader TM Super Nova Payloader TM Prowler TM Super Nova Payloader TM Super Nova Payloader TM Prowler TM Hocket Locator Ignite the Imagination TM Video Science & Model Rockets Curriculum Physics & Model Rockets Curriculum Rockets Curriculum Nathematics & Model Rockets Curriculum Avation & Light Gilders Curriculum Star Wars X-wing TM Fighter Lesson Gulde Bull Pup 12D TM SR-71 Blackbird TM

SESTES.



COMANCHE-3™

TOMCAT"

PHOENIX™

Prod.	C07430	C07440	C09050	C09501	0000	C09800	C09870	C09880	C09890	C90445	C90450	C30469	C90476	000478	030470	C90480		4000	4001	4002	4003	4005	4006		2000	5001	5005	5006	2005	5008	5012		1490	1493	1810	1820	*00*	1822		1823	2102	2103	2104	2142	2143	2144	2147	2500	NCHatta	5020	5021	5022	STE6760	STE6761	C09310	CO9320	COSTON
Sugg.	Hetall	3.69	4.59	2.99	5.79	2.29		2	2.99	3.19	2.29	2.29	3.79	3.89	4.59	4.59	4.99	3,99	3.49	3,79	6.08	4.29	4.49	4.49	5.29	4.59	4,59	3,99	3.99	4.99	4.99	4.99	4.69	000	64.99	44.99	84.99	66.69				41.99		41.99	57.99	57.99	62.79	39.99	57.99	49.99	29.99	41.99	59.99	59,99	6.99	11,99	66.93
	Parachute 12*	Parachute 18"	chute	Recovery Wadding		Shock Cords & Mount Pack	eavy Duly Centering		Model Rocket Igniters (6 Pack)	Launch Lug Pack	CO	cal Pack	Tubes (50 Body Tube	55 Body Tubes	BT-56 Body Tubes (3) BT-60 Body Tubes (3)	-80 Body	T-1090 Bo	Engine Hook Accessory Pack	Mini-Engine Mount Kit	D & E Engine Mount Kit	nes	ones	NC-50 Nose Cones (5 Pack)	ones	ones (4 Pac	NC-60b Nose Cones (2 Pack)	ones (1 Par	One	NC-1090 Nose Cones (4 Pack)	Payload Section PS-20 & PS-50/55	Payload Section PS-55/60	Large Tube Coupler Pack	COX® MODEL PRODUCTS	Tee Dee® .010	lack Wido	Tee Dee® 049	Killer Bee 049	Bee 0	Basic Starting Kit	Deluxe Starting Kit	E-Z Fiver® Aerobat TM	E-Z Flyer@ Cessna Skymaster	E-Z Flyar@ Piper Comanche	Air Beeniath	Comanche Helicopter	Attack Cobra	Texaco .049	Sky Jumper®	Turbo Hawk TM	Bred Gil	E-Z Flyer® Formula One™	Slipstream***	Apache Hellcopter	Cessna	Cessna Classic	Piper
Prod.	302264	302267	302271	302274	302275	302208	302296	302297	302301	302320	302995	302996	303085	303086	303087	303088	303090	303091	303143	303157	303159	303160	303161	303162	303163	303165	303166	303167	303168	303169	303194	303195	303196	001000	C00130	C00150	C00170	C00210	C00350	C00405	C00885	C04060	C04070	C04080	C04100	C04420	C04500	C04506	C04800	C05820	C05840	C06010	C06040	C06050	C07400	C07410	00/450

Sugg. Retall 11.99 6.99		49.96	41.99	59.99	59.98	59.98		6.69.9	357.98	329,99	279.99	251.99	6.70	6.89	9.49	10.59	11.98	9.99		5.99	5.99	5.99	5.99	5.99	7.99	5.99	36 99		8,99	36.99	36.99	36.99	36.99		24.39	00.00	28.59	16.99	16.99	16.99	29.99	TBD	99.99	8.49	8,49	6.49	24.99	24.99	59.99	99.99
Description Piper Cruiser Fun Flyer** Hell Flex Wing Flyer	F8F Bearcat** w/o Battery	& charger	AT-6 Texan TM	Piper J-3 Cub		A1-6 lexan " Bomb Urop	TO BOOTH W/2 Ch	/C Sky Bird** w/2 Ch. Radio	R/C E-Z Bee@ II w/Cobra 2 Ch,	RACIO - 72 MHz R/C Skv Bird™ Glow w/9 Ch		R/C E-Z Bee® Sport w/1 Ch. Radio - 27 MHz	LIGHT GLIDERS	Phantom™	Mirage™	Flight Master®	WhitwingTM	Firestorm™	WEST WINGS	C-130 Heroules F-16 Falcon	Space Shuttle	F-14 Tomcat	Tomado	F-111 Aardvark Cafanult Glider	F-15 Eagle Catapult Glider	SR-71 Blackbird™	X-wing™ Flahter Starter Set	Death Startm Starter Set	Mini X-wing** RTF with Engine	gtw Fig	Vacers the rightering	Y-wing TM RTF Starter Set	Mini X-wing TM - Red Squadron RTF Starter Set	R2-D2™ RTF Starter Set	Star Wars TIE Fighter™ Commemorative	Star Wars X-wing™ Fighter	Star Wars R2-D2** Commemorative	R2-D2** Model Rocket	Death Star ¹ Model Rocket	Vader's TIE Fighter™ Model Rocket	Star Destroyer™ Model Rocket	X-wing TM Fighter Air Powered Rocket Set	High Impulse™ X-wing™ Fighter	Star Destroyer™ Catapult Glider	A-wing Fighter" Catapull Glider X-wing** Fighter Glider	Y-wing TM Fighter Gilber	X-wing** Fighter Control Line	Y-wing TM Fighter Control Line	X-wing** Fighter Control Line Snowspeeder** Control Line	Landspeeder** R/C
No. C07430 C07440 C09050	C09501	10000	C09800	C09870	C09880	COCAAE	C90450	C90469	C90476	C90478		C90480	4000	4001	4002	4003	4005	4006		5001	5004	5005	5006	5008	5009	5012	1490	1493	1810	1819	מקס	1821	1822	1823	2102	2103	2104	2142	2143	2144	2147	2500	NCR3540	5020	5022	5023	STE6760	STE6761	C09320	C09430

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RTF = Ready to Fly

TBD = To be determined.

Prices are subject to change without notice.

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1767		1765		1764	1760	1758		1757	1756	1755	1754	1752	1751	1750	1672	1669	1668	1667	1666	1665	1617	1616	1615	1614	1613	1608	1607	1606	1605	1602	1601	1598	1593	1411
Bull Pup 12D™ Bulk Pack (12 Pack)	(12 Pack)	Performance TM Bulk Pack	(12 Pack)	Generic E2X® Bulk Pack	Loadstar ^{re} Bulk Pack (12 Pack)	Tornado TM Bulk Pack (12 Pack)	(T2 Pack)	Nova Payloader™ Bulk Pack	Alpha® Bulk Pack (12 Pack)	Viking™ Bulk Pack (12 Pack)	Wizard TM Bulk Pack (12 Pack)	Bandit™ Bulk Pack (12 Pack)	Alpha III® Bulk Pack (12 Pack)	Gnome™ Bulk Pack (12 Pack)	Blast-Off® Flight Pack	D11-P Engines (3 pack)	D12-7 Engines (3 pack)	D12-5 Engines (3 pack)	D12-3 Engines (3 pack)	D12-0 Engines (3 pack)	C5-3 Engines (3 pack)	C6-0 Engines (3 pack)	C6-7 Engines (3 pack)	C6-5 Engines (3 pack)	C6-3 Engines (3 pack)	B6-0 Engines (3 pack)	B6-6 Engines (3 pack)	B6-4 Engines (3 pack)	B6-2 Engines (3 pack)	B4-4 Engines (3 pack)	B4-2 Engines (3 pack)	A8-3 Engines (3 pack)	1/2A6-2 Engines (3 pack)	Account at security was a second
81,99	88.58	00 00	80.70	200	138.29	36,99	103.99		62.29	34,09	41.59	87.69	72.29	36.89	35,99	8.79	8.79	8.79	8.79	8,79	5.69	5.69	5,69	5.69	5.69	5.09	5.09	5,09	5.09	5.09	5.09	4,79	4.79	
2131	2120	2129	2128	2127	2125	2124	2122	2120	2116	2115	2114	2112	2111	2107	2105	2097	2096	2092	2091	2086	2078	2077	2075	2070	2061	2060	2026	2008	2004	1960	1958	1949	1948	
Mk-109 Stingray™	Mach tom	Python TM	Longshof™	Sizzier®	AIM-9 Sidewinder***	F-22 Air Superiority Fighter***	Invader™	Venus Probe TM	Sweet Vee™ R/C Rocket Glider	SR-X ^{ru}	Carkscrew ⁿ	Trans Wing™ Super Glider	Mercury Atlas***	Fire Streak TM	Hijax TM	Mantaim	Turbo Copter™	Mongoose TM	Maniacte	Tomcatim	Omloid ^{rat}	Skywinderne	A.R.V. Condor ^{†M}	Ball-Out ^{ria}	Rampage***	Bandit ^{rist}	Athena ^{ria}	Yellow Jacket TM	Tomado ^{rse}	Nova Payloader TM	Black Brant IIIM	Vilding™	Big Bertha TM	
9.99	14 00	16.99	19,99	12.99	11.99	11.99	7.99	21.99	105.99	26.49	11.89	17,99	50.89	11.89	13.79	10.99	9.99	9,99	14,79	17.99	15.89	16.69	13,29	15.59	12.19	10.99	10.59	8.99	5.09	10.59	14,19	4.79	11,89	1000
302260		302244	302243	302241	302233	302232	302231	302227	302220		302218	302215	302205	10/10/	9053	2000	9050	0040	9042	9041	9040		9039	9038	9037	9036	9028	9027		9026		9025	0000	COND
18" Nylon Parachute	Launch Rod	3/16* Two-Piece Maxi TM	1/8" Two-Piece Launch Rod	Blast Deflector Plate	Emergency Repair Kit	AltiTrak™	Fin Alignment Guide TH	Rocket Builder's Marking Guide	Electron Beam® Launcher	Combo	Electron Beam®/Porta-Pad® II	Porta-Pad® II Launch Pad	Safety Cap/Key	9039 (4 each IBM)		9043 (4 each Mac)	According of Model Flockery (may)	Dhucies of Model Bostotic (Mas)	Aerodynamics of Model Flocketry	Introduction to Model Rocketry (Mac)	AstroCad (Mac)	(IBM)	Aerodynamics of Model Rocketry	Introduction to Model Rocketry (IBM)	AstroCad TM (IBM)	Physics of Model Rocketry (IBM)	AstroCad™ (Apple)	Physics of Model Rocketry (Apple)	(Apple)	Aerodynamics of Model Rocketry	(Apple)	Introduction to Model Rocketry	(4 each, Apple)	Account of ODSE ODSE ODS
5,99	6.69		5.29	3,59	7.59	18,89	19.69	5,79	22.29	31.79		18.89	1.79	178.00		178.00	DECT.	14 00	28 50	11.80	-	23,85		11.90	9,50	11.90	9.50	11.90	23,85		11,90		178.00	

COMANCHE-3TM EST 1382
When two stages striply are not enough, try three! A 101 first stage hooster pats things going in a burry Estag highest fiving rocket roars to little high althoughs —

SPECS: Longth: 41 (104) cm); Dia., 9:36 (24.5 cm); Wil: 2.1 or (59.9); Recovery; Streamer; First, Die out bales; Max. Athitude; 2660 ft (811.m);

TOMCATTM EST 2416

SPECS: Length: 21 1 (59 5 cm), Wingspan Swept: 10.25" (26.0 cm); Extended: 18.6" (47.7 cm); WL: 4.1 sz (115 g) Recovery: Gister: First TPH Decour halsa Max. Altitude: 300 ft (91 m)

PHOENIXT EST 1988

missile. Blant full color decal alter! "D" powered for

SPECS; Langth; 30' (78/2 cm), Dia. 2.80' (66.0 mm). WL: 6.5 or (187 g). Recovery, 187 (45 cm) Paradoute. Fins: Die cut balea: Max. Allitude: 350 ft (107 m) Recommended Engine: 012-3 only. Requires a 876" (5 mm) Maxiff Jaunch rod (651 302244)—

SR-71 BLACKBIRD™

Recommended for ages 10 years and up. Adult supervision for those under 12. Assembly, construction supplies, glue, faunch equipment and flight supplies required - not included.

SR-71 BLACKBIRD™ EST 7003 Scale model of the Latest amounted in the world were after 30 years of service. Model features ulmulated "blackfilled" skin details and plastic parts. Great tooking model!

SPECS: Length: 19' (48.3 cm); Dia : 0,98" (24.9 nm); WL 3.2 or (91 g). Recovery, 18' (46 cm) Parachida Recommended Engines: 84-7 (first flight), 85-2, 85-4, 05-5



MERCURY ATLAS™



Level 4 (Masters™ Series)
These kits require a high degree
of modeling involvement from
building to painting to flying.

GLIDING

SPACE SHUTTLE™

r/c glider

FIC Glider

- Rocket-powered, radio-controlled sailplane
- Launch or boost vertically, then gently guide it toward a thermal

MASTERTM SERIES

MERCURY ATLAS MEST 2111

A highly detailed 1/35 scale model of the vehicle that put the first American in orbit, Injection and vacuum formed plastic parts with simulated stanless steel body wrone. Requires removable stabilizer lins for flight.

SPECS: Length: 33 (63.8 cm); Dis.; 3.4 (86.4 mm); WI.; 7.8 oz (220.9) Recovery: Capsule - 12 (30 cm) Parachute: Main body - 24' (61 cm) Parachute; Fins: Die out halsa; Max. Allitude: 250 ft (76 m).

Recommended Engine; D12-3 only
Regulates a 3/16 (5 mm) Maxi^{ros} baunch rod (EST 302244) available separatiol.

SPACE SHUTTLET EST 1284

Accurately detailed in 1/162 scale of America's workhorse space yehicle. Orbitor features glide return; External Tank and SRB's return via 'chuta. Requires removable stabilizer fins for bloth

SPECS: Total Length: [3.6] (34.5 cm); WL: 4.4 oz (124 g); Orbiter Length: 9.0" (22.9 cm); Recovery; Orbiter: Gilder, SR9's/ET; 18" (46 cm) Parachute; Fins: Die cut balse; Max. Allitude: 197 ft (60 m); Recommended Engines; 05-3 (first flight), 66-3

ROCKET-POWERED



ESTES R/C GLIDER

SWEET VEET EST 2116

Launch this glider vertically, then guide it toward a thermal and watch if ty. This model features a blow-moided fuselage and pre-cut feath wing cores and Obeche wood coverings. Kill curries complete with a special plantic mechanical mose. The Sweet Vee¹⁶⁶ requires at feath a two-channel radio with a mini, micro or mid-size serve – R/C equipment NOT included. R/C building and thing experience required.

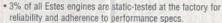
SPECS: Length: 34' (55.4 cm), Wingspan: 55' (139.7 cm), Wing Area: 340 sq. in. (0.22 sq. m). Wit: 16-20 cg. (453-567 g). Max. Allihide: 148 it (45 m), Recommended Engine: 0.11-P grown

Recommended for ages 10 years and up. Adult supérvision for those under 12. Assembly, construction supplies, glue, launch equipment and flight supplies required – not included.

ESTES MODEL ROCKET ENGINES

These are the famous model rocket engines that made model rocketry the safe hobby it is today. They incorporate a safe, intelligent design, manufactured under precise and strict engineering tolerances. Estes model rocket engines have been proven consistent and reliable in more than 300,000,000 launches. They are the key to the outstanding safety record model rocketry has achieved over the past 40 years.

 The concept of a factory assembled model rocket engine is the foundation of this safe, scientific and educational activity!



 All engines comply with the codes of the National Fire Protection Association and are certified by the National Association of Rocketry.



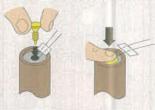
HOW DOES A MODEL ROCKET ENGINE WORK?

 Insert engine into rocket. Insert igniter and igniter plug into engine. Place rocket over launch rod on launch pad, hook igniter clips to igniter. U.S. Patent Nr. 5,509,354



 When launch button is pushed, engine produces thrust and boosts rocket into the sky.

MAKE CERTAIN SAFETY KEY HAS BEEN REMOVED FROM CONTROLLER!





3. After propellant is used up, delay is activated, allowing rocket to coast.



4. After delay, ejection charge is activated, deploying recovery system.

WHAT SIZES ARE AVAILABLE?

Estes engines are available in a wide variety of sizes and power levels:

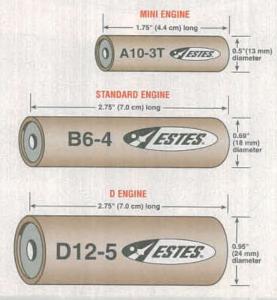
DITTOR CITY	or provided to rough	
TYPE	TOTAL IMPULSE	ENGINE TYPES
1/2A	0.626 - 1.25	Standard, Mini
A	1.26 - 2.50	Standard, Mini
В	2.51 - 5.00	Standard
C	5.01 - 10.00	Standard
D	10.01- 20.00	"D" Size

WHAT DO THE DIFFERENT COLOR ENGINES MEAN?

Each type of engine is printed in a different color:

Single Stage engines are printed green.
Upper Stage engines are printed purple.
(Upper stage engines can be used as single stage engines in lightweight rockets.)
Booster engines are printed red (Booster engines contain no delay or ejection charge.)

Plugged engines are printed black. (They are used for R/C gliders and contain no delay or ejection charge.)



Each engine has a letter-number-number code (e.g. B6-4)
Letter: B Number: 6 Number: 4

TOTAL IMPULSE

Unit = Newton-seconds (N-sec)
This letter indicates the total power the engine produces. Total Impulse is measured in Newton-seconds.
One Newton-second is the total impulse produced by one Newton of thrust for a duration of one second. A "B" engine (5 N-sec) can produce up to 5 newtons of thrust for 1 sec, 10 newtons for 1/2 sec or any combination that equals up to 5 N-sec. (1N = 0.225 lbs.)

AVERAGE THRUST

Unit = Newton
This number tells you the Average
Thrust of the engine during thrustphase. The actual thrust varies
during engine burn. The propellant
may burn quickly giving a higher
average thrust or burn slowly for a
lower average thrust. Generally,
higher average thrust is best for
heavier rockets, lower average
thrust is usually more efficient for
smaller, lighter rockets.

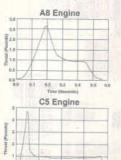
TIME DELAY

Unit = seconds
This number is the
number of seconds
between the end of
the thrust phase and
the activation of the
ejection charge. The
delay allows the
rocket to coast to its
peak altitude before
the recovery system
is deployed.

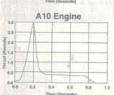
TIME/THRUST CURVES

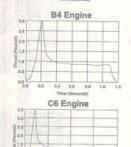
- Time/thrust curves are representative of random production samples.
- Time/thrust curve graphs are shown in pounds (not Newtons).
- Graphs are not drawn to the same scale.



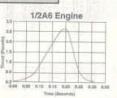


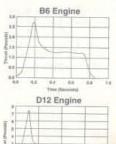












ENGINE CHART

- Delays have a tolerance of plus or minus 10% or 1 second, whichever is greater.
- All Estes engines come complete with igniters and patented Igniter Plugs (Pat. No 5,509,354). The Estes Igniter Plug
 makes engine ignition extremely reliable.
- Do not fly a rocket/engine combination whose maximum lift-off weight exceeds the recommended maximum lift-off weight.

Prod. No.	Engine Type	Total Impulse	Time Delay		lax. Veight	Max Thru		Thrust Duration		tial ight		pellant eight
100		N-sec	Sec.	OZ.	gm	Newtons	Lbs.	Sec.	OZ.	gm	OZ.	gn
SING	E STAGE	ENGINES	(GREE	N LAB	EL)							
1503	1/2A3-2T	1.25	2	2.0	57	8.3	1.9	0.3	0.20	5.6	0.06	1.7
1593	1/2A6-2	1.25	2	2.0	57	11.8	2.7	0.3	0.53	15.0	0.06	1.5
1507	A3-4T	2.50	4	2.0	57	8.5	1.9	0.6	0.27	7.6	0.12	3.5
1511	A10-3T	2.50	3	3.0	85	13.0	2.9	0.8	0.28	7.9	0.13	3.7
1598	A8-3	2.50	3	3.0	85	11.8	2.7	0.5	0.57	16.2	0.11	3.1
1601	B4-2	5.00	2	4.0	113	13.2	3.0	1.1	0.70	19.8	0.29	8.3
1602	B4-4	5.00	- 4	3.5	99	13.2	3.0	1.1	0.74	21.0	0.29	8.3
1605	B6-2	5.00	2	4.5	127	12.1	2.7	0.8	0.68	19.3	0.22	6.2
1606	B6-4	5.00	4	4.0	113	12.1	2.7	0.8	0.71	20.1	0.22	6.2
1617	C5-3	10.00	3	8.0	226	21.0	4.7	1.9	0.90	25.5	0.45	12.7
1613	C6-3	10.00	3	4.0	113	15.3	3.4	1.6	0.88	24.9	0.44	12.4
1614	C6-5	10.00	5	4.0	113	15.3	3.4	1.6	0.91	25.8	0.44	12,4
1666	D12-3	20.00	3	14.0	396	32.9	7.4	1.6	1.49	42.2	0.88	24.9
1667	D12-5	20.00	5	10.0	283	32.9	7.4	1.6	1.52	43.1	0.88	24.9
UPPER	R STAGE E	NGINES (PURPL	ELAB	EL)							
1504	1/2A3-4T	1.25	1.410	1.0	28	8.3	1.9	0.3	0.21	6.0	0.06	1.7
1607	B6-6	5.00	6	2.5	71	12.1	2.7	0.8	0.78	22.1	0.22	6.2
1615	C6-7	10.00	7	2.5	71	15.3	3.4	1.6	0.95	26.9	0.44	12.4
1668	D12-7	20.00	7	8.0	226	32.9	7.4	1.6	1.55	44.0	0.88	24.9
BOOS	TER STAGE	ENGINE	S (RED	LABE	L)			# 4	11			
1510	A10-0T	2.50	None	5.0	142	13.0	2.9	0.8	0.24	6.7	0.13	3.7
1608	B6-0	5.00	None	4.0	113	12.1	2.7	0.8	0.58	16.4	0.22	6.2
1616	C6-0	10.00	None	4.0	113	15.3	3.4	1.6	0.80	22.7	0.44	12.4
1665	D12-0	20.00	None	14.0	396	32.9	7.4	1.6	1.44	40.9	0.88	24.9
PLUG	GED ENGIN	IES -FOR	USE W	/ITH R	/C RO	CKET GI	IDEF	R (BLACK	LABE	L)	To the	L. C.
1669	D11-P	20.00	None	16.0	453	27.6	6.2	1.8	1.55	44.0	0.88	24.93

The data listed above is from randomly chosen production samples. NOTE: The "T" designates a mini-engine.

FLIGHT ACCESSORIES

BLAST-OFF® FLIGHT PACK

EST 1672

Contains 24 engines; 24 igniter plugs, 30 igniters and a pack of recovery wadding. Engines include six each of the A8-3, B6-4, C6-3 and C6-5. Ideal way to have fun on a Saturday afternoon!

RECOVERY WADDING EST 302274

Flame resistant wadding to protect your recovery system. Required in most Estes rockets. Contains 75 sheets – enough for about 18-25 flights!

IGNITERS EST 302301

Dependable, easy-to-use Estes ignifers in a convenient six pack. It is always a good idea to have a few spares.



IGNITERS







LAUNCH ACCESSORIES

ELECTRON BEAM® LAUNCH CONTROLLER EST 302220
Launch controller comes complete with safety key,
continuity light, push button launch button, safety decals,
17 feet (5.2 m) of cable and micro-clips for igniter hook up.
No assembly required! Requires four AA alkaline batteries—
not included.

PORTA-PAD® II LAUNCH PAD EST 302215

Sturdy, bright plastic tripod design with tilt adjustment (up to 30' from vertical). Easy to set up and take down — no tools required! Comes complete with blast deflector and standoff, two-piece 1/8' (3 mm) launch rod, safety cap and key. Porta-Pad® II can accommodate a 3/16' (5 mm) launch rod — not included.

ELECTRON BEAM®/PORTA-PAD® II COMBO EST 302218
Contains a complete Electron Beam® and Porta-Pad® II
launch pad system. Requires four AA alkaline batteries –
not included.

1/8" (3 MM) TWO-PIECE LAUNCH ROD EST 302243 Replacement rod; ideal for most rockets.

3/16" (5 MM) TWO-PIECE MAXI" LAUNCH ROD EST 302244

Launch rod with extra strength and stiffness for larger rockets.

LAUNCH ROD SAFETY CAP AND KEY EST 302205 Always keep an extra one handy!

BLAST DEFLECTOR WITH STANDOFF EST 302241 Replaces that worn-out deflector.

ROCKET BUILDER'S MARKING GUIDE™ EST 302227
Easy way to mark fin and launch lug placement lines, Fits all current Estes body tubes. Marks fins at 90° and 120° apart. The angled ruler measures metric and inches. A pencil holder to mark tube circumferences and a fin gluing jig are also included. Molded out of durable plastic. A must for any rocket builder!

FIN ALIGNMENT GUIDE™ EST 302231

Allows you to position and glue 3/32" (2 mm) and 1/8" (3 mm) thick fins quickly and easily. Designed to fit all current Estes body tubes, aligning fins at 90" and 120". Molded out of durable plastic.

DESIGNER'S SPECIAL™ EST 1453

Design and build your own rockets! Contains nose cones and body tubes for BT-5, BT-20, BT-50, BT-55 and BT-60 designs. Also contains parachute and streamer kits, engine mounts, launch lugs, fin stock, tube couplers, centering rings and much more!

ALTITRAKTM EST 302232

How high did it really go? Next time, measure it with this easy to use device. Follow the rocket in the sights to apogee, release the trigger to lock the reading. Easy-to-read display gives you your altitude in meters along with the elevation angle. Use two Altitraks™ for greater accuracy. Great for school and science projects!

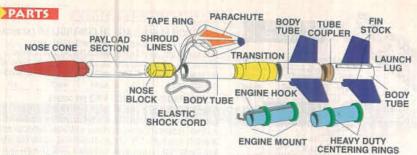
TRANSROC II™ ROCKET LOCATOR EST 2237

On-board sonic unit fits any BT-20 (3/4° or 18 mm) or larger body tube. Unit emits high pitched fone to aid in recovery. Use the directional locating device with the included headphones to make finding your rocket easier. Requires one 9 volt battery and one 6 volt (type 2CR1/3N) battery – not included.

EMERGENCY REPAIR KIT EST 302233

Contains many things you need on the launch pad or to make field repairs on your rockets. Comes in a handy reclosable pouch. Contains: shock cord mounts, tape rings, safety key, recovery wadding, 12' (30 cm) parachute kit, shroud line, launch lugs: shock cords and launch rod safety cap.





Model rocket kits are constructed of lightweight materials such as paper, balsa and plastic. The diagram above shows how parts fit together. Nearly all Estes parts that have the same series description number fit together. For instance, a BT-20 body tube will fit a NC-20 nose cone. An AR2050 centering ring will center a BT-20 into a BT-50.

BODY TUBES

High quality spiral wound paper tubes. Use tube couplers to connect tubes of the same diameter.

Four tubes per package with BT-5 & BT-20, three per package with BT-50, BT-55, BT-60 & HBT-1090, two per package in BT-80.

Product Number	Body Tube Size	Inside Dimension in./mm	Outside Dimension in./mm	Length in./cm				
303084	BT-5	0.518/13.2	0.544/13.8	18.0/45.7				
303085	BT-20	0.710/18.0	0.736/18.7	18.0/45.7				
303086	BT-50	0.950/24.1	0.976/24.8	18.0/45.7				
303087	BT-55	1.283/32.6	1,325/33.7	18.0/45.7				
303088	BT-56	1.304/33.1	1.346/34.2	18.0/45.7				
303089	BT-60	1.595/40.5	1.637/41.6	18.0/45.7				
303090	BT-80	2.588/65.7	2.600/66.0	14.2/36.1				
303091	HBT-1090	0.950/24.1	1.000/25.4	11.0/27.9				

NOSE CONE ASSORTMENTS

Each package of nose cones contains a variety of shapes. Some are one piece, others two-piece. All have eyelets for shock cord and shroud line attachments.

NC-5 Nose Cone Assortment EST 303160

Five cones per pack

NC-20 Nose Cone Assortment EST 303161

Five cones per pack

NC-50 Nose Cone Assortment EST 303162

Five cones per pack

NC-55 Nose Cone Assortment EST 303163

Four cones per pack

EST 302297

Two couplers each for BT-5, BT-20 and BT-50.

SMALL TUBE COUPLERS

PAYLOAD SECTION KITS

Payload Section PS-20 & PS-50/55 - EST 303194

Complete with two clear payload sections (BT-20 and BT-50 size). Fits BT-20 and BT-50-sized rockets -0.74" (18.7 mm) and 0.98" (24.8 mm) diameters plus includes a transition section to fit the BT-50 sized clear tube onto a BT-55 (1.33" or 33.7 mm) body tube. Kit includes plastic bulkheads and instructions. Nose cones not included!

Payload Section PS-55/60 - EST 303195

Large BT-60 (1.6" or 40 mm) clear tube to fit BT-55 and BT-60 size rockets. Complete with bulkheads, transitions and nose cone.

NC-56 Nose Cone Assortment EST 303164

Four cones per pack. Same cone shape, different colors.

NC-60A Nose Cone Assortment EST 303165

Two cones per pack Big Bertha™ and Bailout™ style.

NC-60B Nose Cone Assortment EST 303166

Two cones per pack Mean Machine™ and Tomcat™ (without canopy) style

NC-80A Nose Cone EST 303167

One cone per pack Phoenix™ style

NC-80B Nose Cone EST 303168

One cone per pack Fat Boy™ style

NC-1090 Nose Cone EST 303169

Four cones per pack Bandit™ and Fire Streak™ style

LARGE TUBE COUPLERS EST 303196

Two couplers for BT-55, BT-56 and BT-60; One for BT-80.



Convert your favorite rockets over to carry payloads! Just look for your rocket's diameter in the rocket specs in this catalog. Select the payload section that fits. DOWELS. FIN STOCK & PATTERNS PACK EST 303193

Includes three different sheets of balsa:

• 3" X 12" X 3/32" (75 mm X 305 mm X 2 mm)

* 3" X 12" X 1/8" (75 mm X 305 mm X 3 mm)

* 3" X 12" x 3/16" (75 mm X 305 mm X 3.5 mm);

and two different dowel stock:

• 1/12" X 12" (2 mm X 305 mm)

• 1/8° X 12° (3 mm X 305 mm);

and includes pattern sheets containing many popular fin shapes.

CENTERING RING PACK EST 302296

Heavy duty centering rings for centering tubes in other tubes or for making custom engine mounts. Includes rings that center BT-5 in BT-20 (six each), BT-20 in BT-50 (12 each) and BT-50 in BT-55 (six each).

FLAT CENTERING RING PACK EST 302295

Die-cut card stock rings for centering tubes in other tubes or for making custom engine mounts. Includes instructions and pattern sheet to make paper shrouds for transitions and boat tails. Rings will center BT-20 in BT-50, 55, 56 and 60 and BT-50 centered in BT-60 and BT-80.

ENGINE HOOK PACK EST 303143

Hooks for engine mounts - Fits mini-engines (one each), regular and "D" engines (three each) and 3-1/2" long hooks for special applications (two each). Includes spacer for long engine hooks.

LAUNCH LUG PACK EST 302320

Contains eight 1/8" (3 mm), four 3/16" (5 mm) and two 1/4" (6 mm) launch lugs.

ECALS

-000

Apply these boldly colored decals anywhere - on rockets, model cars, airplanes, notebooks, etc.

Assortment 1 EST 302995 - Water transferable decals with US Flags. military "Stars and Bars", letters and numbers plus more!

Assortment 2 EST 302996 - Self-adhesive chrome foil decais with hatches, cockpits and more!

PLASTIC PARACHUTES

Colorful chutes complete with tape rings, shroud lines, snap swivels (for quick changes) and instructions.

Product No. Parachute Diameter EST 302264 12" (30 cm) 18" (46 cm) EST 302267 EST 302271 24" (61 cm)

NYLON PARACHUTES

Red, ripstop nylon chutes, pre-assembled. Fits rockets with a BT-60 (1.6" or 42 mm) or greater body tube.

Product No. Parachute Diameter EST 302260 18" (46 cm) EST 302261 24" (61 cm)

STREAMER KITS EST 302275

Contains two different types of streamer material: One 2" X 90" (5 cm x 230 cm) red crepe paper and two 1.75" X 36" (4.5 cm X 91 cm) metalized plastic streamers (One gold, one red). Comes complete with snap swivels.

SHOCK CORDS AND MOUNT PACK EST 302278

Contains two 1/8" X 18" (3 X 450 mm), and one 1/4" X 36" (6 mm X 910 mm) elastic shock cords (enough for four shock cords). Includes mounts and instructions.

ENGINE MOUNT KITS

Engine mounts for conversions and original designs. Easy to assemble with complete instructions. Each kit has enough parts for two complete mounts.

MINI-ENGINE MOUNT - EST 303157

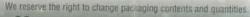
Fits BT-20 tubes. Also can be used to fly lightweight standard engine kits with mini-engines.

STANDARD ENGINE MOUNT - EST 303158

Fits BT-50, 55, 56 & 60 tubes. Plus can be used to make a conversion mount for lightweight D powered rockets.

D ENGINE MOUNT KIT - EST 303159

Heavy duty engine mounts for D engines. Fits BT-55, 60 and 80 tubes.



MODEL ROCKETRY AND EDUCATION

FOR MORE DETAILS AND INFORMATION ON **OUR MODEL ROCKET EDUCATIONAL SUPPLIES.** SEE THE ESTES EDUCATOR™ CATALOG.

MODEL ROCKET BULK PACKS

12 rockets per pack, complete with 12 sets of instructions and extra parts.

ALMOST READY TO FLY (E2X® SERIES)

Omloid™ Bulk Pack (See page 20

Gnome™ Bulk Pack (See page 18 for rocket description)
Alpha III® Bulk Pack (See page 18 for rocket description)
Bandit™ Bulk Pack (See page 16 for rocket description)
Generic E2X® Bulk Pack (pictured at right) EST 1764
X-Ray™ Bulk Pack (See page 21 for rocket description)
Mach-12™ Bulk Pack (See page 20 for rocket description)

for rocket description) EST 1771	
SKILL LEVEL 1 (BETA™ SERIES)	
Wizard™ Bulk Pack (See page 26 for rocket description) EST 1754	
Viking™ Bulk Pack (See page 30 for rocket description) EST 1755	
Alpha® Bulk Pack (See page 27 for rocket description)	
Nova Payloader™ Bulk Pack (See page 27 for rocket description)	

for rocket description)..... EST 1770 SKILL LEVEL 2 (EXPLORER™ SERIES)

Venom™ Bulk Pack (See page 28

fornado'm Bulk Pack (See page 36	
for rocket description)	EST 1758
Loadstar™ Bulk Pack (pictured at right)	EST 1760

Performance™ Bulk Pack (pictured at right) ... EST 1765

Bull Pup 12D™ Bulk Pack (See page 36 for rocket description) EST 1767

PROPELLER DRIVEN AIRPLANE

HI-Lite® Light Glider Bulk Pac	de	
(See page 65 for description)		EST 1786

ANOTHER EXCITING NEW KIT

Star Wars X-wing	Fighter™ Bulk Pack (6 pack	1
(See page 70 for	rocket description)	EST 1773

MODEL ROCKET ENGINE BULK PACKS

Includes 24 engines and igniter plugs, 30 igniters and a package of recovery wadding (enough for 25 flights).

1/2A3-2T Bulk Pack EST 1780	
A8-3 Bulk Pack EST 1781	
B6-4 Bulk Pack EST 1783	
B6-0/B6-6 Bulk Pack (12 each) EST 1784	
C5-3 Bulk Pack EST 1785	

(See pages 42-44 for additional engine information)



SOFTWARE

Learn about the principles of aerodynamics, physics and space flight with these programs. Provided on a 5.25" floppy disk for Apple computers and a 3.5" floppy disk for Mac and IBM compatible computers.

IN SEARCH OF SPACE - INTRODUCTION TO MODEL ROCKETRY™

Covers: flight profile; parts; engine and classification: safety code plus bonus program on multi-staging and igniter installation and function.

Appl	e			224										į			Į,	Ų		ı.			EST	9025
																								9041
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FLIGHT: AERODYNAMICS OF MODEL ROCKETS™

Covers: forces; aerodynamics; stability; drag; center of gravity; center of pressure.

Apple		(a	ı,			J				EST 9026
Mac										
IBM Compatible/Wind	lows		4	Ú					ĺ,	EST 9039

PHYSICS OF MODEL ROCKETRY™

Covers: action; reaction; inertia; momentum; acceleration; energy; staging and satellites

Annl	n																											COT	9027
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ASTROCAD™

Computer program for basic model rocket performance analysis such as: Apogee Determination, Drag and Performance Prediction, Flight Simulation, Rocket Design, Aerodynamic Stability, Optimum Weight and Elliptical fin design. Written by Michael Gasperi

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IBM Compatible	/Window:	\$		215			83			EST	9037



ESTES TEACHER'S STARTER SET EST 1456

Contains a Generic E2X® rocket (Almost-Ready-To-Fly) and an Alpha@ rocket (Skill Level 1).

- . Electron Beam® Launch Controller
- . Porta-Pad® II Launch Pad
- . Glue, sandpaper and razor blade
- . Engines, recovery wadding, igniters and plugs - enough for six launches
- . Teacher and Youth Group Leaders Guide, science and math applications plus moral



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nite the Imagination™							4	0	EST	2794

. Great for Estes model rocketry and space studies. Accompanies the Ignite the Imagination™ Curriculum Guide.

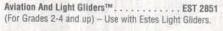
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Science and Model For grades 5-8)	Rocketry™			,	 1.1	EST	2847
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Physics and Mode (For grades 8-10)	Rockets™ EST 2848
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Mathematics and Mo	del Rockets™	 	. EST	2849
(For grades 5-12)				

Industrial Technology and Model Rockets™. . EST 2850 (For grades 6-12)



Ignite the Imagination™ EST 2852 (For Grades 5-8)

X-wing[™] Fighter Lesson Guide[™] EST 2853 (For Grades 5-8)





RUBBER POWERED MODEL AIRPLANE KITS

- Easy to assemble...No Glue
 No Tools...No Sweat!
- . Tough durable construction
- . Foam Justiages and wings
- . Plastic propeller and landing year
- . Cool self-adhesive decals



PIPER 007420 Wingspan: 15' (38.1 cm)

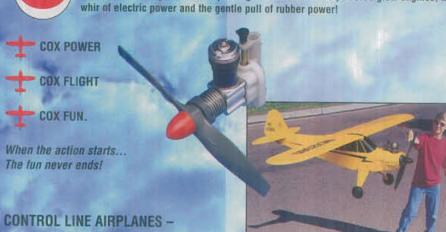
CESSNA CLASSIC 007410 Wingspan: 19" (48.3 cm)

PIPER CRUISER 007438 Wingapan: 19" (48.3 cm)

FUN FLYER* HELI CO7440

This syciling rubber band powered belicopter is easy to assemble. Made from durable foam and plastic community, you can be flying your "whirty britting less than 30 migutes."

SPECS: Skill level: Beginner; Length; 10' (25:4 cm); Rotorspan: 15:25' (38.7 cm)



For over 50 years, Cox has filled the air with the sound of propellers and the fantasy

of flight. Cox brings that fantasy-of-flight to life with nitro powered glow engines, the

CONTROL LINE AIRPLANES – ELECTRIC POWERED

THE ULTIMATE IN READY TO FLY

COX

These Cox control line airplanes are ready to fly right out of the box. Just connect the power lines, plug in a fully-charged Cox Super Power 9.6 volt battery pack and push the button on the Cox exclusive Touch & Go O-handle. Smooth take-offs and three point fandings are as easy as pushing a button. With the Super Power battery pack clipped to your belt, long flight times are no problem.

- · Each plane comes fully assembled and ready to fly out of the box
- · Quiet electric power will not disturb the neighborhood
- · Factory-installed motor assembly
- Just supply battery and charger and you're ready to fly!
 (Super Power 9.6V battery pack and charger not included.)

CESSNA CLASSIC

FUN FLYER™ HELI

PIPER CRUISER

F8F BEARCAT C09501 Wingspan: 19' (48.3 cm) Length: 14.8' (37.6 cm) F8F BEARCAT W/BATTERY AND CHARGER C09561

100CH A GO D HANDLE



Recommended for ages 8 and up.





CONTROL LINE SCALE MODELS

EXTRA 3005 C09880

This is a replica of the world class. FAI Aerobatic Extra 300s. This spectacular model is reproduced in semi-scale detail and features Cox's exclusive Sure Start 1049 engine and complete flying accessories

SPECS: Skill level: Beginner; Length: 17' (43.2 cm); Wingspan: 19.5" (49.5 cm)

PIPER J-3 CUB C09870
One of the most successful full size training planes ever designed is now available in a highly detailed flying model. The Cub features the super reliable Sure Start™ .049 angine. Easy to assemble and fun to fly.

SPECS: Skill level: Beginner: Length: 17" (43.2 cm): Wingspan: 22" (55.9 cm)

AT-6 TEXAN BOMB DROP C09890

You can experience the thrill of flying precision targeting missions and make hits on targets from heights of 20 feet. all from the confines of your own backyard. The bombing Texan comes complete with flying accessories and bomb attachment with safe, featherweight balls.

SPECS: Skill level: Beginner, Length: 15" (38.1 cm); Wingspan: 20.5" (52.1 cm)

AT-6 TEXAN C09800

Modeled after the famous AT-6 Reno pylon racers. Wonderful beginner's airplane. Rubber band pop-apart assembly for the rigors of flight training and racing.

SPECS: Skill level: Beginner; Length: 15" (38.1 cm) Wingspan: 20.5' (52.1 cm)

SLIPSTREAM CO6040

This business jet has you piloting the skies in style. Realistic looking - great flying! Wide wingspan provides a stable flight for beginners and intermediate fliers! Outfitted with the new Cox Sure Start 19 049 engine.

SPECS: Skill level; Beginner; Length; 20.5' (52.1 cm); Wingspan: 22' (55.9 cm)

BACKDRAFT CHEESE

Futuristic pusher design with a stealthy appearance. Unique pop-up fuselage allows safe engine starting. Backdraft^{ru} comes complete with military decals for an authentic look. Powered by the new Cox Sure Start** 049 engine.

SPECS: Skill level: Beginner: Length: 16' (40.6 cm); Wingspan: 18* (45.7 cm)

APACHE HELICOPTER COGOSO

Be a chopper jock with the world's only control-line autogyro helicopter. Highly detailed scale-like design. Exciting flights for beginner to advanced pilots. Rigged with the Cox Sure Start 11 049 engine.

SPECS: Skill level: Beginner; Langth: 18.5" (47.0 cm); Rotor Span: 15" (38.1 cm)

All kits require a Cox 405 or 885 Starting Kit sold separately.



Cox

COX RADIO CONTROL

For exciting andia control action, Cox alters you the engine of either quiet electric limits of the first-succes action of 500 glow-powered engines. You're to charge of the rates who have being our excitative surgic channel Failants. To our more appropriately the extraction of the first surgice of the



HEW

FLEX WING FLYER™

FLY BOYTM

FREE FLIGHT

Other regarded as the purest form of the apert of model airplane it ing. For now others two exciting electric versions. With minimal assembly required, you can be out in the field flying in a matter of minutes without all the complications of radio nonlinit. Simply turn on the intorpath and left the plane do the rest.

COMING THIS SPRING

TURBO HAWK ™

ELECTRIC B/S

Your easiest entry Inte RIC flight. You can fly these electric powered airplanes almost any time or anywhere. All kits come complete with an installed molar, all radio equipment, on-hoard battery area and charger, Requires all AA, all almost halferten for the transmitter and are "B" untip sea the like charger — not included.



R/C SKY BIRDMELECTRIC

COMING THIS SPRING

Recommended for ages 10 and up.

FLEX WING FLYER C08050

A truly economical way to get into R/C flying. Kit comes complete with die cut feam parts. Ni-Cad battery, mutors and radio equipment included.

Wingspan: 28" (71.1 cm) Length: 14" (35.6 cm)

FLY BOY™ 090445

Minimum assembly requirements and a powerfully geared electric motor that starts at the press of a button make the economical Fly Boy^{ne} a natural entry into FIC flight. Includes a fully installed motor drive and Cox FailSate^{ne} radio system. Wingspan: 27° (68.6 cm)

Length: 20' (50.8 cm)

R/C SKY BIRD™ ELECTRIC C98469

Designed as the ideal trainer for people who prefer guest clean electric power, the Electric Sky Bird** comes complete with high efficiency, geared propeller driver system, rechargeable on-board battery pack, battery charger, and proportional two-stick, two-channel radio. The Sky Bird** features a polyhedral wing to allow slow flight and good stability.

Wingspan: 42' (106.7 cm) Length: 31' (78.7 cm)

TURBO HAWK M C05820

Experience the sight and sound of a true jet-type aircraft. Model comes complete with motor, ducted fan unit and Ni-Gad battery pack all installed, includes battery charger Wingspan: 27" (68.6 cm)

Wingspan: 27 (68.6 cm) Length: 22.5 (57.2 cm)

ТОПРЕТАТИТЕ РФФ C05840

The easiest way ever to get airborne. Simply pop on the tail assembly, charge the Ni-Gads and gently release into the breeze.

Wingspan: 20.5" (52.1 cm) Length: 19.1" (48.5 cm)



TOLLYCATION









COX GLOW FUEL ENGINES

Flight flying

and bigger props.

COX ACCESSORIES

two multi-purpose .049 engine wrenches.

Reed valve engines for all-round Control Line, R/C and Free

Tee Dee® engines - precision machined for intense competition

World's smallest production engine for R/C and Free Flight

The ultimate competition engine - ultra high RPM's on small props with high nitro fuel and high compression glow head. Multiple head gaskets allow lower compressions, lower nitro

Reed valve dependability in a miniature package

Contains: 1/2 pint of Super Power Fuel®, fuel filler hose.

Deluxe reusable plastic field box contains: 1/2 pint of

Super Power Fuel®, fuel filler hose, battery case holder for 2 "D" size alkaline batteries (not included), exclusive Cox Starter Stick™, glow head clip and two multi-purpose

battery case holder for 2 "D" size alkaline batteries (not included), exclusive Cox Starter Stick™, glow head clip and

The standard in R/C duration flying in the 1/2A class





TEE DEE® .09





KILLER BEE™ .049

TEE DEE® .010

PEE WEEM .020



.049 engine wrenches.

BASIC STARTING KIT



DELUXE STARTING KIT

COX 90 DAY WARRANTY

For 90 days from the date of purchase, Cox will repair or replace any factory defects without charge. If you find a defect or need replacement parts, please contact the Cox Customer Service Department. If you wish to return a defective part, send only the affected part along with proof of purchase to: Cox Customer Service, 1295 H Street. Penrose, CO 81240. Please do not send the entire model. There may be an additional handling charge if you send the entire model kit.

This warranty applies only if the product is operated in accordance with the enclosed assembly and operating instructions provided with each model. Cox assumes no liability except for the exclusive remedy of repair or replacement of parts as specified above. Cox shall not be liable for consequential or incidental damages. Some states do not allow the exclusion of consequential or incidental damages so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

The above warranty excludes all glow heads used on glow fuel powered models.









StarterSets &

ESTES STARTER SETS

All Starter Sets Include

- . Electron Beam® Launch Controller
- . Porta-Pad P II Launch Par
- Engines and flight supplies for multiple missions
- 4 AA alkaline batteries required not included!

VADER'S TIE FIGHTER™



R2-D2TA

Ages 10 and up. Adult supervision for those under 12.

STAR WARS READY-BUILT READY TO FLY STARTER SETS

Bustooff into the Star Rubs guilary with the pry-tight received The Star Water body to the attribution made at enumers a special edition faunch control registers and a Star Water account to the paracticular Yeal to be made to pump to hybride early to humana, with the second other ready to the Suprace see.

X-WINGT STARFIGHTER ESTABLE

A highly detailed, hely described and painted model of Callet's famous Red 5 X wing. This X wing is the version that Links uses to another to the light imposal Describtor, Field the Force!

SPECS: Skill Level: Ready To Fig. Length: 10.9° (27.7 cm)
Old 1.1 4° (25 mm). Wiegspahl 6.9° (22.0 cm). Wit. 3.5 cd
(90.5). Recovery: 12° (30 cm) assembled paraciate. First.
Plantic moreog. Max. Affillado; 500 ft (152 m). Recomminados
Engines: 86-2 (651 ft gm; 65-1, 66-2 (motodes aix engines).

VADER'S TIE FIGHTER™ ## 1881

Partit Valler's personal stills. This highly detailed and rainted import is a great addition to the Star Ware serves of BTE model rocking.

EPECS: Skill Level Francy To Fly, Longth: penh removable light probe? 25.5° (67.3 mm; Wingapan; 5.75° (54.6 cm). WL: 3.6 m; (107.9). Recovery: 10° (46 cm) assembled pendint. Flas: Plastic modele. Max. Attribute. 570 n (152 m). Recommended Engines: 84-2, 65.2 (fast light), 65-3. GS-3, GS-5-includes; polynomials.

Y-WING™ STARFIGHTER ESTABLE

Empire's Beato Star Ester highly didn't forther come, tully semembed and planted in afficial Star Nove squadron colors.

SPECS: Skill-Level: George To Pry Langth: 14 57 (37.1 cm).
Wingspan 7.97 (26 5 cm), Wt. 4.5 pr. 1122 pr. Resourcy:
127 (30 cm) scientifies percentals. First Plante model.
Max. Allitude: 1999 (91 m) Recommended Engines.
18-27 (800 limits) CS-3 CS-3 (800 limits) are applied.

RED SQUADRON EUT 1822

Known throughout the galaxy for their enecity and wining or to take on the most impossible missions, the Red Squarest entrage. The slocal of the Robel Alliance have you can by the Red Squaren Red 5 or Red 2.7 wind. But of the ministerior power with mission buyly detailed wind X-wing particulars. Only the most multiple detailed wind X-wing particulars. Only the most multiple detailed wind x-wing to the Red Squarest Instance has minister wing attrigues.

SPECS, SRID Level; Figury To Fig. Langth; 5: (15.2 cm); Wildgapan; E: (12.7 cm); Will Usinz (45.g); Recovery Too 36: (90 cm); the source 5 the scenary number. First Plants matthed Rays Allinder 205 (Line m).

Recommended Engineer x10-37 (line) highly scil-47 (mondles four engineer).

R2-D2M BIT THE

Overview of the residual of the 1999 years the residuality of the 1999 that the 1999 the 1999

APECS, Skull Level: Finance to the Length: 8' (20.3 cm).
Dig.: 2.50' (Gip. cm): Wt (3.5c) (55.9). Recovery: 17'
(30.5m) "assembled president Fig.: 7' offic molder;
Max. Attende: 250.0' (75.5t). Recommended England:
(44.2, 86.2, New Hight), CS-3, CA-3 (Autobies als mega-



ESTES STARTER SETS

X-WINGT STARFIGHTER EST 1490

Be Luke Skywalker and fly his X-wing! Easy to build with detailed plastic construction! Parachute recovery. Soars to over 400 feet (122 meters)!

SPECS: Skill Level: 1; Length: 10.9' (27.7 cm); Dia.: 1.4' (35 mm): WL: 3.5 oz (99 g): Wingspan: 8.9" (22.6 cm) Recovery: 12' (30 cm) Parachute Fins: Plastic molded. Max. Altitude: 500 ft (152 m); Recommended Engines: 86-2 (first flight), C5-3, C6-3 (includes two engines)

DEATH START EST 1493

By the Death Star and watch it burst apart in the sky. Multiple pieces return on streamers. Reassemble and

SPECS: Skill Level: 1, Length: 15.5' (39.4 cm); Dia.; 5.0" (12.7 cm), Wt.: 2.3 oz (65 g); Recovery: Streamers and 12' (30 cm) Parachute; Fins; Die cut balsa; Max. Altitude: 156 ft (48 m); Recommended Engines: 86-2 (first flight). C5-3, C6-3 (includes two engines)

READY-BUILT READY TO FLY ROCKET

RED SQUADRON

Luke Skywalker's X-wing™ Startighter EST 1818

Imagine flying an X-wing startighter with this Ready-Built flying model rocket. This highly detailed X-wing leaps off the aunch pad on mini-engine power. Streak through the Star Wars galaxy with your own version of Luke's Red 5 X-wing!

SPECS: Skill Level: Ready To Fly; Length; 6" (15.2 cm) Wingspan: 5" (12.7 mm); WL: 1.6 oz (45 g); Recovery: 36" (90 cm) streamer on the pod; the X-wing tumbles Max. Altitude: 205 ft (62 m); Recommended Engine: A10-37 (includes one engine)

FLYING MODEL ROCKET KITS

Fly the heroic droid of the Star Wars saga, Easy to build with realistic details and graphics.

SPECS: Skill Level: 1; Length: 8.0' (20.3 cm); Dia.: 2.60' (6.6 cm), Wt.; 3.0 oz (85 g); Recovery; 12' (30 cm) Parachute. Fins: Plastic molded; Max. Attitude: 250 ft (76 m); Recommended Engines: 84-2, 86-2 (first flight), C5-3, C6-3

DARTH VADER'S TIE FIGHTER™ EST 2144

Fight the Rebels with Vader's personal attack craft. Molded in highly detailed plastic, Special atmospheric flight probe attaches quickly for flight. Soars to over 500 ft (152 m).

SPECS: Skill Level: 1: Length: 26.5' (67.3 cm). Dia :: 5.75' (14-6 cm); Wt.: 3.8 oz (107 g); Recovery: 18' (46 cm) Parachute; Fins: Plastic molded, Max. Allitude: 250 ft (76 m). Recommended Engines: 84-2, 86-2 (first flight), C5-3, C6-3, C6-5

DEATH START EST 2143

Fly the Death Star and watch it burst apart in the sky. Multiple pieces return on streamers. Reassemble and by again and again!

SPECS: Skill Level: 1; Length: 15.5" (39.4 cm); Dia.: 5.0" (12.7 cm), W1.: 2.3 oz (65 g), Recovery: Streamers and 12" (30 cm) Parachile: Fins: Die cull balas, Max. Alfitude: 156 ft (48 m), Recommended Engines:

STAR DESTROYER (**) EST 2147 A tantastic "D" powered, easy to build, semi-scale model of the work horse of the Empire's fleet. This classic model is sure to

SPECS: Skill Level: 2. Length: 37.1" (94.2 cm), Dia.: Probe-1" (2.5 cm), Span 8" (20.3 cm); Wt.: 8.8 oz (250 g); Recovery: Two 18" (46 cm) parachules, Fins: Plastic molded, Max. Altitude: 185 ft (58 m): Recommended Engine: D12-3 only





CLASSIC COMMEMORATIVE SERIES OF STAR WARS FLYING MODEL ROCKETS

X-WING** FIGHTER EST 2102
Start the Empire with this scale reproduction of the X-wide

Space: Skill Level: 7 Length: 10.9" (27.7 cm); Wingspan-8.9" (22.5 mm) - Wt., 3.5 cr (99.0) | Recovery | 12" (30 cm) | Parachote | Max. Allitude: 500 it (91 m) | Recommended Engine: 08-3 only

R2-D2™ EST-2104

Vivilla own version of the farmer oraid R2-02-1/5 cover kit includes from plainte uitts and e detailed will added we

Special Skill Lavel: 2, Length 9 (22-9,cm); Dia; 3,74 (IS min) Wt. 51 os (145 g), Recovery, 15 (45 gm) Parachene, Max. Attliute: 300 ft (91 m) Recommended Engines: 85-2 (first factor), CG

TIE FIGHTER** EST 2102
Attook his hisbot fleet with your own Imports! THE Enther
of includes highly oscilled plantic pockuli and tidelogic
with molded energy surpose. This version requires a special
atmospheric light probe

Specs; SMII Lovel; 3. Length; 5.4" (157 Cm). Length with probe; 21" (53.3 cm). Whyspan; 5.7" (12.7 cm). WL; 3.8 or (107 p). Recovery; 18" (48 cm) Parachute Max. Altifude; 300 n (34 m); Recommended Engine; 56-3

AIR POWERED ROCKET

X-WING™ FIGHTER EST 2500

Fly your own X-wing using only the power of air. Our are interlocking and easy to assemble. Provides hours of fun for young Rebel pilots

Specs: Skill Level: Almost Ready To Fly, Length: 11.5 (29.2 cm); Wingspan: 8.5' (21.6 cm); Wt.: 0.9 oz (26.0). Recovery: Tumble

WEST WINGS BALSA GLIDERS

X-WING** FIGHTER EST 5022
Fly this key Rebel fighter craft. Hand taunched gliding model printed in Rebel blue ink.

Specs: Wingspan: 10.5" (26.7 cm); Length: 11.5" (29.2 cm)

Y-WING" FIGHTER EST 5023
Add to your Rebel fleet with this lighter. Hand taunched gliding model - printed in Rebal blue ink.

Specs: Wingspan; 7' (17.8 cm); Length: 13.5" (34.3 cm)

STAR DESTROYER M EST 5020

Command your own Star Destroyer against the Rebel firet! Catapult launched gilding model - printed in Imperial black ink.

Specs; Wingspan: 9.5' (24.1 cm); Length: 12.1" (30.7 cm)

A-WINGTO FIGHTER EST 5021
Fly one of the Rebal's fastest fighters. Cataput launched gliding model - printed in Rebel blue ink.

Specs: Wingspan: 6.5" (16.5 cm); Length: 10 7" (27.2 cm)



F& G POWER

FANTASTIC



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