



Ball Aerospace
& Technologies Corp.

Deep Impact

1/18 Scale Impactor Model



Have fun building your own impactor—the 800-pound copper spacecraft that separated from the Deep Impact flyby spacecraft to collide with comet Tempel 1. We recommend this model for builders 12 years old and above.

Your First Look Inside a Comet!

In January 2005, Deep Impact began its six-month journey to comet Tempel 1. Zooming along at 23,000 miles per hour, the spacecraft met the comet about 82 million miles from Earth.

The flyby spacecraft then released the impactor. For the next 24 hours, the impactor guided itself into the comet's path—until the two collided. The impact created a crater about 492 feet wide.

By peering into the crater, the flyby's telescopes and spectrometer viewed what no one has ever seen: the inside of a comet nucleus. For 15 minutes the flyby rapidly captured images and data and transmitted them back to Earth.

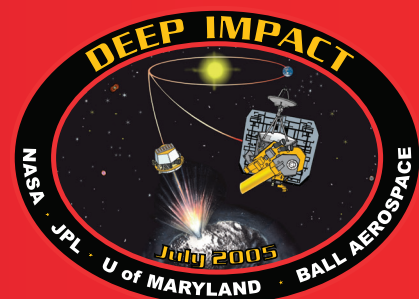
Meanwhile, people on Earth viewed the spectacular impact and the flying debris. The Hubble Space Telescope and other instruments in space also observed this "fireworks show," which occurred on July 4, 2005.

Comets formed 4.5 billion years ago when the solar system was forming and have changed little since then. Thus this incredible NASA mission has provided clues about our solar system's origins.

To read more about Deep Impact's science and technology, and the people who made it happen, go to

<https://solarsystem.nasa.gov/deepimpact/index.cfm>
www.ballaerospace.com

Or search for key words: Deep Impact home page



Impactor Instructions

Tools You'll Need

- Small scissors with 1–2 in. blade or a mat knife with a new blade
- A scribe (available at hobby stores) or large sewing needle (or you can use the back of the mat knife)
- Metal ruler
- White glue for best results (a glue stick can be used)
- Wax paper
- Heavy book
- Cutting board or cardboard

General Techniques

▪ Scoring

BEFORE cutting out the parts, you must score them. Scoring slightly weakens the paper, making it easier to fold. To score:

- Lay the part page on a cutting board or cardboard to protect your furniture.
- Find where a fold is marked on the part with a dashed line (---).
- Carefully line up the ruler with the dashed line.
- Use a scribe, sewing needle, or the back of the mat knife to gently draw along the ruler.

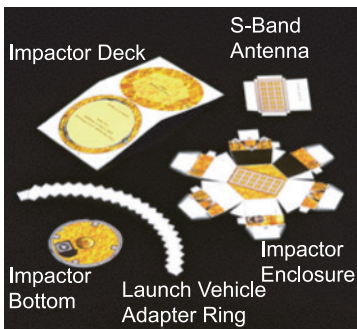
▪ Cutting

Carefully cut out the parts with scissors or with a mat knife and ruler.

Caution: *Mat knives are extremely sharp!*

▪ Folding and Gluing

BEFORE gluing any parts, fold them and check their fit. Then apply glue sparingly; too much glue will warp the parts. You may want to apply glue to very small parts with toothpicks.

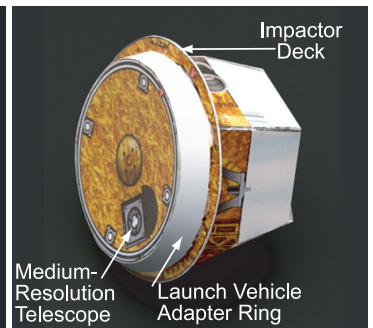
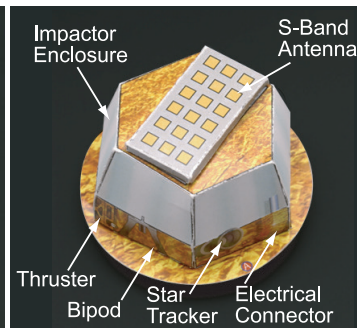
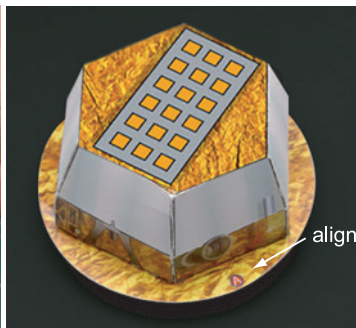


1. Score the folds, then cut out all the parts. **Important:** Leave some white space around the **impactor deck** as you cut it out. Fold it, then glue the two halves together. Wrap it in wax paper, and press it in a heavy book overnight. Then trim it to the black edge as marked.

2. Glue the ends of the **LV adapter ring** together, then fold all of the pointed tabs in.

3. Glue the **impactor bottom** to the smaller diameter side of the LV adapter ring. Let dry.

4. Glue the impactor deck to the larger diameter side of the LV adapter ring—being careful to align the A and B letters on the deck with those on the impactor bottom. Let dry.



5. Apply glue to the **impactor enclosure's** tabs, then form its sides as shown. Let dry.

6. Glue the enclosure to the top of the impactor deck, aligning the A and B letters. Let dry.

7. Glue the **S-band antenna** on top of the impactor enclosure.

8. Here's the finished impactor.

You've done it—you've built the Deep Impact impactor! Display your model by hanging it or mounting it on a stand.



Deep Impact 1/18 Scale Impactor Model

Launch Vehicle (LV) Adapter Ring

Fold pointed tabs in toward middle of ring.

Score along edge, then fold tabs.

Impactor Enclosure

score & fold

Score and fold all the glue tabs and panels like this one.

S-Band Antenna

score & fold

score & fold

Impactor Bottom

When gluing, align letters on the deck with those on the impactor bottom.

Trim glued circles to this edge.

Glue the larger diameter side of the LV Adapter Ring here

score & fold

Glue Impactor Enclosure here

Impactor Deck

Leave some white space around the impactor deck as you cut it out (see instructions).