

The TIMED Mission

TIMED stands for Thermosphere, Ionosphere, Mesosphere, Energetics and Dynamics - a spacecraft to explore one of the last frontiers in Earth's atmosphere. TIMED is the first mission in the National Aeronautics and Space Administration's (NASA's) Solar Terrestrial Probes (STP) Program at Goddard Space Flight Center.

The TIMED mission will help scientists understand how our activities and the Sun affect Earth's atmosphere. The TIMED spacecraft will study the least explored and understood part of our atmosphere, which is located approximately 40-110 miles (60-180 kilometers) above the ground. These layers of our atmosphere are called the Mesosphere and Lower Thermosphere/Ionosphere, or MLTI.

The spacecraft has four instruments, which will team with ground-based instruments located all over the world. Together they will study the atmosphere's temperature, pressure, winds and chemical make up, just to name a few things. The TIMED mission will set a standard for future studies of this part of our atmosphere. TIMED was designed, built and will be operated for NASA by The Johns Hopkins University Applied Physics Laboratory in Laurel, Md.

TIMED Spacecraft Mobile



To learn more about TIMED, visit
www.timed.jhuapl.edu and <http://stp.gsfc.nasa.gov>

Mystery Word Search

Use the words in the WORD LIST to help you fill in the missing letters for the words numbered 1-10. Use the letters we have given you as clues. When you have filled in all the words, see if you can find a secret word by looking at the letters in the shaded column.



WORD LIST

Aurora
Earth
Meteor
Solar
Space
Shuttle
Satellite
Rocket
Spacecraft
TIMED

Writing Prompt

NASA's mission TIMED will provide scientists with new information about our atmosphere.

Using the information provided, write a brief description of this mission for your school news program. Describe in your own words how it will benefit scientists on Earth. Include your own personal thoughts about the science of the mission. Check for clarity, punctuation, and grammar.



TIMED Mobile

OBJECTIVES

- Students will read to be informed about NASA's mission TIMED.
- Students will follow given directions to construct a TIMED mission mobile.
- Students will write about the TIMED mission.

MATERIALS NEEDED

Scissors
Hole Punch
Sewing Thread or Yarn
Glue Stick

INSTRUCTIONS

Adult supervision suggested.
Please read all instructions before starting.
Estimated time: 1-1/2 hours.

Hanging Images

- Cut out all of the images along the outside black lines.
- Match sides A and B of the images and glue them together.
- Hole punch the "white dots" on glued images.
- Tie a piece of thread through the punched hole in each of the images.

Mobile Hangers

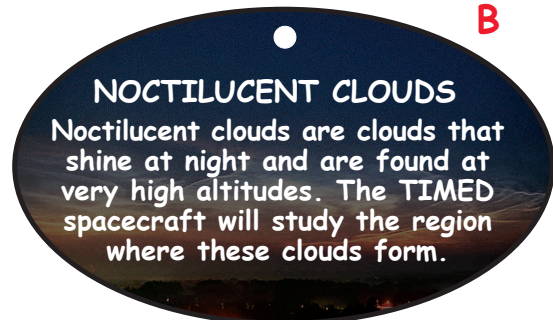
- Cut out both **MOBILE HANGER A-1** and **A-2**. Glue the white sides of these 2 pieces together. Punch holes in the white circles.
- Cut along the white line in the middle of **MOBILE HANGER A**. Repeat all these steps for **MOBILE HANGER B**. Now that you have both of these hangers cut out and glued together, slide the cut line of **MOBILE HANGER B** over the middle of **MOBILE HANGER A** (see mini example of mobile above right). This forms a criss cross that supports the mobile images.
- Attach images to the **MOBILE HANGER** keeping the **TIMED SPACECRAFT** image for the middle.
- To check for balance, shift images as necessary.



CLOUDS A



CLOUDS B

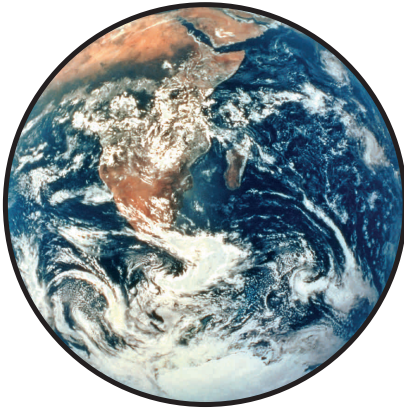


NOCTILUCENT CLOUDS

Noctilucent clouds are clouds that shine at night and are found at very high altitudes. The TIMED spacecraft will study the region where these clouds form.

Photo courtesy of Oscar van der Velde

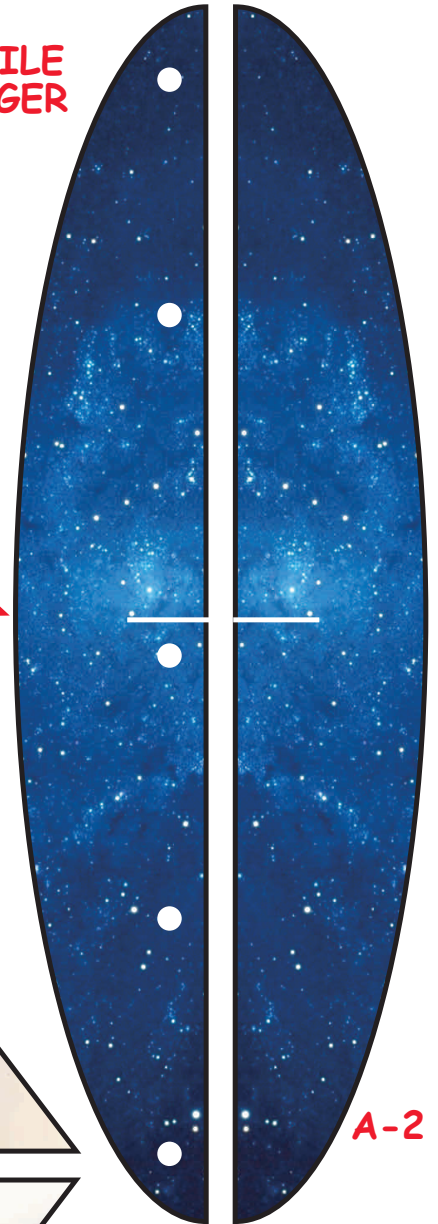
EARTH A



EARTH B



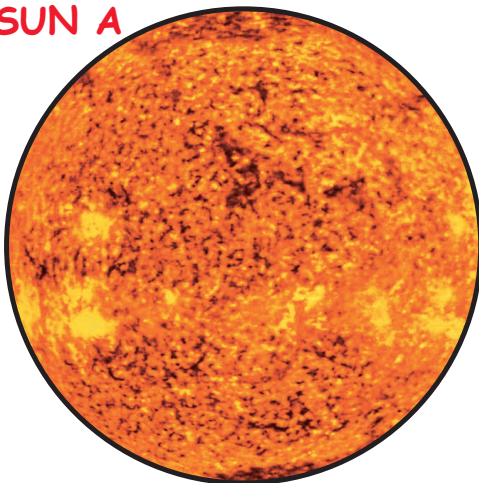
MOBILE HANGER A



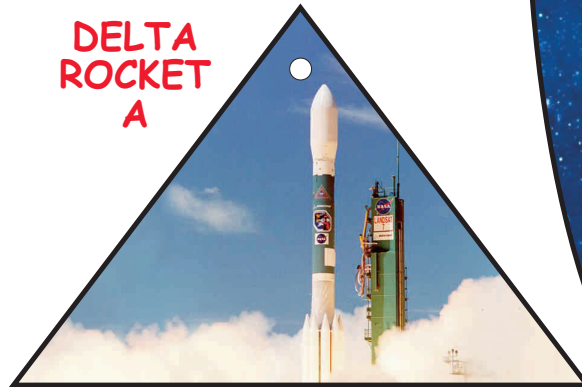
A-1

A-2

SUN A



DELTA ROCKET A



answer: almost as big as a 10-story building
Rocket. How tall is the rocket?
from California on a Delta
into space on a rocket.
TIMED will be launched.
Satellites are launched

THE
DELTA
ROCKET

Photo Courtesy of The Boeing Corporation

DELTA ROCKET B

SUN B



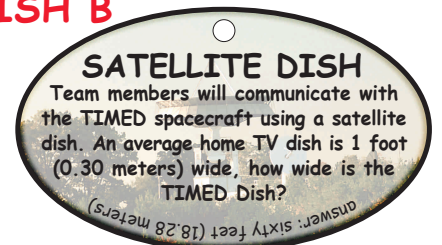
MOON A

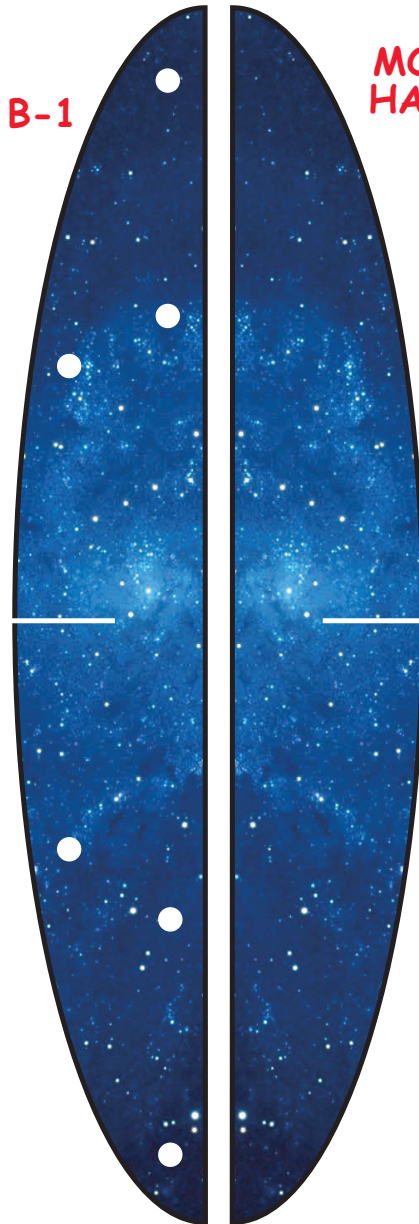


SATELLITE DISH A



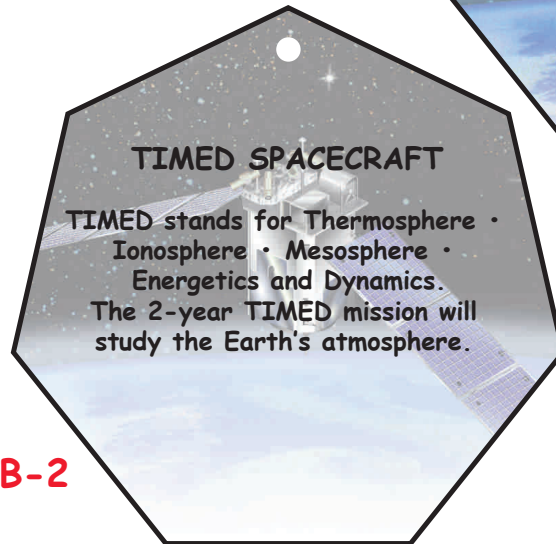
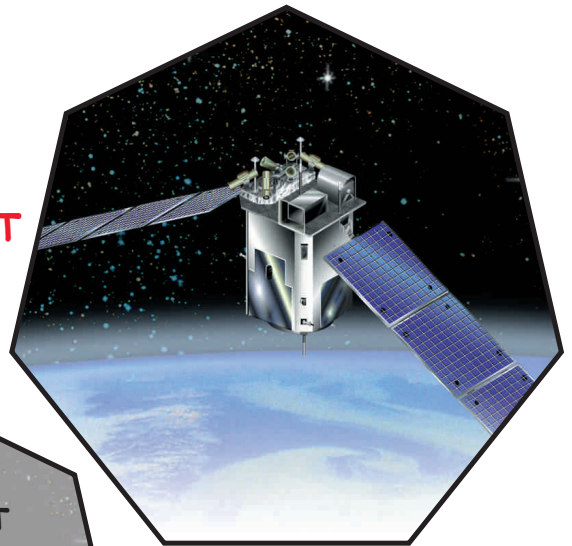
SATELLITE DISH B





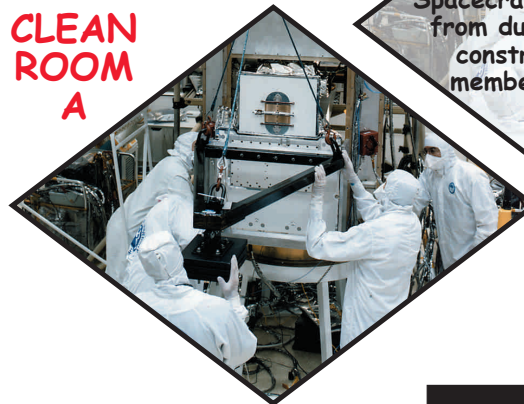
**MOBILE
HANGER
B**

**TIMED
SPACECRAFT
A**



**TIMED
SPACECRAFT
B**

**CLEAN
ROOM
A**



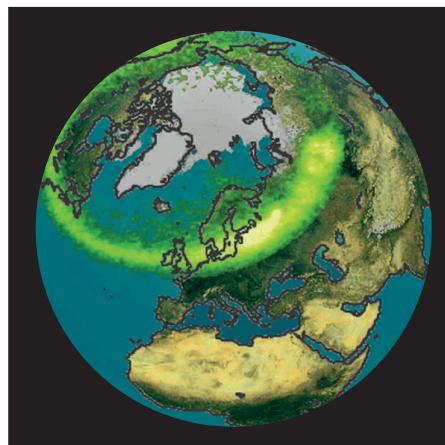
**CLEAN
ROOM
B**



MOON B



AURORA A



AURORA B

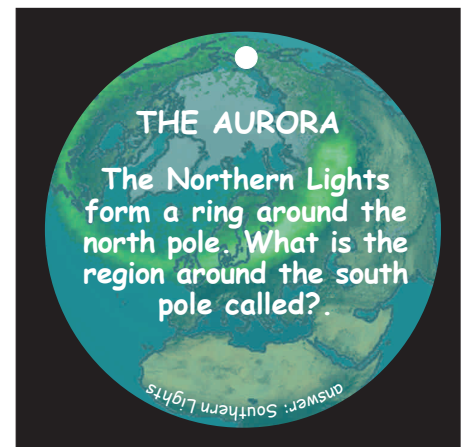


Image provided by the University of Iowa's Visible Imaging System (VIS) onboard the NASA Polar spacecraft.