

Read

Making Space Affordable

"One of my personal goals is to demythologize space, to make space operations commonplace, and that means reducing costs," says Dr. Antonio L. Elias, the former assistant professor of aeronautics and astronautics at the Massachusetts Institute of Technology who heads Orbital Sciences Corp.'s Pegasus design team.

"For example, I can see a network of little twenty-pound microsattellites to detect distress calls from people in remote locations worldwide."

A Pegasus could launch several of these satellites in one shot.

"I see the end of space science in this country produced by the length of time and the amount of money it takes nowadays to launch anything into space. People used to be concerned that space-science experiments took longer than a graduate student's thesis time span. Now, even deans of engineering wonder if they should risk their careers on a project that may not produce any useful results in their lifetime. We are into an awful spiral where there's no motivation or incentive to do any space science.

"I would like to bring back the couple-of-million-dollar-twenty-four-months-from-cradle-to-grave-space-science experiment: from designing the experiment to getting and publishing the data in the journals in two years.

"The next logical step would be to attack the high cost of medium-size rockets, not by using exotic technology, but by being unconventional. Maybe the answer is in concentrating the expensive guidance and electronic parts of the rocket on reusable modules that can be returned to Earth. This is easier said than done, but it can be done."

Task

After reading the text, answer the following statements. Tick the right completion.

1 Communications will improve by using

- a small satellite network
- the Pegasus
- the appropriated electronic parts

2 An advantage of using the Pegasus is that

- it is less risky
- distress calls can be detected
- it can launch more than one microsattelite each time

3 Not many scientists study space because

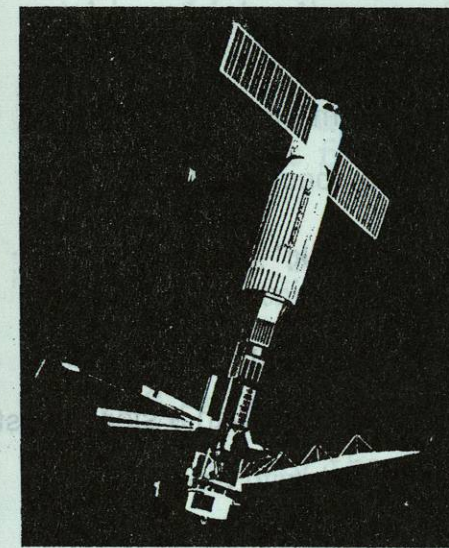
- experiments take a lot of time and money
- it is a very difficult field
- there's no government support

4 Up to now the problem with medium-sized rockets is that

- they are very expensive
- few parts of them are reusable
- they can't be produced on an industrial scale

5 Costs can be reduced by

- not using medium-sized rockets
- eliminating unnecessary processes
- re-using parts of the rockets



An artist's rendition of Seasat 1, which mapped ocean characteristics worldwide 16 years ago. Courtesy NASA.

Words at work

Task

Tick the expression that conveys the same meaning

1 "to demythologize space "

- confront mythology with science
- eliminate legends about gods from outer space
- change people's attitude toward space

2 "to demilitarize space"

- free the outer space from organized military control
- equip and prepare the outer space for war
- fill the outer space with militarism

3 "to dehumidify the space module"

- moisten the space module
- remove moisture from the space module
- make the air in the space module humid

4 "to decalcify the astronaut's tank"

- remove calcium from the astronaut's tank
- cover the astronaut's tank with a stony substance
- fill the astronaut's tank with calcium

5 "to demagnetize the tools"

- give magnetic properties to the tools
- reinforce the magnetism of the tools
- deprive the tools of magnetism

Skill: Use of dictionary.

Task 1a

You have already read this paragraph in the reading (4) text. Read it again.

"I see the end of *space* science in this country produced by the length of time and the amount of money it takes nowadays to launch anything into *space*."

Now, read this entry from the dictionary. It gives several meanings for the word "*space*" Which of these meanings is the one used in the text?

Answer: _____

Belgium], 1. a mineral spring. 2. any place, especially a resort, having a mineral spring.

space (spās), *n.* [ME.; OFr. *espace*; L. *spatium*], 1. distance extending without limit in all directions; that which is thought of as a boundless, continuous expanse extending in all directions or in three dimensions, within which all material things are contained. 2. distance, interval, or area between or within things; extent; room: as, leave a wide *space* between the rows; hence, 3. (enough) area or room for some purpose: as, we couldn't find a parking *space*, put your answers in these *spaces*. 4. reserved accommodations, as on a train or ship. 5. interval or length of time: as, too short a *space* between arrival and departure. 6. the universe outside the earth's atmosphere: in full, **outer space**. 7. in *music*, an open place between the lines of a staff. 8. in *printing*, any blank piece of type metal used to separate characters, etc. 9. in *telegraphy*, an interval when the key is open, or not in contact, during the sending of a message. 10. [Obs.].

Task 1b

You have also already read the following paragraph:

"One of my personal *goals* is to demythologize space, to make space operations commonplace, and that means reducing costs," said Dr. Antonio L. Elias.

Oral practice

Task


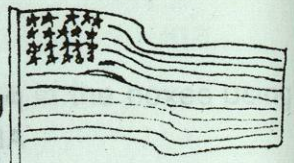



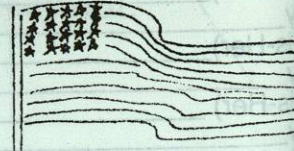
You are student B. Share information with a partner (student A) by asking the following questions (see page 45)

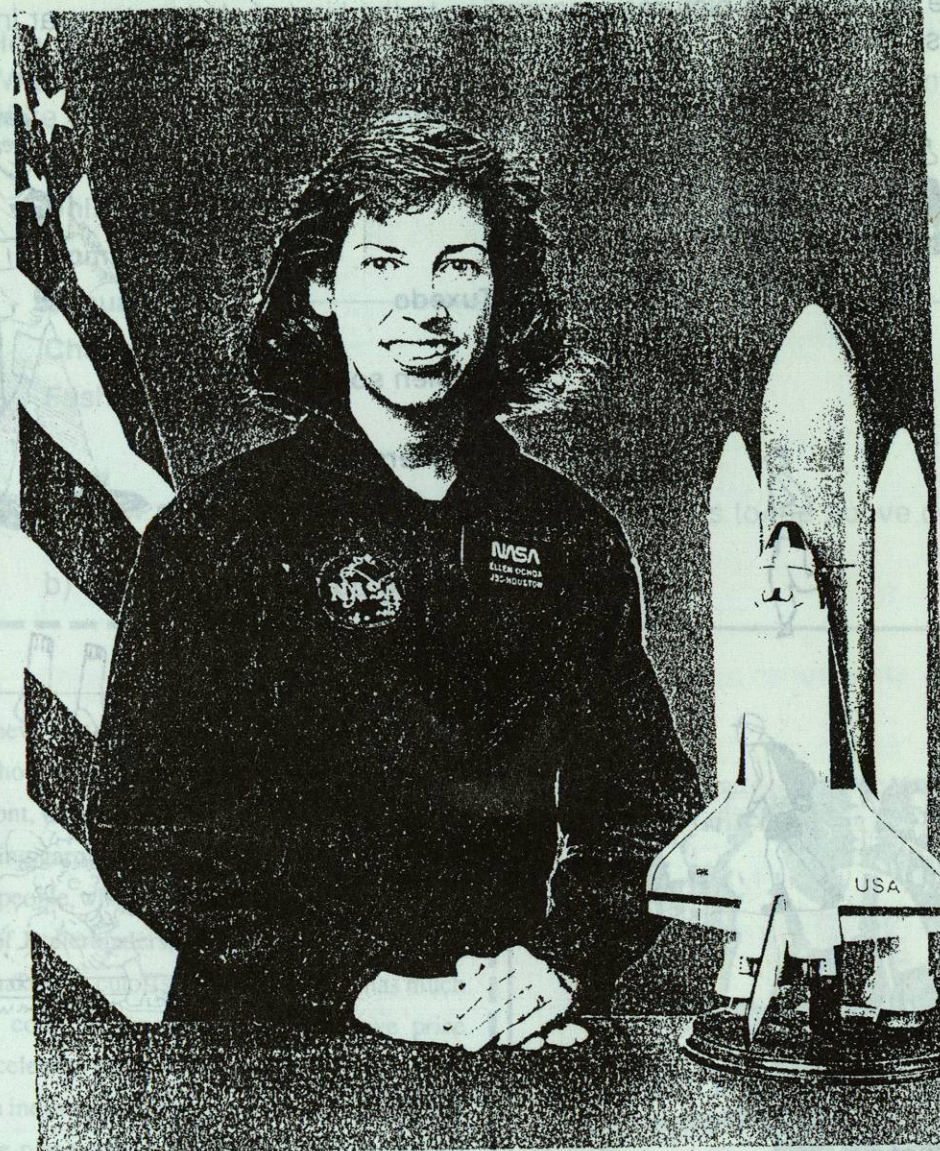
INFORMATION

- Name
- Origin
- Job
- Age

QUESTIONS

- Who's number 1? (2,3,4,)
- Where's he/she from?
- What's his/her job?
- How old is he/she?

#1 ?	 ASTRONAUT #1  Neil Armstrong born in 1931
#2 ?	 ASTRONAUT #2  Yuri Gagarin born in 1930 Russia
#3 ?	 HARVARD UNIVERSITY ASTRONOMER #3  Betty Smith born in 1942



Doctor Ellen Ochoa
First female American astronaut of Mexican descent.