Components of the Space Exploration
Chapter 10

Target	With Help	On My Own	Teach It
1. I can compare rockets to jets and explain how rockets escape Earth's gravity.			
2. I can list ways in which satellites are used.			
3. I can identify the first satellites launched, men in space, the first moon landing and the countries related to each.			
4. I can compare and contrast these space probes (orbiters, flybys, and landers) to identify their advantages and limitations including why we use them to explore the solar system instead of manned missions.			
5. I can give general information about the history of manned missions like Mercury, Gemini, Apollo, and the Space Shuttle.			
6. I can list benefits to humanity that the space program and its technology have provided.			
7. I know general information about current missions including ISS, LRO, Juno, Curiosity, Orion, Hubble, Dawn, Cassini-Huygens, New Horizons, and Rosetta/Philae.			

Know the following 16 terms' definitions. As always, knowing the terms will enable you to answer other questions besides definitions.

Rocket (p. 400)

Satellite (p. 401)

Sputnik 1 (p. 401)

Explorer 1 (p. 401)

NASA (p. 401)

Orbiters (p. 402)

Landers (p. 402)

Flybys (p. 402)

Space Probe (p. 402)

Lunar (p. 402)

Project Apollo (p. 403)

Space Shuttles (p. 403)

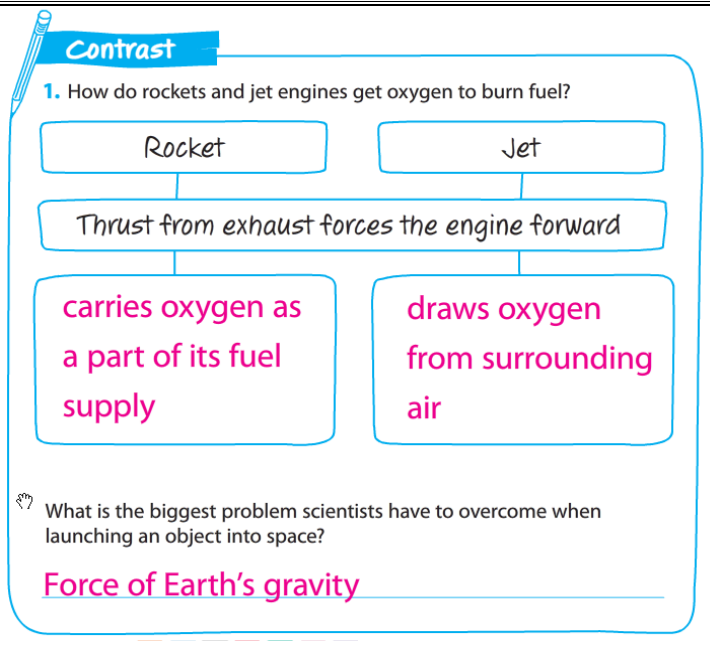
Extraterrestrial life (p. 415)

Astrobiology (p. 415)

Mercury – the first human spaceflight program of the United States, its goal was to put a man into Earth orbit and return him safely, ideally before the Soviet Union

Gemini – the objective was to develop space travel techniques to support Apollo's mission to land astronauts on the Moon

Target 1:



Target 2: List at least 3 military navigation and to gather information, transmit television and telephone signals, monitor weather and climate, navigation with GPS

Target 3:

1st Satellite **Sputnik 1 in 1957** from **Soviet Union**

1st American Satellite **Explorer 1 in 1958**

1st Man in space: **Yuri Gagarin in 1961** from **Soviet Union**

1st American in Space **Alan Shepherd (a few weeks after Yuri Gagarin)**

1st Man on moon **Neil Armstrong** date **July 20, 1969**

Target 4:

	Flyby do not orbit or land, but flyby its destination and continue out into space	**Orbiter** Captured in the gravity of its destination and stays in orbit until it runs out of fuel/energy	**Lander** Touch down on the surface of the destination and often send out rovers for data gathering
Advantage	Distance traveled is far	Can see all sides of its destination	Can study the terrain of the destination
Limitation	One pass, one part of destination observed	Can only orbit from a certain distance	Could be damaged in its decent, expensive

Why use these probes instead of manned missions? Sending probes rather than manned missions is both safer and cheaper. Because outer planets are so far away, it takes many years for our probes to reach them, travel at such great speeds and send back information. That is one challenge we have in exploring the outer reaches of the solar system.

Target 5:

D Apollo Missions

E Apollo 11

A Apollo 13

C Challenger

F Columbia

H Gemini Missions

B Mercury Missions

G Space Shuttle

a. Known as the successful failure

b. Was the first human spaceflight program of the United States, its goal was to put a man into Earth orbit and return him safely, ideally before the Soviet Union.

c. Space shuttle that exploded just after take-off with a teacher (Christa McAuliffe)

d. A series of space missions designed to send people to the moon.

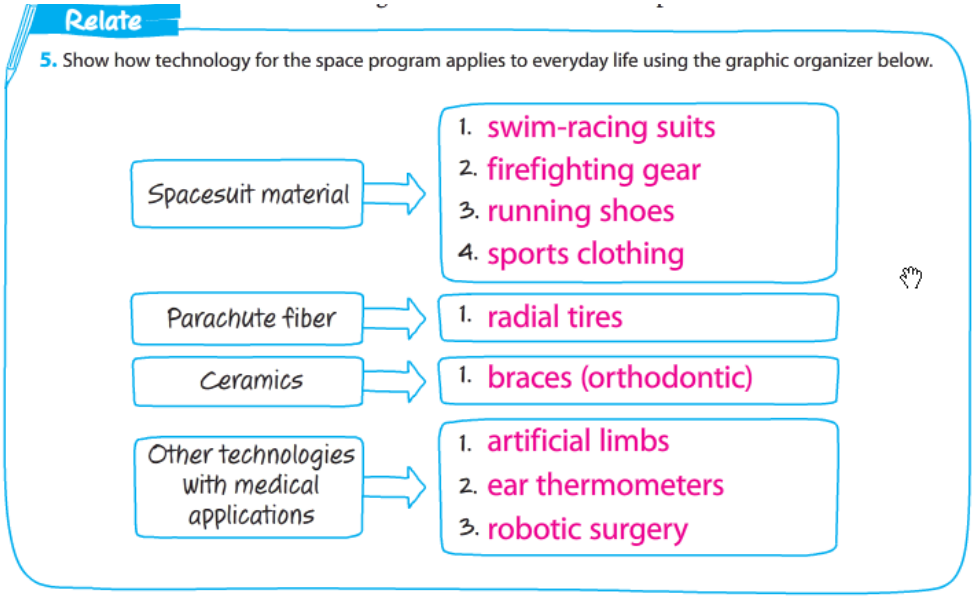
e. First mission when man walked on the moon

f. Space shuttle that exploded on re-entry

g. Reusable spacecraft that transport people and materials to and from space

h. Its objective was to develop space travel techniques to support Apollo's mission to land astronauts on the Moon

Target 6: Read page 404 too!



Target 7:

See Space Missions Chart Answers