

Earth Satellites - Activities (Ages 16-18)



Today we are going to investigate:

- How do we identify satellites in the night sky
- What are satellites used for
- How are satellites powered
- How many satellites are in orbit

Activities

1

Using Night Sky you can see satellites moving through the night sky. We see them because sunlight reflects off them making them shine. You can tell them apart from stars because they move across the sky over several minutes. Start up Night Sky and watch the Sky View to see if you can identify any satellites.

Question: Do you think satellites can be seen in the daytime?

2

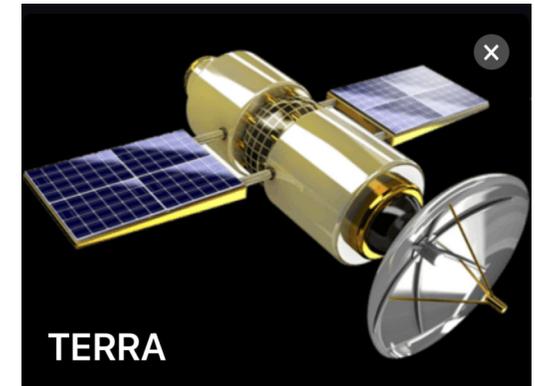
Satellites are used for many different purposes such as weather forecasting, science research, communications and navigation. Using Night Sky you can identify different satellites and find out what they do. Let's see an example. Use the search box to find a satellite called Terra. Tap on the search results to find out more about this satellite.

Question: What is the Terra satellite's mission?

3

Now search for the Hubble Space Telescope (HST). Click on the results to bring up the HST information panel.

Question: How many minutes does it take for the Hubble Space Telescope to orbit Earth?



Directions		
NORAD ID	20580	The Hubble Space Telescope (HST) is a space telescope that was launched into low Earth orbit in 1990 and remains in operation. Although not the first space telescope, Hubble is one of the largest and most versatile and is well known as both a vital research tool and a public relations boon for astronomy. The HST is
Int'l Code	1990-037B	
Perigee	556.3 km	
Apogee	560.4 km	
Inclination	28.5 °	
Period	95.7 minutes	
Semi major axis	6929 km	

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4 Click on the blue Directions button and Night Sky will automatically take you to the current location of the HST in Sky View. Tap once on the HST to bring up its orbital path. Place two fingers around the satellite and spread them apart to zoom in on the HST.

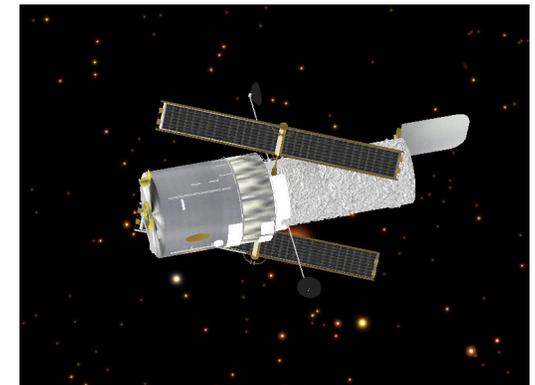
Question: How do you think it is powered?

Question: What do you think happens when it goes into the Earth's shadow?



5 In 1957 the first satellite Sputnik 1 was launched. Since then thousands more satellites have been launched and lots of space junk and rocket bodies have been left in orbit. To view how much go to the app's Preferences section and first select Show Rocket Bodies to see how the view changes. Then select Show Starlink Satellites and see how many you can see.

Question: Can you think of any potential problems the large quantity of satellites and space junk could cause?



What we have discovered:

- Satellites can be seen in the night sky from Earth
- Satellites fulfil many useful purposes
- Most satellites are solar powered
- There are thousands of satellites and pieces of human-made debris in orbit

