



## Study of Earth from Space

Introduction: Have you ever wondered what it would be like to see Earth from space? Astronauts who live and work on the International Space Station have this view every day! The International Space Station is a scientific laboratory located 240 miles above the Earth's surface. Astronauts spend their time at the station performing science experiments, improving the station through construction projects, and exercising 2 hours a day to maintain health in a low gravity environment.

Scientists use information collected from other satellites orbiting the Earth to monitor signs of the Earth's health, such as air temperature, ice cover, sea level, and more. Smoke from large forest fires and ash from volcanic eruptions can also be seen from space! What would you like to see from space? Are

there any lakes, mountains or other areas that you have visited in person and would like to see from the international space station?



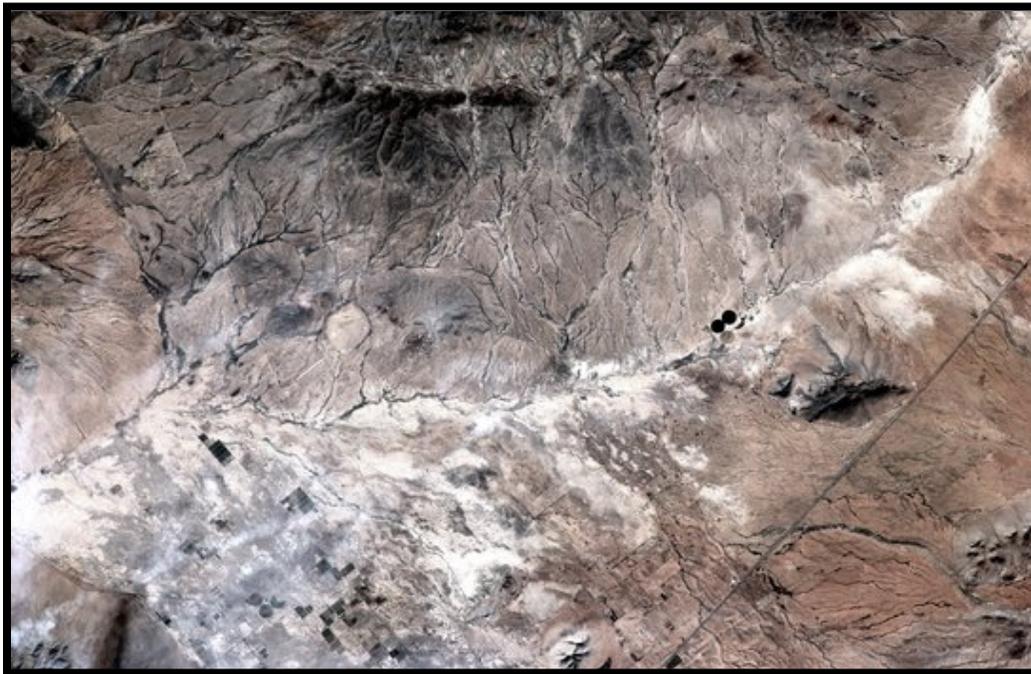


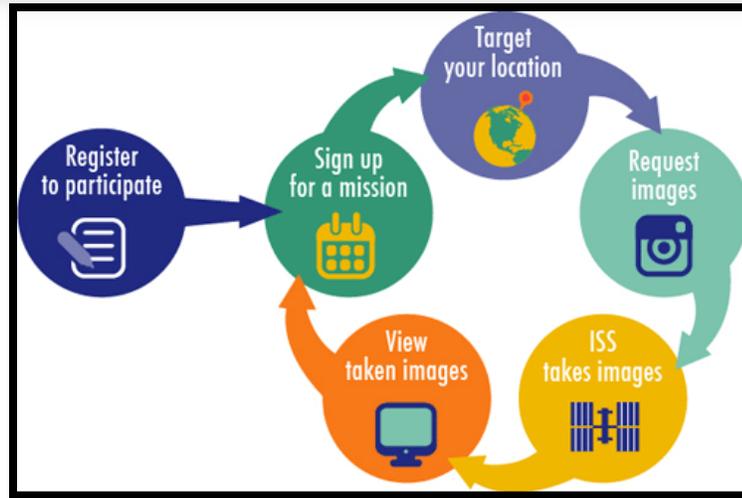
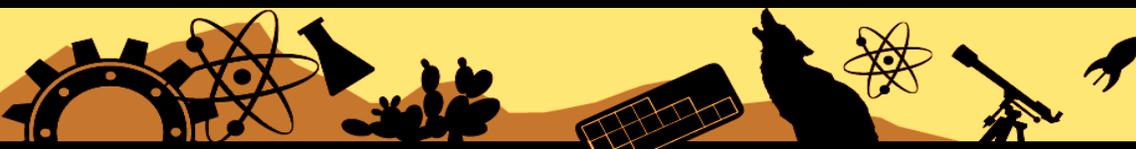
## **Activity: Taking Pictures of Earth from the International Space Station**

**Introduction:** In 2011, a new camera was installed on the International Space Station to take and download pictures of Earth requested from students. The StrengthBuilding Partners mentoring program has signed you up for the next NASA EarthKAM (Earth Knowledge Acquired by Middle school students) mission!

**Your task in the mission is to work with your mentor to identify important areas on Earth that should be photographed at the space station.** What you could learn about your community, city, and even state from space? What could you learn about river systems, lakes or the ocean? Would you be able to identify large mines or farmland? Do you think you can spot signs of human life from space?

Here is a photograph from a previous mission. Can you spot waterways, different soil types or even agricultural plots?



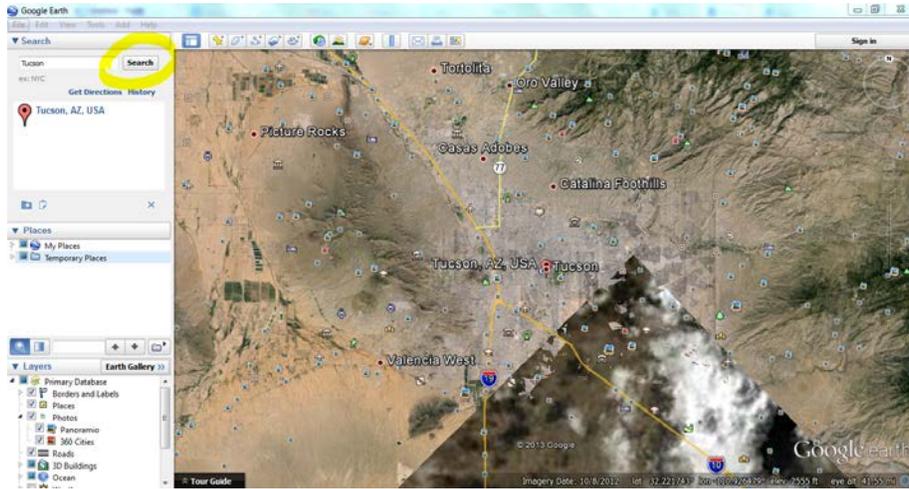
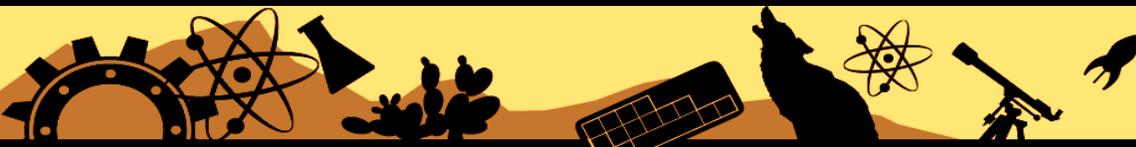


### What You Will Need:

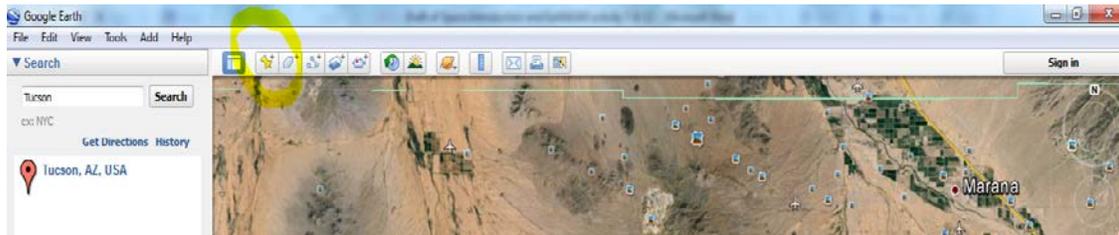
- Paper and pen
- Computer with Internet connection
- Google Earth software

### Activity Directions

1. Review the introduction materials and diagram above to understand the steps of the mission. You have already been signed up for a mission and now you need to identify target locations!
2. Use the paper and pen to brainstorm ideas with your mentor. What would you like to photograph from space? What areas are important to photograph and why? Are there any natural or manmade features that you want to try and identify? Think big! Since you are taking pictures from space, the camera will only be able to capture large objects like lakes, large rivers, craters, etc. Choose carefully!
3. Open up the Google Earth software. Double click on the view of Earth to zoom in. In the search box on the upper left hand side, type in the name of a nearby city that your target location is located near. Click search.

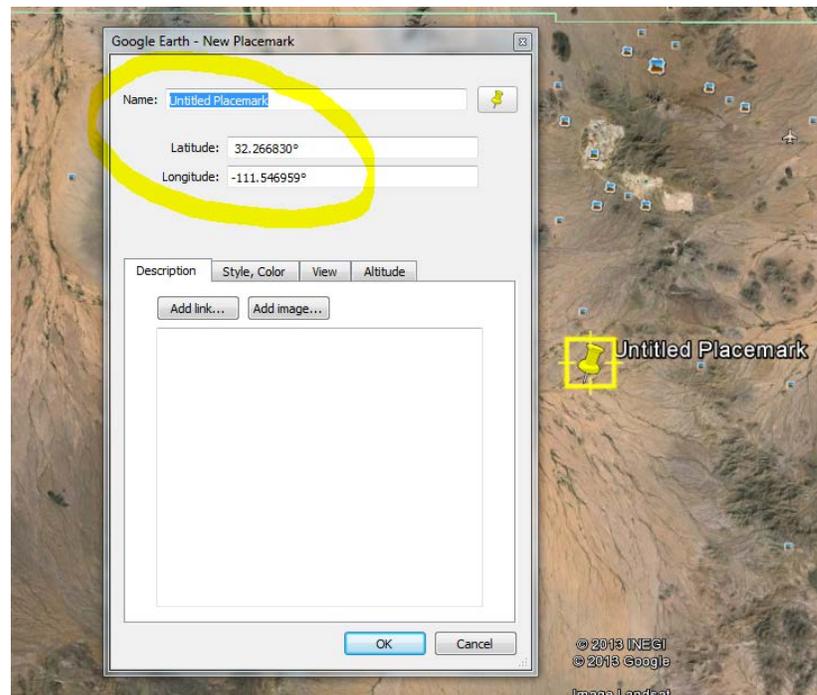


4. Use the left mouse button to click and drag around the screen. Double click the left mouse button to zoom into areas and the right mouse button to zoom out. Try to find the feature that you are interested in.
5. Once you have a target location that you want to add to the mission, click the “Add Placemark” button on the Google Earth toolbar.





6. Left click on the thumb tack icon on the map and drag it to your target location area. Then click on the “New Placemark” window and type in YOUR name and the name of your target location (i.e river, lake, crater, etc.). Write down the target location name and the “Latitude” and “Longitude” values in your science notebook. Click OK.



7. Identify other target locations that you think should be photographed. Be sure to record your observations, target location names, and coordinates in your notebook to reference after the mission is complete!