



SPHERES OF EARTH

EARTH SYSTEMS AND FEATURES

Quick Reference Sheet

1. **Atmosphere:** This system relates to meteorological features and phenomena such as weather, clouds, or aerosols (particles in the air). It includes an ever-changing *mixture of gas and small particles located above the Earth's surface*. Features associated with the atmosphere that can be studied using astronaut photography are:

-Clouds
-Air Pollution/Aerosols
-Hurricanes and Cyclones
-Dust and Sand Storms
-Aurora

2. **Biosphere:** This system is associated with *living systems* such as *biomes* or *ecosystems*. This includes life on land, in the oceans and rivers, and even life we cannot see with the naked eye. Features associated with the biosphere that can be studied using astronaut photography are:

-Coastal Biomes
-Grasslands
-Forests
-Urban/Agricultural Ecosystems
-Deserts

3. **Hydrosphere:** This system is associated with *water in solid (ice) and liquid states*. Water in a gas state (water vapor) is probably best considered as a feature of the atmosphere. Features associated with this system that can be studied using astronaut photography are:

-Oceans
-Ice Bergs (Polar Ice Caps)
-Lakes and Rivers
-Glaciers
-Snow

4. **Litho/Geosphere:** This system is associated with solid portions of the Earth. It includes rocks, sediments and soils, *surface landforms* and the *processes* that shape the surface. Features associated with this system can be broken down into a variety of different processes. These are:

-**Fluvial and Alluvial Processes:** Deltas, river channels/canyons, alluvial fans
-**Aeolian Processes:** Sand dunes, yardangs, wind streaks
-**Tectonic Processes:** Folds, faults, mountains
-**Volcanic Processes:** Volcanoes, central vents, volcanic deposits
-**Impact Processes:** Impact craters
-**Other Processes:** Mass wasting processes, erosional processes



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Part 5: System and Feature Review

You are now familiar with the four spheres of Earth and different features that can be associated with those spheres. You should also realize that although you can focus on individual features as part of an investigation, any change to one feature/system will have an effect on others. In this part of the activity, you will review what you have learned!

1. Fill in the information on the table below. Be sure to name each sphere of Earth as well as 2 features that are related to that system.

SYSTEM/SPHERE	KEY WORD	SYSTEM FEATURES (list 2 features)
	Air	1) _____ 2) _____
	Land	1) _____ 2) _____
	Water	1) _____ 2) _____
	Life	1) _____ 2) _____

2. Describe one example of how a change in one feature/system can affect another:



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Part 3: Presentation of Observations

You have now observed at least 4 astronaut photographs and have identified a variety of visible features. You should now be more familiar with the different Earth Systems.

You will present one the images you logged data for and explain to your classmates what you have discovered. Use the table below as a guide for your presentation.

Image # 1234 Title			
Background information about image and its location			
Observations of 3 features and associated Earth system	Feature: _____	Feature: _____	Feature: _____
	System: _____	System: _____	System: _____
	Observations of feature:	Observations of feature:	Observations of feature:
Describe how you think changes to one feature/system may affect others			
List 1 question about a specific feature(s) that interest you			

As each group presents information about one of the images they observed, be sure to take notes. Use the table on the next page as a guide for your notes. Be sure to log comments about the image or features you found interesting.



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Part 3: Presentation of Observations

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STUDENT PRESENTATION NOTES:

Student Presenters and Image ID#			
Observations of 3 features and associated Earth system	Feature: _____ System: _____ Observations:	Feature: _____ System: _____ Observations:	Feature: _____ System: _____ Observations:
Comments about image or features you found interesting			

Student Presenters and Image ID#			
Observations of 3 features and associated Earth system	Feature: _____ System: _____ Observations:	Feature: _____ System: _____ Observations:	Feature: _____ System: _____ Observations:
Comments about image or features you found interesting			