

Investigating Grasslands all across the world

From ESRI India Geo-Inquiry Team

Target Audience: Class 9 Geography Students

Time required: 1 hour and 10 Minutes

Indicator: *Understand the presence of Grasslands all across the world and learn about them on real maps.*

Learning Outcomes: Students will analyze the Grasslands all across the world using web-based mapping tools to:

- 1–Symbolize and classify a map of the grasslands of the world based on their division, formation and name.
- 2–Examine a table of the largest grasslands of the world with details of name, division and formation.
- 3– Understand the relationship between individual grassland and the larger grasslands in which individual grasslands exist.
- 4– Examine which regions of the world has grasslands and where in India Grasslands are found.
- 5– Understand the differences between division, formation and different individual grasslands.
- 6– Understand how grasslands have sustained the ecology of earth and its contribution towards the biosphere.

Map URL: <https://arcg.is/1SHvj0>

Can you better understand the importance of grasslands in the world?

Can you better understand characteristics of the world’s major grasslands, including their locations, division, formation, and countries in which it is spread out?

Can you determine the effect of grasslands in the ecology and biosphere of the earth?

Teacher Notes

This is a **discovery** type of investigation. Students use live web mapping services in an online Geographic Information System (GIS) and use real data about rivers around the world.

Students will investigate four themes of geography in this activity:

1. Patterns of grasslands all across the world.
2. The location, division, and formation of major grasslands across the world.
3. The relationship between individual grassland, its division, formation and its location.
4. The influence of grasslands in the sustainability of the ecology and earth's biosphere.

Students will use several different scales for their analysis—global, regional, and local.

Requirements

1. Laptop or tablet computer, a web browser, and access to the Internet.
2. Ideally, each student works on his or her own computer with a web browser.
3. Alternatively, students could work in teams of two.
4. Another alternative is for the instructor to use 1 computer with a projector in front of the classroom to engage students in questions and dialogue as the lesson is being taught.

Student name _____

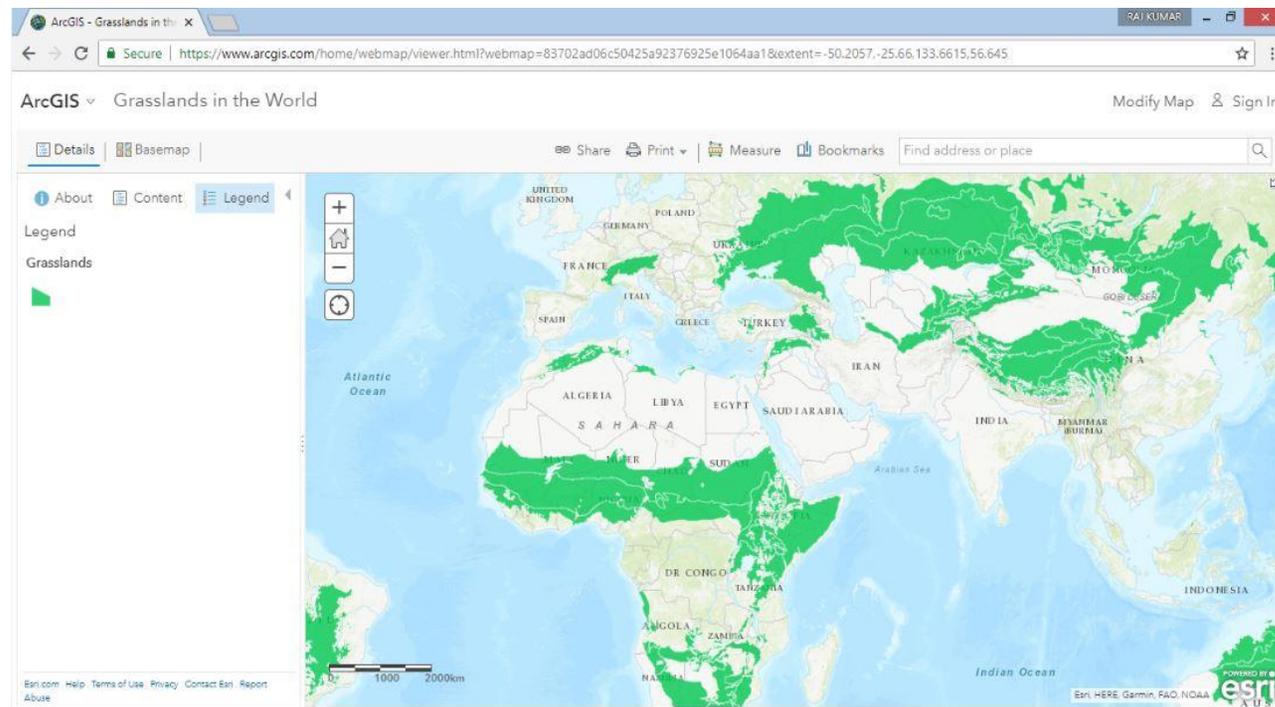
Class _____

Students have 2 class periods to complete the following investigation.

The investigation is ideally to be completed individually.

Open the Map

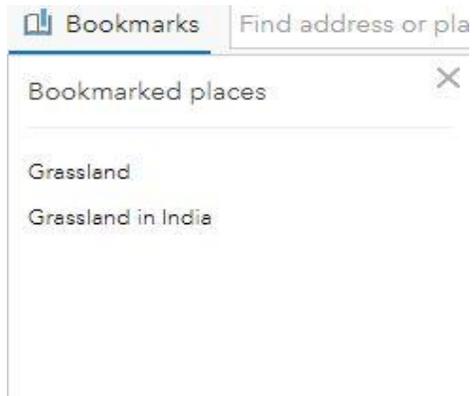
Open a web browser. [Click here to open the map](https://www.arcgis.com/home/webmap/viewer.html?webmap=83702ad06c50425a92376925e1064aa1&text=-50.2057,-25.66133.6615,56.645). The map you will open is a world map entitled “Grasslands in the World”, should look similar to the following:



Bookmarks

You will use this live web map that is created with a Geographic Information System (GIS). A GIS provides an excellent way to explore the world and to learn geography at the same time. This map is served via a web based GIS called ArcGIS Online.

Use your mouse to move the map by clicking on the map and moving the mouse. Zoom in and out on the map using the slider bar on the left side of the map. You can also zoom in by pressing the Shift key while dragging a box across the map with the mouse, and letting go with the mouse. Use the Bookmarks to zoom to the locations identified there, as follows:



When you are done interacting with the map, use the bookmark titled "Grassland" to zoom back to the whole world.

Introduction

In your whole life you must have come across the term “Grassland” or would have seen it in Discovery channel at least. Think about a grassland which comes to your mind.

Let’s start your investigation by examining grasslands across the world. It is difficult to underestimate the importance of grasslands to the world’s history and geography. Grasslands form the habitat for many animal species across the world. Grasslands are the place many unique species developed and grew with time. Cattles like buffalo’s, African wild buffalo’s, zebra, giraffe, rhinoceros, jackals, cheetah’s, and various other breeds have developed in grasslands and these grasslands are home to these animals. These species have stayed in these grasslands from thousands of years and are surviving there only. Recent years have been very tough for them because of human interference in their natural habitat, poaching, killing for fun and due to these activities the many animals have come to the verge of extinction.

Because Grasslands are located in specific areas, and have movement, and because they affect their local and regional environments and are in turn affected by these environments, they are of huge geographic importance. And because of this, they can be studied through the use of web maps in a Geographic Information Systems (GIS) environment.

In this activity, let’s first focus on the regions and patterns of occurrence of these grasslands. Grasslands are spread over a huge geographic area and provide life to many animal species in it, often referred to as pastures, plains, etc.

Questions

1. From your map, make 2 observations about the location and distribution of Grassland around the world.

2. Name 2 countries whose total landmass is formed by the Grasslands and also name these grasslands.

Grasslands are spread over a huge land cover. Sometimes they are spread over even 4 to 5 countries. They form a huge ecological balance and makes life grow in its vicinity.

3. Indicate the countries where the following grasslands are spread over. To find the grasslands, you can use the Search box and enter, for example, "Terai-Duar savanna and grasslands." You may have to change the scale of the map by zooming in or out to find the grasslands and its regions.

Grasslands	Countries(presence)
Terai-Duar savanna and grasslands	
Kalahari xeric savanna	
Angolan Mopane woodlands	

4. You must have observed the countries in which these grasslands are spread over. Name the division of the following grasslands?		
Grasslands	Divisions	
Mongolian-Manchurian grassland		
Terai-Duar savanna and grasslands		
Mitchell grass downs		

5. Since you have observed that Grasslands are found in various types of environment all across the world and thus its formation varies w.r.t its geographic location. Please answer the question that, “How would you relate climate and the type of Grassland of a location?”	
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6. Sometimes grasslands not only forms in the temperate environment but also in the deserts? Name few grasslands which exists on the deserts and also name few grasslands which are found in the temperate environments?

7. Use Bookmarks and zoom to “Grassland in India”. What major physical region is there that is hundreds of kilometers in length? Name the few species found in this grassland.

8. What are the Temperate Grasslands of North America Called? Using map find out the countries they are spread over.

9. Go to Bookmarks, click on “Grasslands in Chinese Desert region” and you’ll see the grasslands which occur in desert region of China. What are the animal species living in these regions? Also mention the weather range found in these grasslands.

10. Use Bookmarks and zoom to Australian Grasslands. Observe the grasslands which are found in these regions of the world. Which state in whole Australia is least covered with the grasslands? Examine the landforms in this area on the topographic base map. In the table below, indicate the 4 grasslands under investigation, the states where they expand to, and the formation they belong to.

Grassland	State of presence of these grasslands	Formation of these grasslands
1		
2		

Answers

1. Except for the Northern Himalayan regions, India doesn't have grassland anywhere else. Grasslands mainly occur in the parallel range.
2. BENIN->West Sudanian Savanna.
NIGERIA->Guinean forest- savanna mosaic, west sudanian savanna, Jos Plateau forest-grassland mosaic.
3. Terai-Duar Savanna and Grasslands-> India, Nepal.
Kalahari Xeric Savanna-> Namibia, Botswana, South Africa.
Angolan Mopane Woodlands-> Angola, Namibia.
4. Mongolian-Manchurian Grassland-> Eastern Eurassian Grassland & Shrubland.
Terai-Duar Savanna & Grassland-> Eastern Eurassian Grassland & Shrubland.
Mitchell Grass Downs-> Australian Tropical Savanna.
5. The weather of a location determines the Grassland type. For example, the tropical grasslands are too much green while desert grasslands mainly have yellow colored grasses all around. The location type also determines the type of animals in that grassland.
6. Desert Environment Grasslands:
 - Cool Semi-desert scrub and grassland.
 - Alpine scrub, forb meadow and grasslands.Temperate Grasslands:
 - South Siberian Forest Steppe.
 - Kazakh Forest Steppe.
7. It's Terai-Duar Savanna & Grasslands. The animals found in these Grasslands are:
 - Deer
 - Barasingha
 - Sambar Deer
 - Indian Hog Deer
8. Prairies
9. The animals found are: Wild Bactrian Camel, Gobi Pit Viper, Golden Eagle, Mongolian Wild Ass, etc. The temperature in the region varies from -40°C in winter to 45°C in summer.

10. Southeast Australia Temperate Savanna, New South Wales, (Temperate Grassland ,Meadow and Shrubland).
Brigalow Tropical Savanna, Queensland, (Tropical lowland, Shrubland, Grassland & Savanna).

References

1. NCERT Class 7 Geography Book "Our Environment"-Chapter 9(Life in the Temperate Grasslands).
2. Geospatial Data from ArcGIS sharing portal.



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