Investigating Biodiversity

Name:
Directions: Students will be investigating characteristics of major biomes and examine the impact of biodiversity by completing a web-based inquiry assignment. Access the appropriate webmap at - http://arcg.is/0SjLju (ADAPTED FROM ESRI GEOINQUIRIES)

Engage - What does Biodiversity look like?

1. If you were invited to go on a big-game wildlife tour, what locations come to mind?

2. Click the map URL in the instructions to open the map. Humans have made the most extensive use of the planet's surface in the planet's history. Which areas have lost the greatest amount of diversity?

3. Click on these dark areas of the map to find out what biomes these areas represent. What ecoregions have we changed most extensively? Why have we changed these particular areas so extensively?

Explore - How does speciation relate to biodiversity?

4. From the Details pane, click the button, Show Contents of Map. Turn off the Global biomes layer, by checking the box to the left of the layer name. (Keep in mind throughout that predation drives speciation in plants) Check the box to the left of the layer name, Vascular Plant Diversity. Where is the highest variety of vascular plants?

5. Check the box to the left of the layer name, Flowering Pant Diversity. Why would flowering plants have subtle differences in distribution from vascular plants?

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Explain - Where are the hot spots for mammalian diversity?

6. Click the check boxes next to the two mammal diversity layers. Where are the centers of highest mammal diversity? What mammals can take advantage of these big areas of flowering plants and trees?

Elaborate - What factors support predation?

7. What places have you heard of that have a lot of predators in the wild?

8. What is it about Africa that has allowed it to contain such a rich variety of large mammals?

9. Would this influence the numbers of mammalian carnivores?

Evaluate - How does species density relate to species diversity?

10. What are the species densities of all mammals in hot spot areas? (Hint: Use the legend.)

11. How do these numbers compare to the mammalian carnivores?

12. Is that expected based on trophic energy availability?

13. Do the numbers of species act as a proxy for total animals?