Gorongosa Timeline

ABOUT THIS WORKSHEET
This worksheet complements the Click and Learn "Gorongosa Timeline" (http://www.hhmi.org/biointeractive/gorongosa-timeline) developed in conjunction with the short film The Guide: A Biologist in Gorongosa (http://www.hhmi.org/biointeractive/the-guide-a-biologist-in-gorongosa) and provides questions related to environmental science. The worksheet starts with two questions on Gorongosa's geographic location, followed by a chronologically organized table with blanks. The second half contains six free-response questions and two extended learning questions.

PROCEDURE
Use the Gorongosa Timeline Click and Learn to fill in the blanks in the table and answer the questions that follow. Questions 1 and 2 may require you to do some research or to go to the Gorongosa National Park Interactive Map (http://www.hhmi.org/biointeractive/gorongosa-national-park-interactive-map). To fill in the table, go to the timeline entries that correspond to the time, entry headline, or content specified in each row. Once the table is complete, answer the free-response questions that follow.

HOW TO USE THE TIMELINE
You can customize how stories are viewed by clicking on the buttons in the bottom right and left corners of the Click and Learn. The 2D/3D button on the left lets you toggle between a two- and three-dimensional view of the timeline; the tool button on the right opens a window where you can filter events by category, change how categories are displayed, and zoom in or out. Use the search function to find specific events using relevant keywords or phrases. To read more about an event, click on the image (3D view) or the “More” button in the bottom right corner of the entry (2D view).

1. On which continent do you find Gorongosa National Park?

2. In which country do you find Gorongosa National Park?

<table>
<thead>
<tr>
<th>TIME</th>
<th>ENTRY HEADLINE</th>
<th>CONTENT SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>300,000 BC</td>
<td>Earliest Evidence of Humans</td>
<td>People lived in Gorongosa 300,000 years ago.</td>
</tr>
<tr>
<td>922−1100</td>
<td>Bantu Settlers</td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>Portuguese Colonization</td>
<td></td>
</tr>
<tr>
<td>1858−1864</td>
<td>David Livingston embarks on an expedition in Mozambique.</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
<td>Details</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>1920</td>
<td>The Gorongosa Reserve is expanded to protect antelopes and rhinos.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A National Park is born</td>
<td></td>
</tr>
<tr>
<td></td>
<td>War of Independence</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>Park Reduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scientists counted animals from airplanes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>They counted ________ elephants, ________ lions,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__________ buffaloes, ________ wildebeest, __________________________</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__________ zebras, ________ waterbuck, ______________________________</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__________ impalas, and ______________________ hippos.</td>
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<tr>
<td>1971</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Pygmy chameleon can only be found on Mount Gorongosa.</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>___________ elephants and _________ lions are counted in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the park.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>War of Destabilization</td>
<td></td>
</tr>
<tr>
<td>1993–1996</td>
<td>As few as ________ elephants, ________ reedbucks,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__________ waterbucks, and ___________ zebras and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_______ antelopes and _______ are counted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rebuilding the Park</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 2004</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>The Gorongosa Restoration Project starts.</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nov 2005</td>
<td>Mountain Community</td>
<td>Animals begin to be reintroduced to Gorongosa.</td>
</tr>
<tr>
<td></td>
<td>Wildlife Numbers on the Rise Again!</td>
<td></td>
</tr>
<tr>
<td>Jan 2008</td>
<td>Mount Gorongosa Protected</td>
<td>Community Education Staff teach children from the surrounding area in Mozambique about conservation.</td>
</tr>
<tr>
<td>Nov 2010</td>
<td>A Bioblitz with E. O. Wilson</td>
<td>Scientists discover a rare shrew that is found only in and around Mozambique.</td>
</tr>
<tr>
<td>2012</td>
<td>First on-the-ground survey on Cheringoma Plateau</td>
<td></td>
</tr>
<tr>
<td>April 2013</td>
<td>The park is now home to 7 new zebras and 35 elands.</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Survey</td>
<td>Species Counted</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>----------------</td>
</tr>
<tr>
<td>2014</td>
<td>Latest</td>
<td>_______ buffalos, _______ hippos, _______ waterbucks, _______ wildebeest, _______ antelope, _______ hartebeest, _______ zebras, and _______ lions are counted.</td>
</tr>
</tbody>
</table>

### Ongoing Challenges

### Future Plans

### FREE-RESPONSE QUESTIONS

1. The data in the 1994 graph entitled “Rebuilding the Park” presents information about the changing populations of animals in Gorongosa. The “Ongoing Challenges” graph from 2014 presents the changing population data for humans within the park. Describe the relationship between the two graphs and offer an explanation for this relationship.

   (a) Identify two specific human activities due to the civil war in Mozambique that resulted in a loss of biodiversity.

   (b) Explain how each activity lowered the biodiversity in Gorongosa National Park.
3. For each of the two human activities above, describe two strategies that were used to reduce the loss of biodiversity in the park.

4. E. O. Wilson has played a prominent role in improving biodiversity within the park, and the biodiversity lab at Gorongosa National Park is named after him. Learn more about E. O. Wilson’s role in improving biodiversity within Gorongosa National Park by clicking on the “Edward O. Wilson Biodiversity Lab Opens” link and exploring the information there. Outline the goals of the program in the space below.

5. Read the 2010 entry “Mount Gorongosa Protected” and explore the associated link.
   (a) Explain the human activity that has changed how water flows on Mount Gorongosa.

   (b) Explain what is being done to alleviate the problem.

   (a) Describe the role of wildlife corridors in preserving and increasing biodiversity in fragmented habitats.

   (b) Describe your own plan to establish wildlife corridors in Gorongosa Park and identify two species that would benefit from the implementation of your plan.
EXTENDED LEARNING QUESTIONS

Write your answers in the space below, on a separate sheet of paper, or in your notebook.

7. Describe two ecological benefits of having greater biodiversity in an ecosystem.

8. Taking into account that the poor are said to be both victims and causes of environmental degradation, identify and describe the challenges that Gorongosa will continue to grapple with as it transitions into becoming “the most diverse park in the world.”