Planning the inquiry

1. What is our purpose?
Our purpose is to engage students in inquiry about Sharing the planet

Central Idea: All living and nonliving things in an ecosystem are interdependent on one another.

1b) Summative assessment task(s):
What are the possible ways of assessing students’ understanding of the central idea? What evidence, including student-initiated actions, will we look for?

Students will work in small groups to create a model of one of the biomes or develop another model which demonstrates in-depth knowledge of their biome, the energy sources which affect it, and current day issues about the impact that people are having on the biome. Each project will reflect evidence of research and group participation. Students will receive points for the number of references cited and will receive additional credit if they cite articles, websites, videos, and class discussions.

Students will write a 4-8 page handwritten essay on a question related to energy in biomes and the human impact on their biome. They will present their essays, models and large poster sheets in a culminating all class activity. Student presentations will focus on and include biomes location, animals, plant life, climate, energy sources and how any of these characteristics may have changed over time and what the causes of these changes are. Students will peer assess and utilize our Expository Writing Rubric for Fifth Grade.

All students were required to address the following questions which were developed through class inquiry discussion:

2. What do we want to learn?
What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?

Students will explore this unit from the key concepts of FORM: Students will know how to describe biomes in terms of form, i.e., desert, tundra, temperate forest. etc. Students will explore this unit from the key concept of causation, specifically when it comes to the energy sources found in the biomes.

Students will explore this unit from the perspective of change, they will be able to talk and write about plausible causes of change within a biome.

What lines of inquiry will define the scope of the inquiry into the central idea?
1. Components of biomes. (form)
2. The relationship between a biome and its organic energy in an biome. (causation)
3. Impact of human choices on ecosystems. (change)

What teacher questions/provocations will drive these inquiries?
What are the biomes of the world?
How do biomes compare with each other?
What is the relationship between living organisms and their environments?
What sources of energy are bound to particular biomes?
What is the impact of humankind on biomes?
Planning the inquiry

3. How might we know what we have learned?

This column should be used in conjunction with “How best might we learn?”

What are the possible ways of assessing students’ prior knowledge and skills? What evidence will we look for?

KWL chart—Prior knowledge on biomes, ecosystems, food chain/web, endangered animals, sources of energy, human impact on environment.

Students will keep a Biome Learning Log in which they write goals, reflections, track sources and refine questions for inquiry.

What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?

1. After viewing videos on several biomes, students will talk with others, research the internet and through classroom’s books to develop a question and create a plan for inquiry. All will view National Geographic Biomes video for kids.

2. Students will develop their question into a 4-8 page handwritten essay to demonstrate how their knowledge of a particular Biome or Biomes helps to understand their inquiry questions. They must include a wide variety of substantial facts, use higher level thinking skills of synthesis and analysis, cite real world examples of current issues in a biome, conclude with a summary, reflection and development of next steps.

3. Students will review the website: Climate Change from EPA and reflect on their learning through guided class discussions, written reflections and summaries. They will participate in a Read, Write, Talk learning strategy and include all of their notes on this climate change website.

http://www3.epa.gov/climatechange/kids/basics/concepts/html

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?

Class discussion on biomes using KWL chart.

Students research (google) and view web sites biomes of the world and identify the major biomes.

Class views and discuss videos on each biome.

Students will write questions to drive inquiry for each biome.

Create large poster chart of energy forms in a biome or comparison of two biomes.

Display on bulletin board.

Using posters, students will compare and classify characteristics of biomes.

Students will research characteristics, traits, adaptations, and habitats of animals and explore the vegetation (flora) of a region.

Write a reflection on the impact of humans on the environment.

Research endangered animals, within their biome, and identify causes of endangerment.

Expository essay based on the results of research that addresses a high level thinking issue affecting a particular Biome or Biomes.

Use World map to clearly identify land biomes.

What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?

Research Skills: formulating questions, observing, planning, collecting, recording and presenting data.

Thinking Skills: acquisition and analysis of knowledge.

Communication Skills: Writing, listening, and speaking.

Learner Profiles: Inquirers, communicators, caring

Attitudes: Curiosity
5. **What resources need to be gathered?**
What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?

Science text - Macmillan/McGraw-Hill  Students will research Energy Forces and Biomes Unit of their Science text, answering questions, and including learning in their essays. Internet resources -Biomes of the World, www.wcs.org  music - Circle of Life

School Library resource books for in class use on Biomes and animals. Students will collect and maintain a mini-library on Biomes materials. Students will use Big Universe articles, Ecosystems and Biomes and one on Biodiversity as core reference materials for research and inclusion in their essays.


**How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?**

The classroom will have an interactive bulletin board for the major biomes with room for students to place post-its with comments, questions, and biome identification. As students develop posters on their Biome and Major forms of Energy, these will be posted throughout the classroom. Students will also display their dioramas and other models while they are in progress and when they are completed. Students will visit the other 5th grade classroom to talk and review class projects. There will be many open forums for discussions which encourage students to compare and contrast biomes and make connections to forms of energy.

**Bulletin Board with World Map showing location of land Biomes.**

Students will be encouraged to bring in pictures of biomes and their animals to be displayed on bulletin board and in classroom. Student biome posters will be kept on display in the classroom and hall. Biome and animal books will be available in classroom. Students will help to create an interactive Bulletin Board for identification of Biomes.

**Miscellaneous:**

How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?

Students will explore the plant life around the school and make connections to the Biome in which they live. They will be encouraged to review books and internet sites about Illinois and the various flora and fauna in our state.
6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students' understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.

Students gained a clear understanding of the central idea by demonstrating their knowledge of biomes, sources of energy, biodiversity and climate change. Through group projects and independent research they explored high level questions about their Biome. During their summative assessment of creating posters and models, and presentation to classmate, students demonstrated their understanding of how living and non-living organisms are dependent on one another. They also reported on how one change can upset the balance of nature. All students contributed to their group projects.

Several students went beyond the requirements and constructed a model which compared and contrasted several Biomes. Another student did some major research to help define the many classification systems that have been used to determine how many Biomes exist. Two students who were particularly interested in climate change and the science of the Greenhouse Effect were able to develop and present in-depth scientific research and answer many student questions.

How you could improve on the assessment task(s) so that you would have a more accurate picture of each student’s understanding of the central idea.

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

- develop an understanding of the concepts identified in "What do we want to learn?"
- demonstrate the learning and application of particular transdisciplinary skills?
- develop particular attributes of the learner profile and/or attitudes?

In each case, explain your selection.

<table>
<thead>
<tr>
<th>Concepts:</th>
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<tbody>
<tr>
<td>(Form) KWL chart, biome posters (students will record similarities and differences), and student log, world map with land biomes identified. Related concepts - properties, similarities and differences.</td>
</tr>
<tr>
<td>(Causation) food chain web, expository essay.</td>
</tr>
<tr>
<td>(Change) class discussions, research on cause and future prevention of endangered animals and poor use of resources.</td>
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2. Transdisciplinary skills:

Research Skills: Climate Change Website, Biome posters, expository paper researching characteristics of biomes and human impact.

Thinking Skills: Acquisition of knowledge KWL chart and Biome Learning Logs. Analysis finding relationship between biomes by comparing student posters.

Communication Skills: Listening to class discussions writing expository research paper, and tracking the learning process through Learning Log.

Inquirer: Students use inquiry skills researching biomes, energy sources, and endangered animals.

Thinkers: Students analyze and compare biome posters.

Communicator: Students communicate their findings in expository essay, verbally during class discussions and presentations.

Caring: Students share ideas for protecting endangered animals. Students will devise plan for protecting endangered animals and planning for use of better energy sources for cleanliness and efficiency.

Reflecting on the inquiry
8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.

1. How have landforms changed over time?
2. How has climate change warming affected biomes?
3. How do deciduous forests compare to tropical rain forest?
4. How do animal adaptations affect their place on the food chain?

At this point teachers should go back to box 2 “What do we want to learn?” and highlight the teacher questions/provocations that were most effective in driving the inquiries.

The most effective provocation was the viewing of a National Geographic film on how climate change may be the death of the polar bear. Students wrote reflections after class discussion of the video, and themes from this discussion were central to many of the student presentations that dealt with climate change and the impact of humankind on the environment.

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their ability

Students conducted independent research and shared findings with classmates. Students initiated discussions on how we as a class can reuse, reduce, and recycle to preserve natural resources.

9. Teacher notes

Burrall: The most exciting aspect of this unit occurred when students were presenting their essays and their findings about energy forms. Students prepared a slide show, built a model, participated in a panel discussion of energy, and presented their own written essay. Several students chose to compare and contrast various biomes and showed evidence of higher level thinking and real world connections and current environmental issues.
### Biomes Poster

#### Required Elements

**Focus**

The poster is clearly labeled with the biome title and the illustrations and text support this. The main ideas focus on the biome’s climate, flora, and fauna, and they are presented correctly. Appropriate and accurate facts support the biome.

**Purpose**

The purpose of the poster clearly informs the reader about the biome.

**Drawings and Illustrations**

All illustrations and drawings add to the purpose and interest of the poster.

**Mechanics**

<table>
<thead>
<tr>
<th>Possible Points</th>
<th>Earned Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 for each category</td>
<td>Self</td>
</tr>
</tbody>
</table>

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There are no errors in capitalization, usage, punctuation, or spelling.

## Layout and Design

The overall organization, design, use of color, and use of space help to make the poster interesting and help to communicate the message. The poster is highly original and creative as well as being very neat and presentable.

| Total: |   |   |   |