Project-Based Learning Unit

**Grade Level:**
4th Grade

**Subject:**
Science - North American Mammals

**Essential Question:**
Do all mammals meet their basic needs in the same way?

**Subquestions:**
1) What region(s) of North America is your animal found?
2) What type of environment/climate is this region?
3) What is the animal's shelter?
4) What does the animal look like?
5) What does the animal eat and how does it get its food?
6) Does your animal have a body part adaptation? What is it and why does it have this adaptation?
7) Does your animal have a behavior adaptation? What is it and why does it have this adaptation?

**Objectives:**

**Science**
1.01 Relate structural characteristics and behavior of a variety of animals to the environment in which they are typically found.
1.02 Determine animal behaviors and body structures that have specific growth and survival functions in a particular habitat.
1.03 Evaluate living and nonliving things that affect animal life: other animals, plants, climate, water, air, and location.

**English Language**
2.03 Read a variety of texts, including nonfiction (informational books).
2.05 Make inferences, draw conclusions, make generalizations, and support by referencing the text.
2.06 Summarize major points from nonfiction text(s) to clarify and retain information and ideas.
2.07 Determine usefulness of information and ideas consistent with purpose.
3.05 Integrate information from two or more sources to expand understanding of text.
3.06 Conduct research for assigned projects (with assistance) from a variety of sources through the use of technological and informal tools (e.g. print and non-print texts, artifacts, people, libraries, databases, computer networks).
4.03 Make oral and written presentations using visual aids with an
awareness of purpose and audience.
4.05 Use planning strategies to generate topics and organize ideas (e.g. brainstorming, mapping, webbing, reading, discussion).
4.07 Compose nonfiction using assigned topics and forms (research reports).
4.09 Produce work that follows the conventions of particular genres (research reports).
4.10 Use technology as a tool to gather, organize, and present information.

Goal 5: The learner will apply grammar and language conventions to communicate effectively.

**Computer/Technology Skills**
1.09 Recognize and discuss the importance of citing sources of copyrighted materials in documents.
1.11 Identify and discuss the use of multimedia tools to report content area information.
2.07 Recognize, discuss, and use proper keyboarding techniques.
2.08 Use menu/tool bar features to edit and make corrections to documents as a class/group activity.
2.09 Recognize and discuss guidelines for media to consider in developing multimedia projects as a class/group.
2.10 Storyboard and modify multimedia projects with menus, branching, and/or multiple outcomes for content areas.
3.01 Select and use technology tools to collect, analyze, and display information for content assignments.
3.06 Use word processing as a tool for writing, editing, and publishing paragraphs, stories, and assignments.
3.07 Locate, select, organize, and present content area information from the Internet for a specific purpose and audience, citing sources.

**Real World Connections:**
- Compare and contrast how two mammals meet their basic needs that live in the same region
- Discuss body and behavior adaptations of humans and how we meet our basic needs.
- Map what mammals are found in North Carolina
- Map the North American mammals
- Discuss the different environments/climates of North America
- Discuss what would happen if a mammal was moved from one environment to another. Does that mammal have any adaptations that would allow them to survive in a different environment.
- Find an Internet WebCam to view mammals in their natural habitat or a man-made habitat.
Activities:
Students will complete independent research on a North American mammal. Research will be done during school time through the use of web searches, nonfiction text, and informational references. Research will be started at the end of the textbook chapter so that students will have an understanding of the questions they are to answer.
  ◦ Teacher has a list of North American mammals. Students will draw the mammal that they will research.
  ◦ Students will be given a mammal journal to record the information they’ve found. Journals are handmade by folding a piece of construction paper in half and stapling inside five, half sheets of notebook paper. (the front sheet will be a title page, the last sheet will be to cite references, and the three middle sheets will be used to record information)
  ◦ Students need to create a map of the North American region the mammal lives in.
  ◦ When journal information is collected, students will create a bubble map about their mammal using Kidspiration.
  ◦ Students will type information on their mammal into a report using their AlphaSmarts then use a word processing program on class and lab computers to revise, edit and print the report.
  ◦ Students will create a visual (poster, display board, diorama, etc.) of their choice that must include:
    1) What the mammal looks like (picture, stuffed animal, clay model, etc...) in their natural habitat
  ◦ Report, map, journal, and bubble map can be incorporated into visual presentation or put into a separate book.
  ◦ Students will present the information they collected on their mammal to their classmates. They must discuss all the information that answers the seven questions.
  ◦ They will not read directly from their final research report but use their bubble map created in Kidspiration to present information.

Final Product/Presentation Description:
  ◦ Students will create a visual display of their choice that shows what the mammal looks like in their natural habitat. Visuals will be completed at home.
  ◦ Students will present the information they collected on their mammal to the students in their class.
  ◦ Visual displays will be graded with research reports.
  ◦ Presentation of information will be graded.
North American Mammals to Research:
Students will draw from a basket the mammal they are going to research.

- American Bison
- American Beaver
- Mountain Lion (Cougar)
- Porcupine
- Moose
- Caribou
- Prairie Dog
- Grizzly Bear
- Black Bear
- American Buffalo
- Bighorn Sheep
- Bobcat
- Gray Wolf (Timber Wolf)
- Raccoon
- American Badger
- Elk
- Pronghorn Antelope
- Coyote
- Fox Squirrel
- Canadian Lynx
- Opossum
- Southern Flying Squirrel
- River Otter
- Polar Bear
- Jaguar
- American Marten
- Striped Skunk
- White-Tailed Deer
- Snowshoe Hare

Research Report:

- The following is how the information should be organized into a report:

  Paragraph 1: Introduction of mammal and what it looks like
  Paragraph 2: What region of North America does the mammal live in and what is the climate/environment of that region
  Paragraph 3: What is the mammals shelter like
  Paragraph 4: What does the mammal eat and how does it get its food
  Paragraph 5: Body part adaptations the mammal may have
  Paragraph 6: Behavior adaptations the mammal may have
  Paragraph 7: Conclusion about the mammal
**Websites:**

- **American Museum of Natural History**
  amnh.org/nationalcenter/online_field_journal/index.html
- **Enchanted Learning**
  EnchantedLearning.com
- **Sidwell Education**
  sidwell.edu/academics/lower_school/American_Studies/
- **Science Links**
  sciencenetlinks.com
- **NC Zoo**
  nczoo.org
- **National Museum of Natural History**
  web4.si.edu/mna/
- **San Diego Zoo**
  sandiegozool.org
- **Ranger Rick through Yahooligans**
  Go to yahooligans.yahoo.com/
  Click on “Animals” at the left side
  Ranger Rick will come up in the middle
- **Links to the World**
  zooschool.org/links.html

**Extension:**

- Allow students to take pictures of their final projects. (visual presentation and map) Each student can then use iPhoto to create a class storybook about mammals. Students should pull in their Kidspiration Bubble Maps and type information about their mammal. The book can be shared with lower grades and used as instructional material in future fourth grade classes.

**Evaluation of Product (Rubric):**

See attached sheet for presentation scoring rubric and report scoring rubric.
**Activity Title:**
Researching Animal

**Objectives Addressed:**
- Science 1.01, 1.02, 1.03
- English Language 2.03, 2.05, 2.06, 2.07, 3.06, 4.10
- Computer/Technology 1.09, 3.07

**Materials Needed:**
- Student journals
- List of websites that students can use to find information
- Reference books - encyclopedias, journals, etc
- Library books

**Approximate Time Needed:**
30 minutes daily for five days

**Activity Description:**
Students will use a variety of resources to gather information about their particular mammal. As they find information that answers one of the seven questions, they need to record the information in their journals. Students will need to cite sources where they found the information on the last page of their journal.
**Activity Title:**
Mapping North American Regions

**Objectives Addressed:**

**Materials Needed:**
- Blank Map of North America
- Map of North America from Social Studies Book
- Colored Pencils

**Approximate Time Needed:**
30 minutes

**Activity Description:**
Students should already have the region(s) where their mammal lives, they will use the map of North America from their Social Studies book to locate the regions and assist them in labeling and shading in the regions on the blank map of North America.
Students need to title their map, “Where (mammal) lives in North America”
**Activity Title:**
Kidspiration Bubble Mapping

**Objectives Addressed:**
- Science 1.01, 1.02, 1.03
- English/Language 3.05, 4.05
- Computer/Technology 2.07, 2.10, 3.06

**Materials Needed:**
- Student journals
- Kidspiration 2

**Approximate Time Needed:**
About 1 hour

**Activity Description:**
Students will take the information they've gathered in their journals to create a bubble map web on their mammal. They will learn how to use Kidspiration to present information by combining pictures and text. It will help students in organizing and categorizing the information they have gathered on their mammal. Bubble maps will be used in helping students write their final research reports.
Activity Title: Typing Research Report

Objectives Addressed:
- English/Language 4.07, 4.09, Goal 5
- Computer/Technology 2.07, 3.06

Materials Needed:
- Student journals
- Kidspiration Bubble Map
- Assignment Sheet
- AlphaSmarts or Computer Lab time

Approximate Time Needed:
30 minutes a day for five days

Activity Description:
Students will first write their research report on notebook paper following the guidelines for how to group their information into paragraphs. Once reports are written they will proceed to type the report into their AlphaSmarts. As students finish typing, they will download their stories into a word processing program. Students need to set the font type and size, double space, save and print report.
**Activity Title:**
Presentation of North American Mammals

**Objectives Addressed:**
- English/Language 4.03

**Materials Needed:**
- Visual display of mammal
- Kidspiration Bubble Map
- North America map of region where mammal lives
- Research Report
- Rubric for grading presentation
- Digital Camera
- Camcorder

**Approximate Time Needed:**
Depending on the number of students, presentations should be around four to five minutes each.

**Activity Description:**
Students are learning how to present new information to their classmates. They are teaching their classmates about different types of mammals using visual displays and information gathered through various resources. After presentations are completed, students will be able to use the information learned from the presentation and the visual displays in the class to compare and contrast how different mammals meet their basic needs in the variety of environments/climates found throughout North America. (see Real World Connections)

As students finish giving their presentation, take a picture of them beside their visual display. Also, after all presentations have been given, students need to take pictures of their displays with no people in the picture. They can also take pictures of their maps and journals. The pictures and movie can now be used to create a storybook in iPhoto or an iMovie to be shared with other fourth grade classes or other grade levels.
**Activity Title:**
Creating Storybook in iPhoto

**Objectives Addressed:**
- Computer/Technology 1.09, 1.11, 2.07, 2.08, 2.09, 2.10, 3.01, 3.06, 3.07

**Materials Needed:**
- Digital Camera with photos of students visual displays
- iPhoto program
- Students research reports and bubble maps

**Approximate Time Needed:**

**Activity Description:**
Students will edit their photographs of their visual displays to create a page in the storybook. On their page they will type the basic information about their mammal. Students can also pull in their Kidspiration bubble maps to place on the page. The book can be printed and bound to be shared with students in other fourth grade classes and grade levels.