Educational Package of Suggested Activities for GRADE SEVEN

WELCOME TO SAFARI NIAGARA

A class visit to a zoo or nature park such as Safari Niagara is an excellent learning opportunity for students in any grade level. For many grades the experience can fulfill program goals or expectations from Ministry of Education Curriculum Documents, notably Science and Technology 2007 and Social Studies 2004.

Even where, at a particular grade level, there is no direct link to the curriculum documents there are opportunities for you, the teacher, to connect pre visit, on-site and post visit classroom activities to the hands-on experience of the day. The management of Safari Niagara recognized these direct and implied connections beginning with the inception and opening of the park. To assist you in planning for your visit we assembled a team of teachers at all grade levels to produce materials which will hopefully be of use to you. These curriculum materials have been upgraded several times as Ministry of Education documents were revised. However, the suggested activities remain essentially the same because good teaching ideas are forever!

You may note that the format of the attached materials can vary from grade to grade. This reflects the philosophy, experience and teaching styles of the writers. It is expected that in using the materials you will adapt them to your own classroom environment, picking and choosing those most suited to your style.

Regardless of how you plan to enhance your visit to our facility by classroom activities the fundamental truths remain. Zoos and nature parks today are becoming both a last refuge for many endangered species and a hope for their recovery at some point in the future. Humankind must accept the responsibility for the recovery of the planet. The closer we can get our students to physical contact with the real world and the wonders of nature the more they will, as adults, appreciate the gravity of this task.

GRADE 7 UNDERSTANDING LIFE SYSTEMS: INTERACTIONS IN THE ENVIRONMENT

Fundamental Concepts	Big Ideas
Systems and Interactions	Ecosystems are made up of biotic (living) and abiotic (non-living) elements, which depend on each other to survive.
Sustainability and Stewardship	Ecosystems are in a constant state of change. The changes may be caused by nature or by human intervention. Human activities have the potential to alter the environment. Humans must be aware of these impacts and try to control them.

Overall Expectations:

By the end of Grade 7, students will:

1. Assess the impacts of human activities and technologies on the environment, and evaluate ways to controlling these impacts;
2. Investigate interactions within the environment, and identify factors that affect the balance between different components of an ecosystem;
3. Demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment

Specific Expectations:

1. **Relating Science and Technology to Society and the Environment**
   By the end of Grade 7, students will:

   1.1 Assess the impact of selected technologies on the environment
   1.2 Analyze the costs and benefits of selected strategies for protecting the environment

2. **Developing Investigation and Communication Skills**
   By the end of Grade 7, students will:

   2.1 Follow established safety procedures for investigating ecosystems

2.2 Design and construct a model ecosystem *(e.g., a composter, a classroom terrarium, a greenhouse)*, and use it to investigate interactions between the biotic and abiotic components in an ecosystem
2.3 Use scientific inquiry/research skills to investigate occurrences that affect the balance within a local ecosystem
2.4 Use appropriate science and technology vocabulary, including sustainability, biotic, ecosystem, community, population, and producer, in oral and written communication
2.5 Use a variety of forms to communicate with different audiences and for a variety of purposes

3. Understanding Basic Concepts

By the end of Grade 7, students will:

3.1 Demonstrate an understanding of an ecosystem *(e.g., a log, a pond, a forest)* as a system of interaction between living organisms and their environment
3.2 Identify biotic and abiotic elements in an ecosystem, and describe the interactions between them
3.3 Describe the roles and interaction of producers, consumers, and decomposers within an ecosystem
3.4 Describe the transfer of energy in a food chain and explain the effects of the elimination of any part of the chain
3.5 Describe how matter is cycled within the environment and explain how it promotes sustainability
3.6 Explain why an ecosystem is limited in the number of living things *(e.g., plants and animals, including humans)* that it can support
3.7 Describe ways in which human activities and technologies alter balances and interactions in the environment

4. Language

By the end of Grade 7, students will:

Reading

- ✓ Plans a research project and carries out the research

Writing

- ✓ Uses writing process to produce:
  - **A.** A persuasive paragraph
  - **B.** A Letter of application
  - **C.** A cinquain or oral diamante poem

Visual Communication

- ✓ Uses a variety of media works *(video, charts etc.)* oral presentation
- ✓ Uses specific oral skills in presentations *(eye contact)*

5. **The Arts**

By the end of Grade 7, students will:

Visual Arts

- ✓ Produces 2 and 3 dimensional works of art that communicates a variety of ideas
- ✓ Identifies the principles of design
- ✓ Explains how artistic choices affect the viewer and support their conclusions with evidence from the work

Drama and Dance

- ✓ Creates dance pieces, using a variety of techniques
- ✓ Evaluates their own and others' work using criteria developed by the class

6. **Geography**

By the end of Grade 7, students will:

Themes of Geographic Inquiry

- ✓ Formulates speculative questions to identify issues
- ✓ Produces a variety of graphs, charts, and diagrams
- ✓ Produces a map for a variety of purposes

Patterns in Physical Geography

- ✓ Identifies and describes world climate patterns
- ✓ Identifies major river systems of the world
- ✓ Constructs, compares and interprets climate graphs

Safari Niagara: Unit for Grade Seven

Your Grade 7 trip to Safari Niagara focuses on the curriculum areas of language, the arts, geography and science and technology.

This booklet is planned to assist you, the teacher, in providing meaningful pre-trip, on-site and post-trip activities.

Before your visit, your class will be involved in writing and delivering a research report on a Safari Niagara animal of their choice, preparing a TOUR GUIDE presentation that will be used on site, creating "zoo" poems and examining the art of resident artist Rod Dowling. Practice will also be given in creating and comparing climate graphs.

Arriving at Safari Niagara, you will follow an outline that will lead you through your day. Students will actively participate in examining a pond ecosystem, do independent/group art work as well as present TOUR GUIDE info.

Back at the school, you can continue the art focus by having students complete at 3-dimensional art piece as well as practice their skills in creating persuasive writing samples.

You will also find several appendixes attached to the manual which means less work for you!

Not only will this day provide an enjoyable time for your students, it will also complete many of the required expectations from the Ontario curriculum.

<u>Suggested PRE-VISIT Activities</u>

Language – Reading– Writing a Research Report

From the list of animals and birds found with Safari Niagara *(see Appendix A),* complete a research project on one of your choices following these steps:

1. **Narrow the Topic:**
   What specific aspect(s) about your animal/bird interests you?What resources are available?Record them as you find ones appropriate, listing name of source, author, publisher and reference pages.

2. **State your Research Question:**
   After reviewing resources, what question could your research answer?

3. **Determining What You *(Want to)* Know:**
   Before beginning to research, make notes on a chart like this one:

What I Know	What I Want to Know

4. **Research:**
   Record notes from a variety of sources completing the source sheet. *(See Appendix B)*

5. **Writing First Draft:**
   Write a series of questions that need to be answered in response to the research question. These can be used as sub-topics. Write your information from all sources in sentence from under the appropriate question.

6. **Revising:**
   With a partner, use Appendix C *(Revising Research Report)* to revise your first draft.

7. **Publishing:**
   Publish your finished piece using criteria provided by your teacher.

8. **Evaluation:**
   Using Appendix D (Rubric: Research Report), evaluate your product with a peer.

Language

Reading

Becoming Tour Guides

In order to prepare for the on-site tour, students can prepare a 2-3 minute presentation. Assign the following animals to your class to research so that when they visit Safari Niagara, they will be able to describe the animal to the rest of the class (e.g. country of origin, food…).

Bear, Camel, Giraffe, Rhinoceros, Jaguar, Cougar, Lynx, Monkeys, Hippopotamus, Lion, Wolves, Tigers, Bobcat, Gibbon

Writing

Communicating Ideas in Poetry

- Select (an) animal(s) found at Safari Niagara from Appendix A
- Complete an attribute web that uses words/phrases that would describe typical movements, physical characteristics, food etc.
- Using information records on NWEBS, create a cinquain or a diamante poem

CINQUAIN

Topic/Subject – 2 Syllables
Describe Topic – 4 Syllables
Expressing Action – 6 Syllables
Expressing Feeling – 8 Syllables
Synonym for Topic – 2 Syllables

DIAMANTE

Topic (noun)
2 Describing Words (adjectives)
3 Action Words (verbs with "ing" endings)
a 4 Word Phrase Capturing a Feeling About the Topic
3 Action Words (verbs with "ing" endings)
2 Describing Words (adjectives)
Ending Word

Students' poems could be included with an art lesson of pencil sketches of the animal chosen in order to produce an effective bulletin board display

Oral and Visual Communication

Making an Oral Presentation

- Brainstorm with students skills involved in presenting an oral research report
- Two possible heading could be:

Speaking Skills	Use of Media
- Eye Contact - Pace	- Use of Charts, Diagrams, Pictures - Creation of Media Works *(Newspaper report, radio play, overheads etc.)* - Use of other visuals

- Cooperatively develop the evaluation criteria prior to preparing the presentation
- Have students actively involved in peer evaluation by providing Appendix E *(Evaluation of Oral Report)* to be used during presentations.

Visual Arts

The Art of Rod Dowling

"About Rod Dowling" and "Rod Dowling Gallery" (A biography and examples of art work can be found at www.roddowling.com)

1. Read/discuss with students Mr. Dowling's biography
2. Google "Rod Dowling Gallery" for student reactions/responses to his work
3. Observeimagesof his works to:
    - Describe how the repetition of elements is used to create rhythm
    - Identify the area of emphasis in the piece (focal point)
    - Explain how the character and size of a work determines which tools, materials and techniques the artist will use, distinguish between formal *symmetrical) and inform (asymmetrical) balance from the photos
4. Divide students into small groups, assigning one new piece to each group who will apply the above expectation to their art
5. Each group present their findings to the class
6. Individually, students select one new piece from "Rod's…Gallery" to write an explanation of their preference fro the piece, referring to elements and principles of design previously discussed; end the piece of writing with how the art affects the student personally.

Geography

1. Using an atlas –
   a. Identify on a map of the world the major river systems on these continents: North America, South America, Asia, Europe, Africa and Australia. List the zoo animals found on each continent.
   b. List 5 major rivers in Canada, categorizing them under LOW USE/HIGH USE. Give support for your choice.

2. Complete the following chart on the Amazon and Nile Rivers:

Descriptors	Amazon	Nile
Length		
Source		
Countries it passes through		
Major cities on the river		
An interesting fact about the river		
Safari Niagara animals found along the river		
Where it ends		

3. a. On an outline map of the world, identify and describe world climate patterns as:
   - Tropical Climate (hot with rain all year)
   - Savanna Climate (hot with dry season)
   - Steppe Climate (warm and dry)
   - Desert Climate (hot and very dry)
   - Mild Climate (warm and wet)
   - Continental Climate (wet with cold winter)
   - Subarctic Climate (very cold winter)
   - Polar Climate (very cold and dry)
   - Mountainous Climate (altitude affect climate)

   Identify 2 zoo animals found in all applicable regions.

b. Complete 2 climate graphs using the following data –

Singapore												
Month	J	F	M	A	M	J	J	A	S	O	N	D
Precip. Mm	250	175	180	176	175	173	170	198	175	210	255	258
Temperature C	28	28	29	29	29	29	29	28	28	28	28	28

Monrovia, Liberia												
Month	J	F	M	A	M	J	J	A	S	O	N	D
Precip. Mm	31	56	97	216	516	973	996	373	744	772	236	130
Temperature C	26	26	27	27	27	25	24	25	25	25	26	26

Buenos Aires, Argentina												
Month	J	F	M	A	M	J	J	A	S	O	N	D
Precip. Mm	79	71	109	89	76	61	56	61	79	86	84	99
Temperature C	23	23	21	17	13	9	10	11	13	15	19	22

c. Compare the completed graphs to formulate questions arising from what is observed.
d. Identify animals that live within the climate patterns demonstrated on the graphs. Make a list of adaptations that are evident considering temperature, precipitation and access to water in their environment.

Suggested On Site Activities

<u>"Your Day at Safari Niagara" – A Guided Tour</u>

In order to be prepared for the activities as you move through Safari Niagara, you will need the following items:

- Sketching pencils
- Photocopies of Appendix F *(2 per student)*
- A copy of "Looking at an Ecosystem" as a guide for discussion
- Clipboards *(or suitable replacement*)
- Vocabulary and definition cards *(Appendix G/H)* prepared to hand out to students
- Sketching paper

When arriving at Safari Niagara it is important to take a few minutes to regroup, sit and review behavioral expectations regarding property and the proper treatment of animals.

It will also give your students a chance to ask questions before the trip begins.

Walk or ride the tram to the pavilion along the roadway. Here you will leave your lunch and any extras. The remainder of this guide provides activities as your progress through Safari Niagara along the roadway.

Birds of Prey

- Compare the birds' beaks to kitchen utensils (e.g., knife, scissors, etc.)
- Observe the wing span of these birds; categorize the birds into headings such as soaring, gliding, maneuvering
- Observe the wing span of the birds and discuss how they are adapted to flight

Petting Zoo

This is a perfect area to appreciate, enjoy and interact with the animals. It is important to stress respect and care before entering the petting area

Primates

This is the first location where students will be in the role of TOUR GUIDE
They will present their research findings to the class
Discuss why some of these animals can't be housed together. This is a good opportunity to mention the food chain.

Pond Activity

Assemble at one of the nearby ponds. Follow the outline "Looking at an Ecosystem". *(Refer to the Science and Technology Activities)*

Large Cats (and Wolves)

- Using your map, travel back to the lane where the large cats are housed
- Student TOURGUIDES will make their presentations from school-based research
- Discuss the animals using some of the questions
    1. What might they eat?
    2. Why is there an outside fence around the cages?
    3. Is the location in the woods a suitable one?
    4. Wolves do not eat plants but need plants in their environment to survive in nature. Explain.

Giraffe/Hippopotamus/Rhinoceros/ Bears

- Student TOUR GUIDES make presentations
- Discuss why camels have one or two humps, what special adaptations all these animals have in order to survive.

Sculptures

- Assemble in an area where there is a wide variety of Mr. Dowling's works
- Follow the outline of the Visual Arts Activity for the class. This will take about one hour to complete

Back to the Pavilion Area

- Discuss any animals/birds that were seen roaming free and suggest why they were allowed to do so
- Take time for follow-up discussion from the activities of the day

Visual Arts Activity

Stop with the class at a variety of art pieces to review concepts studied prior to the visit:

1. Focal point *(area of emphasis)* in a piece
2. Symmetrical vs. asymmetrical works
3. How repetition of elements is used to create rhythm *(causes the eye to move from one location to another)*
4. How each piece affects the viewer

Divide the students into groups of four and have each group select a piece of art to:

1. Plan a presentation on the above criteria to the rest of the class
2. Report back to the meeting place in 10 minutes
3. Take the class to various art pieces to listen to group presentations

Hand out clipboards, pencils and appendix F for students to work individually for 15-20 minutes *(completed worksheets may be evaluated for a part of the visual arts grade)*

Science and Technology Activity

Looking at an Ecosystem

1. In pairs students are given vocabulary specific to the unit from the Ontario Curriculum document "interactions Within Ecosystems" *(See Appendix G/H).* The teacher pre-determines the activity, e.g., With your partner, come up with a definition for the given word. Explain how your vocabulary word(s) relate to/are illustrated in the pond ecosystem. Read the definition to the class. *(Who then identify the concept).*
2. While the students are examining one of the pond ecosystems within Safari Niagara, the teacher can lead a discussion using the following questions.

Suggested Questions for Looking at an Ecosystem

- Suggest a food chain that would occur in a pond or along the shore of a pond.
- List the types of environments you might find in a pond ecosystem.
- Compare the edge of the pond ecosystem to its centre. What facts are different/similar?
- What influence do water, air, soil and the sun have on the ecosystem?
- Identify the characteristics and cycles of the aquatic world.
- Explain how this pond ecosystem is similar to other ecosystems you have studied. How is it different?
- Identify some of the decomposers below the surface of the pond.
- How can acid rain affect a pond ecosystem?
- What conclusions can you draw about the effect of acid rain on fish?
- Identify the characteristics of living things:
    1. Energy – living things require a constant supply
    2. Cell growth and organization
    3. Growth – living things grow toward a final form
    4. Maintenance – living things have an ability to maintain and repair themselves
    5. Reproduction – new members are produced
    6. Response – living things change in response to changes in the environment
    7. Variation and Adaptation – living things are varied within a species allowing them to adapt to long-term changes within their environment
    8. Metabolism – living things consume and use energy as well as release unwanted materials in order to survive.
- Identify the classification of living things:
    - Kingdom, phylum, class, order, family, genus, species.

Post-Trip Activities

Visual Arts

- After the trip, return and discuss the sketches done on the site
- Prior to the next art lesson students collect a variety of materials that could be used to produce a three-dimensional work of art (include class supplies such as straws, stir sticks, pipe cleaners, etc.)
- Students will write a paragraph to accompany the completed piece that communicates; focal point, use of elements in creating rhythm, thoughts and feelings that inspired the work.
- Students can use the format below to describe and evaluate their works:

Evaluation of Visual Arts…A Three-Dimensional Piece

Name

Title of Work:

Focal Point:

Use of Elements to Create Rhythm

Thoughts/Feelings that Inspired my Work:

Peer Evaluation:

Self Evaluation:

Teacher Comments:

Drama and Dance

- Through brainstorming, demonstrate a variety of movements typical of animals seen at Safari Niagara
- In small groups, select an appropriate piece of music to rehearse and perform a dance routing incorporating a variety of these movements
- Evaluate orally each group's piece by using criteria developed by the class before the performances

Language

Journal Writing:

- From your visit, describe your feelings about your favorite animal
- Identify a similarity of a connection between one of the animals and you or your life
- Make a T chart of your likes/dislikes of the trip overall

Persuasive Writing:

Writing a P/P/C Paragraph *(Point/Proof/Comment)*

- Teacher and students identify issues/concerns/questions for which there seem to be no simple answer (e.g., Are we saving animals such as tigers from extinction by keeping them in zoos?)
- One viewpoint is selected by the class
- Students brainstorm ideas related to the viewpoint from prior knowledge and/or experience
- In small groups, students use an organizer*(Appendix 1)* to create a paragraph on an issue of their choice, e.g.,

QUESTION/ISSUE

Are we saving the tiger from extinction by raising animals in zoos?

OPENING VIEWPOINT	PROOF	FINAL COMMENT
In my opinion zoos are saving many animals, including tigers, from extinction.	- supporting statement - supporting statement - supporting statement	As this paragraph has shown, keeping tigers in zoos is helping to save them from extinction

CONVETED TO PARAGRAPH FORM

In my opinion zoos are…

Writing an Ad and a Letter of Application

After your visit, you decide that you would like to volunteer/work part-time at Safari Niagara. This activity will be in two parts:

1. Creating an ad for the local newspaper
2. Writing a letter of application for work

1. Creating an Ad

   Make up an ad that would be placed in the local newspaper by Safari Niagara advertising for help. Search some old newspapers for example of want ads. You will find they usually contain the following kinds of information:

   - Company Name
   - Details of the work to be done
   - Character of the successful applicant
   - Skill of the successful applicant

   Share your completed ad with the class

2. Writing a Letter of Application

   The letter of application should be at least three paragraphs, giving an opportunity to do an introduction and a conclusion, with a single, longer paragraph in between responding to the details of the ad. The teacher should show a sample letter to review the basicsin the writing of formal letters *(i.e., date, return address, inside address, greeting, body, closing)*

Writing a Letter of Thanks

Students can each write a letter of thanks to Safari Niagara. One letter can then be sent to the zoo management.

APPENDIX A – A list of Animals at Safari Niagara *(May change each year)*

African Hunting Dog	De Brazza's Monkey	Prenhensile Tailed Skink
African Leopard	Donkey	Red Footed Tortoise
African Lion	Eagle Owl	Red Kangaroo
African Spurred Tortoise	Eclectus Parrot	Red Panda
Albino Hognose	Emu	Red River Hog
Alpaca	Fallow Deer	Reindeer
American Badger	Florida Sandhill Crane	Ring-Tailed Lemur
American Golden Eagle	Gila Monster	Rosella
American Red Fox	Giraffe	Rough Legged Hawk
Amur Leopard	Goeldi's Monkey	Royal Python
Andean Condor	Goffin's Parrot	Sacred Ibis
Argus Monitor	Grants Zebra	Savannah Uromastyx
Bactrian Camel	Great Horned Owl	Scarlet Ibis
Barbary Ape	Greater Flamingo	Scarlet Macaw
Barn Owl	Greater One Horn Rhino	Serval Cat
Bearded Dragon	Grey Wolf	Siamang Gibbon
Bengal Tiger	Harris Hawk	Six Banded Armadillo
Black & White Ruffed Lemur	Hippopotamus	Slender Tailed Meerkat
Black Bear	Honduran Milk Snake	Snowy Owl
Blue Bellied Roller	Indian Sarus Crane	Southern White Rhino
Blue Gold Macaw	Japanese Macaque	Spotted Jaguar
Blue Tongue Skink	Lar Gibbon	Striped Skunk
Brazilian Tapir	Leopard Gecko	Stuarts Milk Snake
Brown Lemur	Malagasy Tree Boa	Swift Parrot
Budgerigar	Military Macaw	Syrian Brown Bear
Bush stone Curlew	Miniature Horse	Turkey Vulture
California Kingsnake	Miniature Zebu	White Ibis
Canadian Bobcat	Mississippi Map Turtle	Wildebeest
Canadian Lynx	Moluccan Cockatoo	Yellow-Naped Amazon
Cape Thick Knee	Musk Ox	
Common Eland	Mute Swan	
Common Raven	Nilgai	
Cougar	Northern Bald Eagle	
Dark Handed Agile Gibbon	Nubian Goat Cross	
	Ostrich	
	Prehensile Tailed Porcupine	

APPENDIX B – Source Sheet

Title of SourceType*(book, internet etc.)*	
Author(s)	**Page Notation**
Publisher/Video/Website(s)	
Date of Publication	
What it Says….	

APPENDIX C – Revising A Research Report

Writer:

Reviewing Partner:

Criteria	Self	Peer	Teacher	Comments
The purposed of this piece of writing is clear. The research question is clear. It is addressed and eventually answered.				
The report shows a good understanding of the subject.				
There is good information from a variety of sources. These resources are acknowledged on the source sheet.				
Material is well organized into sections led by headings and sub-headings.				
Appropriate visual material is used to help clarify information.				
The writer makes the subject important – worth the reader's time in reading.				
The report is well presented.				

APPENDIX D – Rubric: Research Report

Writer:

Subject:

	Level One: 52-58	Level Two: 62-68	Level Three: 72-78	Level Four: 82-100
Content: Research questions/purpose sources	Unclear research question, incomplete	Research question clear information is insufficient	Clear question, appropriate sources, logical information	Research question and report content reflect insight into the subject
Organization: Logic Headings Transitions	Plan is weakly related to research question, some headings used	Logical answer to research question is attempted, headings used	Headings used to clarify and separate information, clear beginning, middle and end	Material arranged in best order using headings and sub-heading to clarify, strong logic evident
Communication: Visuals Plain, direct style Appropriate vocabulary	Direct style used,some use of visuals, sources acknowledged	Uses appropriate vocabulary, clear, direct style, good use of visuals, sources acknowledged correctly	Accurate use of related vocabulary, use of appropriate visuals, proper form used in acknowledging resources	Strong understanding of subject vocabulary, visuals enhance information, clear style contributes to accuracy
Conventions: Spelling Grammar Punctuation Sentences	Errors prevent much attention to content, frequent misspellings, frequent sentence errors	Some errors across the conventions, some misspellings, some sentence errors	Few errors across the conventions, few spelling and sentence errors.	Rare/minor errors, rare misspellings and sentence errors
Process: Revision (self, others) Editing (self, others)	With assistance, makes few changes in revisions, misses many errors in conventions	With assistance sees some improvements needs, makes them, corrects some errors	Independently makes changes that improve the form, language or purpose, independently corrects most errors	Independently makes changes that improve the form, language or purpose, independently corrects nearly all errors

Comments:

APPENDIX E – Evaluation of Oral Report

NAME	**Speaking** *Volume*	**Speaking** *Eye Contact*	**Speaking** *Pace*	**Media** *Pictures Used*	**Media** *Charts*	**Media** *Other*	**FINAL MARK**

APPENDIX F – Sketching/Evaluating Art Pieces

Name:	Date:
SKETCH OF ART WORK	Title: Focal Point: Symmetrical/Asymmetrical: Repetition of Elements: Personal Reaction to Piece:

APPENDIX G – Vocabulary Cards

ECOSYSTEM	ORGANISM	ABIOTIC FACTORS
COMMUNITY	BIOME	BIOSPHERE
POPULATION	ADAPTATION	PHOTOSYNTHESIS
CONSUMERS	PRODUCERS	CHLOROPHYLL
HERBIVORES	CARNIVORES	FOOD CHAIN
NUTRIENTS	MATTER CYCLE	WATER CYCLE
LEACHING	ACID RAIN	OMNIVORES

APPENDIX H – Definition Cards

Ecosystem: a system of living things that interact with each other	Organism: a single living thing	Abiotic factors: the non-living, physical factors of an environment e.g., sunlight, water
Community: all of the populations of organisms within an ecosystem	Biome: a collection of related ecosystems	Biosphere: all of the biomes of the ecosystems on Earth
Population: the number of organisms of the same species living in an ecosystem	Adaptation: to succeed in an ecosystem, plants and animals have special structures and behaviors called adaptations	Photosynthesis: when plants use energy from the sun to make sugar/starch molecules from water and carbon dioxide.
Consumers: organisms that rely directly or ultimately rely on plants for their food	Producers: organisms that contain chlorophyll and are able to make their own food (plants)	Chlorophyll: a green substance which acts as a catalyst to allow plants to "capture" energy from the sun
Herbivores: consumers that eat plants	Carnivores: consumers that eat other animals	Food Chain: tracing a simple feeding pathway, e.g., grass – mice- fox
Nutrients: the chemical components that provide energy to sustain life	Matter Cycle: the movement of matter through producers, consumers, decomposers	Water Cycle: the movement of water through the biosphere of the Earth; evaporation, condensation, precipitation
Leaching: the movement of nutrients in ground water	Acid Rain: rainwater with a PH of less than 7	Omnivores: consumers that eat plants and animals.

APPENDIX 1

Graphic Organizer: Point, Proof, Comment

TOPIC

POINT	**PROOF**	**COMMENT** *(Opinion)*

PARAGRAPH