



Grade 9- Human-Environment Interactions Activity

Urbanization Activity for Grade 9 Geography at the Toronto Zoo

ZOO ACTIVITY: ANIMALS AND URBANIZATION

Time Needed: Actual write-up should take well under an hour, however, students are encouraged to seek out animals in different areas of the park and this may require extra time.

Type of Activity: Handout, to be completed individually or in pairs.

Purpose: To educate students about the impact of urban development on Canadian wildlife and the environment.

Curriculum Expectations:

- Explain how human activities (e.g., agricultural and urban development, waste management, parks development, forest harvesting, land reclamation) affect, or are affected by the environment
- Assess how the effects of urban growth (e.g., development on former farm lands, destruction of wildlife habitat, draining of marshes) alter the natural environment
- Recommend ways in which individuals can contribute to the quality of life in their home, local ecozone, province, nation, and the world

Specific Prior Knowledge: Must be familiar with the term urban planner and the basics of urban growth.

Teacher Preparation Required: Ensure prior knowledge has been covered in class prior to zoo visit.

Materials Required:

- Writing implement and hard surface or clipboard for each student
- One copy of the Animals and Urbanization handout for each student

Notes:

- For further information on turtle conservation see www.kawarthaturtle.org

Human-Environment Interactions Activity, Grade 9



ANIMALS AND URBANIZATION



Imagine you are an urban planner for your city or town. You need to familiarize yourself with the local wildlife and their habitat. Visit the Americas Pavilion and/or the Canadian Domain and the Americas Wetlands (if the season allows) and answer to following questions.

1. Choose one turtle species and one snake species, plus 2 other animals which live in North America. Observe these species and complete the table below. /12

Species Name	Habitat Description*	What specific effect(s) could urbanization have on the habitat?
1.		
2.		
3.		
4.		

**This may be written on a plaque. If not, you can observe their Zoo habitat*

2. What animals have you personally observed that have been injured or have died as a result of urbanization (for example: road mortality)? /1

3. Snakes and other reptiles are ectothermic (cold-blooded) and obtain their heat from an external source.
 - a. What is a possible source of heat for reptiles (HINT – think of their habitat)? /1

 - b. Can you think of a reason they would be particularly susceptible to being run over by cars on a paved road? /1

Human-Environment Interactions Activity, Grade 9

4. Visit the Eastern spiny soft-shelled turtle hatching display in the Americas Pavilion. Note the sandy soil that turtles prefer to lay their eggs in. Also, many turtles return to the same nesting site each year, regardless of the dangers

a. As an urban planner, what would your concern be surrounding using this type of soil along two-lane highways? /2

b. How would you resolve the problem in part a? Suggest a solution and explain why it would work. /2

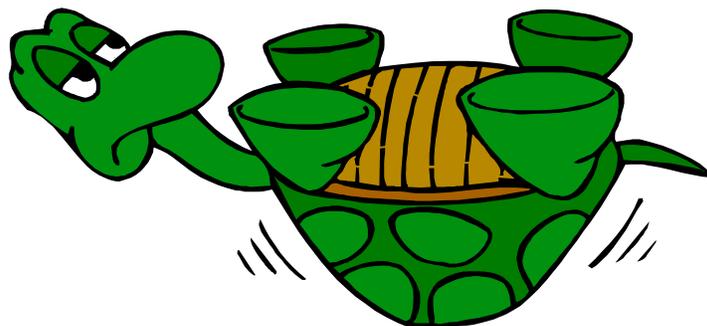
5. Read all parts of this question before answering. Visit the “It’s a Frog’s Life” wheel in the Americas Pavilion. Spin the wheel ten times to see the fate of the frog.

a. How many of the ten spins resulted in the mortality of the frog (at any stage)? Use the table below to tally your results. /1

Deaths due to Urbanization	Deaths due to Other Causes	Survival!

b. Choose two causes of mortality related to urbanization and suggest preventative measures. /4

Cause of Mortality Related to Urbanization	Preventative Measure(s)
1.	
2.	



Human-Environment Interactions Activity, Grade 9

ANIMALS AND URBANIZATION

/24

Imagine you are an urban planner for your city or town. You need to familiarize yourself with the local wildlife and their habitat. Visit the Americas Pavilion and/or the Canadian Domain and the Americas Wetlands (if the season allows) and answer the following questions.

1. Choose one turtle species and one snake species, plus 2 other animals which live in North America. Observe these species and complete the table below. /12

This question is open-ended and may include the species below.

Species Name	Habitat Description*	What specific effect(s) could urbanization have on the habitat?
1. Green frog	- wet, grass, muddy, diverse, lots of insects	- habitat loss due to water pollution, pavement and construction, filling in wetlands for agriculture
2. Otter	- water, grass, rocks	- polluted waters, especially if right beside industrial areas
3. Eastern Painted Turtle	- pool of water - rocky edges - water plants - floating logs	- people might "clean-up" water to make a swimming area, resulting in no places for the turtle to live/hide
4. Massasauga rattlesnake	- swamps - rocks and water	- destruction of hibernacula to make roads. - filling in swamps for cottage construction

*This may be written on a plaque. If not, you can observe their zoo habitat

2. What animals have you personally observed that have been injured or died as a result of urbanization (for example: road mortality)? /1

Answers may include:

Raccoons	Squirrels	Skunks	Moose
Cats	Groundhogs	Birds	Opossum
Deer	Porcupines	Rabbits	Ducks
Geese	Chipmunks	Frogs	Snakes

3. Snakes and other reptiles are ectothermic (cold-blooded) and obtain their heat from an external source.
 - a. What is a possible source of heat for reptiles (HINT – think of their habitat)? /1

Possible answers may include:

- rocks warmed by the sun
- soil warmed by the sun

- b. Can you think of a reason they would be particularly susceptible to being run over by cars on a paved road? /1

Possible answers may include:

- the road warms up (like rocks) and retains the heat well, the snakes rest on it at night to absorb the heat
- the snakes need to travel to the other side of the road

4. Visit the Eastern spiny soft-shelled turtle hatching display in the Americas Pavilion. Note the sandy soil that turtles prefer to lay their eggs in. Also, turtles return to the same nesting site each year, regardless of the dangers
 - a. As an urban planner, what would your concern be surrounding using this type of soil along two-lane highways? /2

Human-Environment Interactions Activity, Grade 9

Possible answers may include:

- nesting turtles may get hit by cars
- nests may be destroyed by cars
- baby turtles may be hit by cars

- b. How would you resolve the problem in part a? Suggest a solution and explain why it would work. /2

Possible answers may include:

- pave sides of road to keep turtles further away
- put up a fence to keep turtles off the road
- divert the road around the turtle's habitat
- create a tunnel (or eco-passage) under the road for the turtles
- put up a sign warning drivers

5. Read all parts of this question before answering. Visit the "It's a Frog's Life" wheel in the Americas Pavilion. Spin the wheel ten times to see the fate of the frog.

- a. How many of the ten spins resulted in the mortality of the frog (at any stage)? Use the table below to tally your results. /1

Responses will vary

Deaths due to Urbanization	Deaths due to other causes	Survival!

- b. Choose two causes of mortality related to urbanization and suggest preventative measures. /4

Responses will vary

Cause of Mortality Related to Urbanization	Preventative Measure(s)
1. A shopping mall is built on your pond.	<ul style="list-style-type: none"> - Environmental assessment - Relocation of pond life to nearby wetlands
2. Toxins dumped in pond	<ul style="list-style-type: none"> - have alternative toxin disposal areas - have strict rules against toxic dumping and enforcement