G9 Science: Class 8 Homework

1. Research the following species and find out if they are extinct, extirpated, endangered, threatened or of special concern. For help, visit www.cosewic.gc.ca **[5 marks]**

Species	Condition
Rainbow Mussel	
Grey Whale (*Eschrichtius robustus*)	
Sea Mink	
Snapping Turtle	
Red-headed Woodpecker	

2. Match the human activity on the left with the possible ecological impact on the right. **[5 marks]**

	Removing coastal vegetation	a) Loss of species dependent on aquatic ecosystems
	Commercial trawler fishing	b) Sediments in runoff smother natural habitats
	Wetland drainage	c) Increased acid precipitation
	Clearing of land next to rivers	d) Damage to ocean-bottom ecosystems
	Release of sulfur oxides	e) Increased erosion and loss of turtle nesting sites

3. Why are scientists concerned about species loss if extinction is a natural process? **[2 marks]**

4. Explain why one large park is a better refuge than several smaller parks of the same total habitat area. **[2 marks]**

5. How does the success of an invasive species depend on its placement in its new food web? Explain. **[2 marks]**

6. List two advantages and two disadvantages for each type of fertilizer. **[8 marks]**

	Advantages	**Disadvantages**
Synthetic Fertilizer		
Natural Fertilizer		

7. Imagine you are an environmentally conscious farmer. What farming practices would you implement on your farm to reduce soil erosion, pesticide use and fertilizer use? **[3 marks]**

8. Compare and contrast the following:

   a) Broad-Spectrum Pesticide and Narrow-Spectrum Pesticide **[3 marks]**

   b) Extinction and Extirpation **[3 marks]**

   c) Primary Succession and Secondary Succession **[3 marks]**

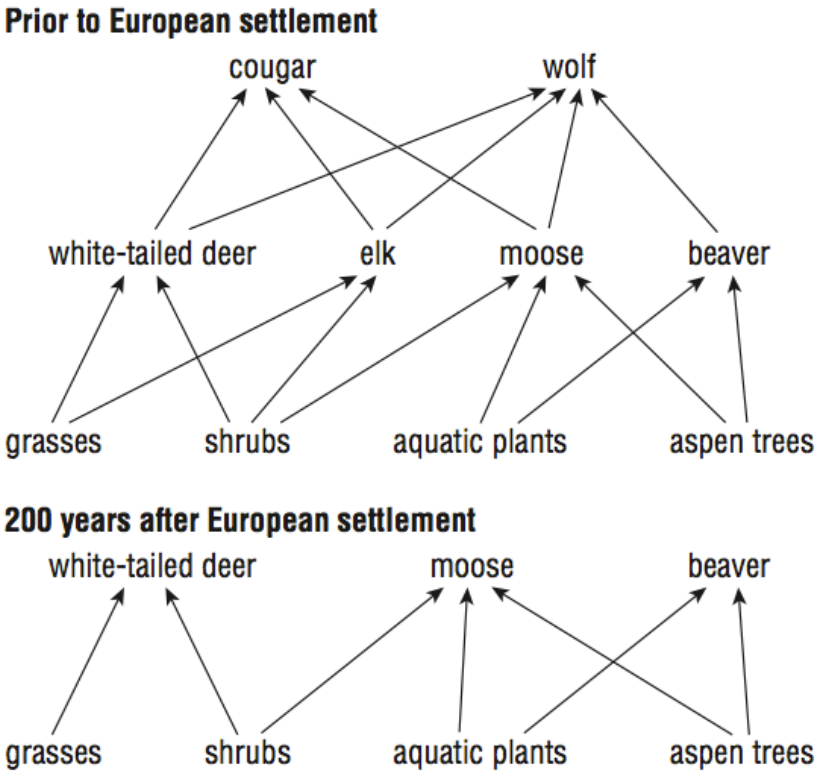
9. What is DDT? Explain the negative consequences of using DDT. **[4 marks]**

10. Plastic pollution is a major global concern. Brainstorm five plastic items you have used in the past week and classify the items under the following headings: **[5 marks]**

Often Reused	Usually Recycled	Placed in the Garbage

Challenge Problems

11. Examine the two simplified food webs below. Since the arrival of Europeans, all of the cougars and elk and most of the wolves that once lived throughout southern Ontario are gone.



a) List the main differences in the two food webs. **[3 marks]**

b) Why are the top-level consumers usually the first to be affected by disturbances in the food web? **[2 marks**]

c) What impacts do you think these changes had on the remaining species? **[2 marks]**

d) Some regions of Ontario are experiencing overpopulation problems with white-tailed deer and beaver. Explain why using this food web. **[1 mark**]

e) Lyme disease is spread by wood ticks that feed on white-tailed deer. Predict how these changes might influence the spread of Lyme disease. **[2 marks]**

12. Your city councilors want to set aside land for new parks. They ask for input from the public to help them make a decision concerning the parks. List three suggestions you would make that would increase the park's sustainability. Include an explanation for each of your suggestions. **[6 marks]**

13. There seems to be "dirt" everywhere you go outdoors. Does this mean that soil is an abundant resource? Explain your reasoning. **[3 marks]**

14. Explain why monocultures are not sustainable on their own, while complex natural ecosystems are sustainable without any human intervention. **[3 marks]**

15. Describe five ways that you can minimize your ecological footprint. **[5 marks]**

16. Design an experimental procedure to compare the effects of neutral rainwater and acidic rainwater on the acidity and nutrient content of soils. You are provided with a soil test kit to determine the soil pH and to measure the concentrations of nitrogen, potassium and sodium in the soil.

    a) What is your hypothesis? **[1 mark]**

    b) Explain briefly how you plan to conduct your experiment. **[3 marks]**

    c) What controls do you need to ensure that your experiment is actually testing for acidity? **[3 marks]**

    d) How would you display your data? Sketch a model of your graph below based on your hypothesis. **[3 marks]**