1. Draw a labelled flow diagram to cover all the possible pathways for energy from a holly tree. Use each one of the following labels **once** on the diagram.

Holly tree	Parasite1 (*C.gemma*)	Adult leaf mining fly
Holly leaf miner larva	Parasite 2 (*P. amyntas*)	Blue tit
Natural death of miner	Sparrow hawk	

2. Now use the class results to help you draw one pyramid of numbers diagram. Label each level with the species name and the type of feeder that it is (e.g. carnivore, herbivore)

3. Use your results to help **explain** your answers to the following.

(a) If the parasite (*C. gemma*) were to decrease in frequency due to a sudden change in environmental conditions, what effect would this have on

(i) the number of holly leaf-miners?

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(ii) the number of blue-tits?

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(b) If the parasite (*P. amyntas*) numbers increased rapidly, what effect would this have on (i) the holly-leaf miner?

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(ii) the other parasites?

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(c) If more sparrowhawks were introduced into the Squares by humans, what effects would this have on the food chain?

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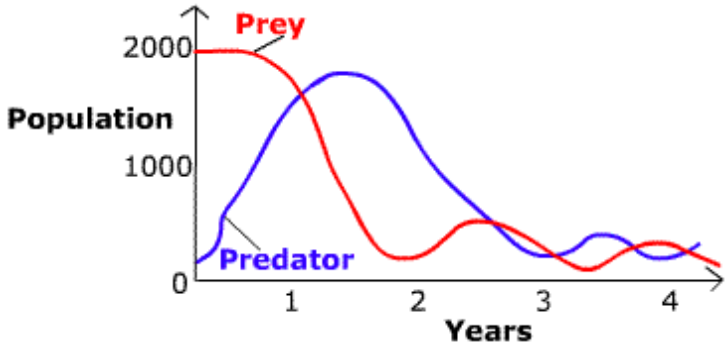
4. Extension.

The graph shows how the numbers of a prey species and the numbers of a predator species change over a period of four years.



(a) Using the graph above can you explain the changing population numbers of both predator and prey numbers over the years?

(b) Draw a graph to show the effect on the leaf miner population if parasite numbers increased dramatically.