Name:
Student Number:

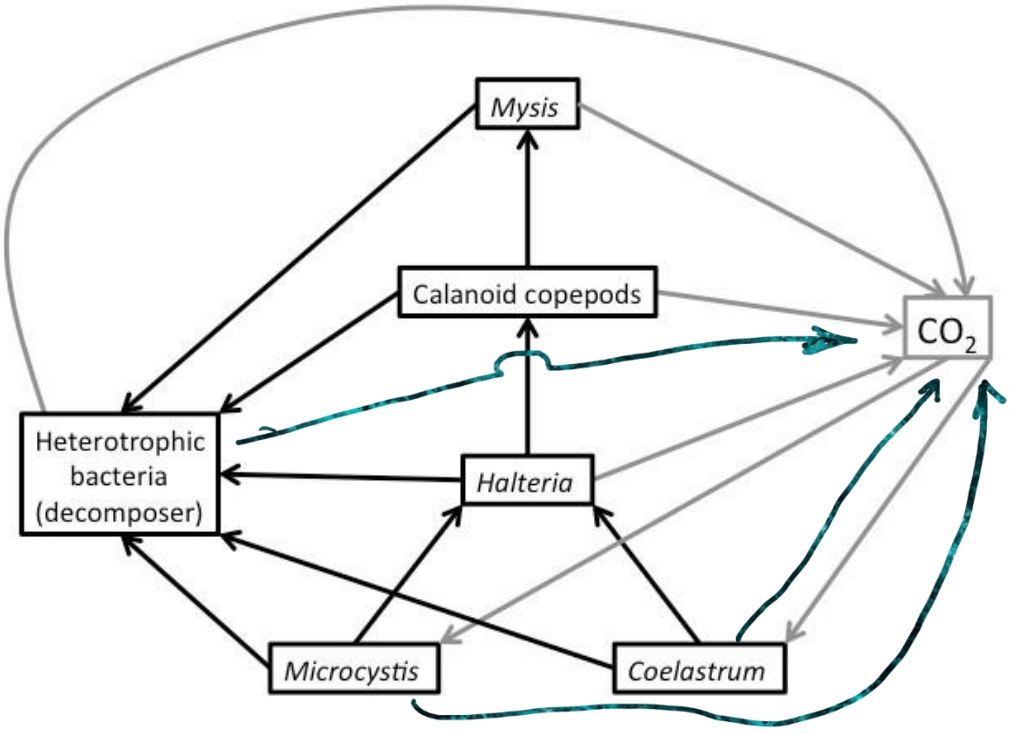
ECOSYSTEMS: FOOD WEB WORKSHEET

1. As part of your graduate studies, you have created a simple freshwater community in a tank (in your lab). The table below gives the relative biomass of each population in the tank:

Relative biomass	Organism
500	*Coelastrum*
56	*Halteria*
6	Calanoid copepods
600	*Microcystis*
1	*Mysis*

a. Based on the information provided above, draw a food web representing your lab ecosystem. Make sure you include the following:

- **i.** a heterotrophic bacteria (i.e., a decomposer – not shown in the table)
- **ii.** arrows that indicate the direction of energy flow (e.g., prey → predator)
- **iii.** inorganic carbon (in the form of CO_2) entering the food web
- **iv.** carbon leaving the food web (in the form of CO_2)



You can also draw arrows leaving organisms separately and not all congregating to a box as shown above. During the class you have done one exercise on this so you know how it should be done.

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2. Make a prediction: What do you expect to happen to the population of producers and overall biomass of the tank in each of the scenarios listed below?

Scenario	Prediction (circle one):		**Explain the reasoning behind your prediction:**
	Population of producers will:	**Biomass of the tank ecosystem will:**	
You add phosphorous (a limiting nutrient) to the tank	**increase**	**increase**	**Addition of the limiting nutrient will enable more growth of the producers, which will transfer biomass to the rest of the community.**
You add a parasite to the tank, which decimates the *Mysis* population	**increase**	**increase**	**Removal of the top trophic level (*Mysis*) will cause a trophic cascade that increases the abundance of producers.** **This could increase the biomass of the tank because more of the nutrients are now in the producers**
You introduce a predator that consumes only *Microcystis* (*Note*: *Microcystis* is the only nitrogen fixing species in the tank)	**decrease**	**decrease**	**Reducing the biomass of a producer will reduce overall biomass. Reducing nitrogen fixation (i.e., entry of nitrogen into the system) will also reduce the productivity of the other producer, again lowering biomass.** **Lower producer biomass = lower consumer biomass.** **(*Note:* Can accept "no change" if a reasonable explanation is provided – e.g., nitrogen is not limiting, so the other producer will still be able to grow and make up for the loss in biomass).**