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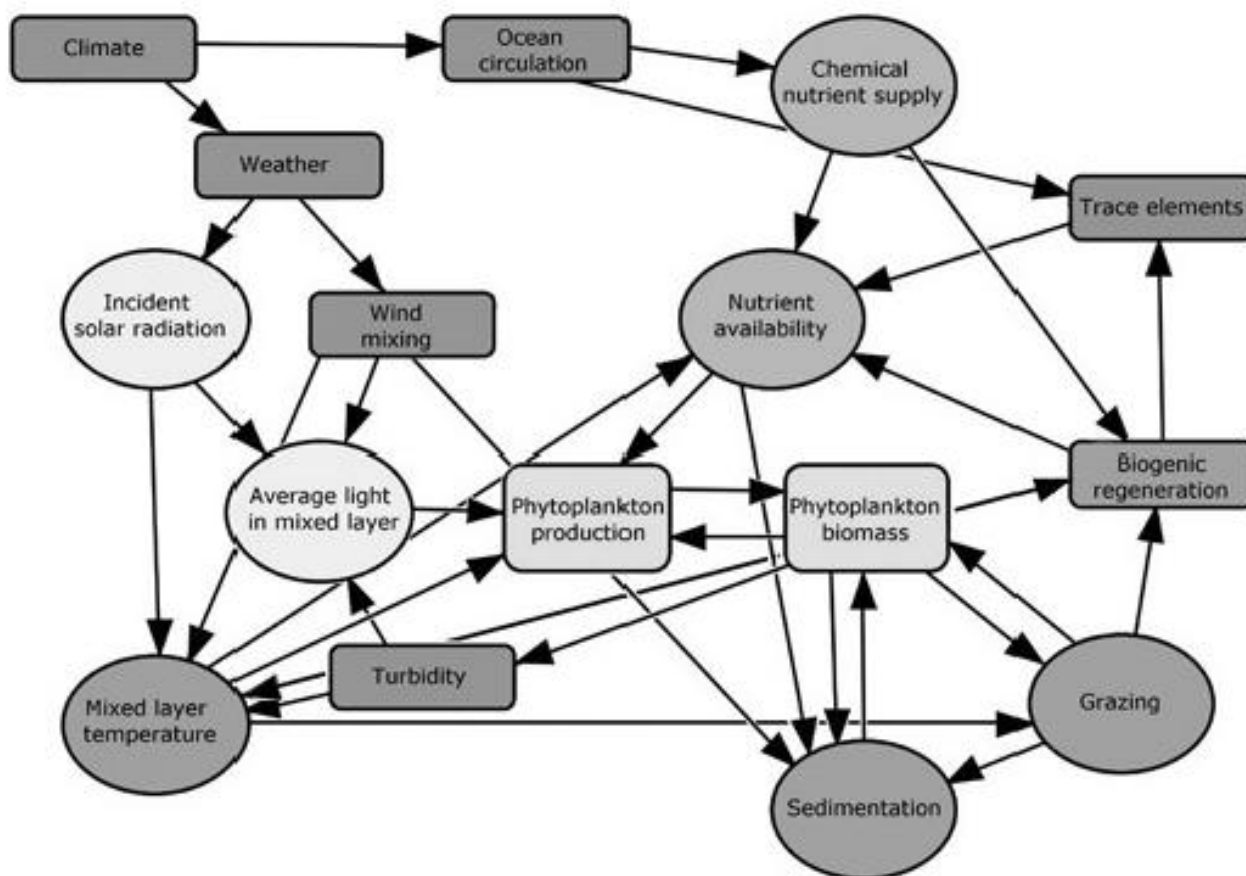
Class _____



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KS4 Controlling Production Worksheet

This complex diagram illustrates the main controls on the biomass and growth of phytoplankton in the ocean. The questions below are designed to test your basic understanding, rather than detailed knowledge



1. The amount of phytoplankton - **BIOMASS** - and its growth - **PRODUCTION** - are shown as two interdependent boxes. How does the biomass affect directly the overall production?

2. Grazing by herbivores clearly affects phytoplankton biomass, but a second arrow indicates that biomass has a role in determining the amount of grazing. A two-way relationship like this is called '**FEEDBACK**'. Describe the feedback loop whereby phytoplankton biomass influences production via light and temperature. How does this work in the upper ocean?

3. The box labelled '**Biogenic regeneration**' includes the various biological processes that recycle the chemical nutrients (N, P, Si, trace elements) that phytoplankton need for growth. What controls regeneration, and what else affects the supply of nutrients and the way in which they are available to phytoplankton? What feedbacks are involved?