

Year 1 – Year 2 IB Biology Summer work

This is an overview of the summer work that can function as a checklist.

Internal assessment (IA) work

_____ Read and score example IA #1 (The effect of sunlight on biomass) on the provided rubric sheet

_____ Read and score example IA #2 (A study on the effect of smoke water on the germination and growth of *Eucalyptus pilularis*) on the provided rubric sheet

For each of the assigned examples, I will be asking you to provide your score and be prepared to defend your reasoning during the first week of school. **NO LATE WORK WILL BE ACCEPTED.**

_____ Read the IA topic selection sheet and follow the directions. This will be an electronic file that will be submitted on the first day of school. **NO LATE WORK WILL BE ACCEPTED.**

Topic 4: Ecology

Our first topic of year 2 will be Ecology.

_____ Complete the independent research packet that covers 4.1 and 4.2. I will check that it is complete during the first week and post an answer key. **NO LATE WORK WILL BE ACCEPTED.**

_____ Complete sketchbook 4.1 and 4.2. The applications, understandings and skills are included for reference. I will collect the sketchbooks on the first day of school. **“STANDARD” LATE PENALITIES WILL BE APPLIED.**

4.1: Species, communities, and ecosystems

4.1 U1: species or groups of organisms that can potentially interbreed to produce fertile offspring

4.1 U2: members of a species may be reproductively isolated in separate populations

4.1 U3: Species have either an autotrophic or heterotrophic method of nutrition a few species have both methods

4.1 U4: consumers are heterotrophs that feed on living organisms by ingestion

4.1 U5: detritivores are heterotrophs that obtained organic nutrients from detritus by internal digestion

4.1 U6: saprotrophs are heterotrophs that obtain organic nutrients from dead organisms by external digestion

4.1 U7: a community is formed by a population of different species living together and interacting with each other

4.1 U8: a community forms an ecosystem by its interactions with the abiotic environment

4.1 U9: autotrophs obtain inorganic nutrients from the abiotic environment

4.1 U10: the supply of inorganic nutrients is maintained by nutrient cycling

4.1 U11: ecosystems have the potential to be sustainable over long periods of times

4.1 S1: classifying species as autotrophs, consumers, detritivores, or saprotrophs from a knowledge of their mode of nutrition

4.1 S2: setting up sealed mesocosms to try to establish sustainability (practical 5)

4.1 S3: testing for association between two species using a chi squared test with data obtained from quadrant sampling

4.1 S4: recognizing and interpreting statistical significance

4.1 NOS: looking for patterns, trends, and discrepancies - plants and algae are mostly autotrophic but some are not

4.2: Energy Flow

4.2 U1: most ecosystems rely on a supply of energy from sunlight

4.2 U2: light energy is converted to chemical energy in carbon compounds by photosynthesis

4.2 U3: chemical energy in carbon compounds flows through food chains by means of feeding

4.2 U4: energy released from carbon compounds by respiration is used in living organisms and converted to heat

4.2 U5: living organisms cannot convert heat to other forms of energy

4.2 U6: heat is lost from ecosystems

4.2 U7: energy losses between trophic levels restrict the length of food chains and the biomass of higher trophic levels

4.2 S1: quantitative representation of energy flow using pyramids of energy

4.2 NOS: use theories to explain natural phenomenon - energy flow explains the limited length of food chains