

Year 10 Science Personalised Learning Checklist- Autumn 2
Plant Biology

	Learning Statements	Tier	R	A	G
1	Define "ecosystem"	F			
2	Define 'interdependence' and explain what species depend on	F			
3	Describe what plants and animals 'compete' with each other for	F			
4	Describe structural, behavioural and functional adaptations of organisms	F			
5	Define extremophiles linking to the conditions that they inhabit (bacteria in deep sea vents)	F			
6	Interpret data from graphs and tables relating to predator and prey relationships predicting numbers of species based on changes in this data	F			
7	List biotic and abiotic factors and explain how changes in them would affect a given community	F			
8	Define primary, secondary and tertiary consumers	F			
9	Explain the role of producers in food chains	F			
10	Use a range of experimental methods to calculate the abundance and distribution of species in a given ecosystem	F			
11	RP Field Investigations (a - separate only): Measure the population size of a common species (b - combined & separate) Investigate the effects of a factor on the distribution of a species using sampling techniques	F			
12	Draw and label an unspecialised plant cell and a palisade, root hair, xylem and phloem specialised cell	F			
13	Describe the 5 tissues and name the key organs in the plant	F			
14	Label a transverse section of a leaf	F			
15	Describe the process of osmosis	F			
16	Calculate the rate of water uptake by a plant	F			
17	Calculate the percentage change in mass following osmosis	F			
18	Analyse and draw graphs relating to osmosis	F			
19	RP Osmosis: Analyse the range of concentrations of solutions on the change in mass of plant tissue	F			
20	Describe the process of active transport and explain why it is necessary	F			
21	Compare diffusion, osmosis and active transport	F			
22	Describe the process of active transport and how root hair cells are adapted to this	F			
23	Describe the process of transpiration and translocation (including the structure and function of stomata).	F			
24	Explain the effect of changing temperature, humidity, air movement and light intensity on the rate of transpiration	F			
25	Calculate surface area, volume and mean in transpiration investigation	F			
26	Analyse data from graphs and tables relating to transpiration experiments	F			
27	Describe in detail the location, function and adaptations of xylem tissue, phloem tissue, stomata and guard cells	F			
28	Describe the process of photosynthesis	F			
29	Recall the word and symbol equation for photosynthesis	F			
30	Explain the effects of temperature, light intensity, carbon dioxide intensity and the amount of chlorophyll on the rate of photosynthesis	F			
31	Analyse data and calculate rates of photosynthesis and limiting factors from graphs and tables	F			
32	Translate information between tabulated and graphical form (from tables to graphs) selecting the appropriate scale for axes	HT			
33	RP Photosynthesis: Investigate the effect of light intensity on the rate of photosynthesis on an aquatic plant	F			
34	Describe how glucose is used after photosynthesis	F			
35	Explain the use of nitrate ions within plants	F			
36	Use tests to identify starch, glucose and proteins	F			
37	Explain limiting factors of photosynthesis (HT only)	F			
38	Apply inverse square laws and light intensity to the context of photosynthesis. (HT only)	HT			

39	Explain the economic importance of limiting factors in greenhouses (HT only)	HT			
40	Describe the carbon cycle and its importance	F			
41	Describe the water cycle and its importance	F			
42	Define biodiversity and explain its importance	F			
43	Explain in detail human impact on biodiversity (waste management, pollution, land use, deforestation, global warming)	F			
44	Describe and evaluate some of the programs used to reduce the negative effects of humans on ecosystems and biodiversity (breeding programs, protection/regeneration of rare habitats, reintroduction of field margins and hedgerows, reduction of deforestation, reduction of carbon emissions, increased recycling)	F			