1. Chloroplasts have 2 lipid bilayers surrounding them.
2. Photosynthetic pigments are located in the thylakoid membranes.
3. The stroma is the site of the light-dependent reactions.
4. RuBP is located in the thylakoid.
5. The sun is constantly giving off energy in the form of electromagnetic radiation.
6. Visible light has less energy than gamma radiation.
7. Red light has more energy than blue light.
8. Red light has a longer wavelength than blue light.
9. Plants utilize the visible light spectrum to perform photosynthesis.
10. The x-axis of an absorption spectrum is “light absorption”.
11. Chlorophyll has a long, lipid tail called a phytol.
12. ATP and NADPH are produced in the dark reactions.
13. A stack of thylakoids is called a granum.
15. Pigments can absorb light due to their double bonds.
16. Our eyes see leaves as green because chlorophyll strongly absorbs green wavelengths.
18. The y-axis of the absorption spectrum is “wavelength”.
19. A 450 nm light would appear blue.
20. The presence of pigments that absorb wavelengths different from chlorophyll allows photosynthesis to occur at most wavelengths of visible light.
21. Chlorophyll “b” has an aldehyde group where chlorophyll “a” has a methyl group.
22. Chlorophyll molecules have a complicated ring structure called a porphyrin.
23. Thylakoids are filled with stroma fluid.
24. Carbon dioxide is a reactant in the light dependent reactions.
25. The light dep. reactions are powered by ATP and NADPH.
26. Glucose (ie. sugar phosphate) is a produce of the dark reactions.
27. Oxygen is produced by the splitting of water in the stroma.
28. Photolysis is necessary to replenish lost electrons from PII.
29. A photosystem consists of an LHC and an ETS.
30. The LHC consists of many chlorophyll “a” molecules and a single chlorophyll “b”.
31. Carotenoids and phycobilins are considered antenna pigments.
32. Light energy is really required in photosynthesis to boost protons to higher energy states.
33. The reaction centre chlorophyll loses an electron to its adjacent ETS.
34. The ETS is embedded in the thylakoid membrane.
35. Redox reaction occur as electrons move through the ETS.
36. Non-cyclic photophosphorylation does not lead to NADPH production.
37. Cyclic photophosphorylation does not lead to oxygen production.
38. ATP is actually produced in the stroma.
39. H+ ions are concentrated in the thylakoid interior.
40. The final electron acceptor in the light reactions is NADP+.
41. The C3 cycle involves fixing oxygen onto RuBP.
42. The C3 cycle is named for the first stable 3-carbon molecule, PGAL.
43. RuBP oxygenase is the enzyme responsible for carbon fixation.
44. 1 sugar phosphate is formed from 2 PGAL’s.
45. The remaining PGAL’s regenerate oxaloacetate in the C3 cycle.
46. _____ Light or low CO2 stimulates active transport of Na+ into guard cells and water follows passively.
47. _____ More stomata are located in the bottom layer of the leaf than in the top layer.
48. _____ The palisade layer has more spaces in it than the spongy layer.
49. _____ The C4 pathway is an adaptation to cold, wet climates.
50. _____ PEP carboxylase fixes CO2 onto RuBP.
51. _____ PEP carboxylase can fix CO2 efficiently even in high O2/low CO2 environments.
52. _____ Carbon dioxide is fixed twice in C4 plants.
53. _____ Low O2 and high CO2 tend to increase photorespiration.
54. _____ Brilliant fall leaf colours occur as chlorophyll breaks down and other pigments show through.
55. _____ During photorespiration RuBP is broken down and lots of glucose is produced.
56. _____ Sugars in a plant travel through the xylem; water travels through the phloem.
57. _____ Carbon dioxide concentration limits the rate of the light reactions more than the rate of the dark reactions.
58. _____ There are ~10 plant physiology scientists who may show up on the test in some straightforward fashion.
59. _____ Sugar-phosphates may be converted into sucrose, cellulose, or glycogen.
60. _____ Plants are much neater than you once thought!