Scan 1 Chlorophyll B (wavelength here?)

Scan 2 Chlorophyll A (wavelength)

Scan 3 Carotene (wavelength)

Scan 4 Xanthophyll (wavelength)

Where are they? What do they do? Why different ones?

They are found in the chloroplast of plant cells.

Chlorophylls appear green because they absorb blue and red light while reflecting green light.

Carotene reflects red or orange

Carotenoids such as Xanthophyll are yellow or green

Difference between the carotenes and carotenoids is that carotene does not have an oxygen atom in its structure (it is non-polar).

They have different colors because at the same time they absorb different wavelengths of the light spectrum, giving a wider range of energy which can be extracted from light.

Photosynthesis:

Photosystem 2 = 35-40 chlorophylls and 8-12 carotenoids

Photosystem 1 = 96 Chlorophyll a, 22 carotenoids

Why so many? What is their job?

Take in photons, their electrons are excited, then release energy as they go back. Energy prompts water molecules to give away electrons which go through the electron transport chain (PSI helps by supplying electrons with more energy).