

Geography Skills- Year 11

Lithosphere: soil tests		
Depth	Measured in centimetres from the surface down.	
Colour	Moist soil smeared on page; description in words.	
Slaking	Pea size sample placed in water, observe if falls apart or is stable. Indicates whether soil is erodible or has stable structure.	
Salinity	1: 5 soil/water mix and test with salinity meter.	
pH	Soil acidity. Half teaspoon of crushed soil, add 3 drops of universal indicator then sprinkle with barium sulphate powder. Do not mix, check colour card	
Texture	The proportion of sand, silt and clay particles. Crush a handful of soil, add a few drops of water and mix until it gets slightly sticky. Ribbon the ball of soil by pressing between the thumb and forefinger and measure the length of ribbon produced.	
Organic Content	Fill a specimen bottle 50% full with soil sample, fill with water and shake. Allow 2 min. to settle then observe quantity of floating organic matter .	

Topography (landform)		
slope angle	Measured with a clinometer in degrees.	
aspect	The direction a slope is facing (N,S,E,W) or compass bearings	
Atmosphere		
Temperature	Thermometer, degrees Celsius	
Humidity	Hygrometer, % relative humidity	
Light	Lux meter	
Wind direction		
Wind speed		
Precipitation		

Hydrosphere

Water Test Safety: You must wear gloves and eye protection. If any chemical gets in your eyes, inform your teacher and wash your eye in water immediately.

Dissolved Oxygen	Oxygen is produced by aquatic plants and also dissolves directly into water from the air. Pollutants such as sewage are broken down by bacteria which use oxygen and cause levels to drop. Cloudy days also cause levels to drop because plants need sunlight to produce oxygen.	
Phosphorus	Natural waterways have very little phosphorus. It is a pollutant from sewage and fertiliser runoff which causes excessive growth of aquatic plants including blue-green algae.	
pH	Carbon dioxide can cause the water to become very acid whilst pollutants can cause it to become very alkaline. Effluent is acidic. 6-9 excellent, below 5.5 or above 9 is poor.	
Ammonia	Human and animal waste and dead plant matter decompose in water producing ammonia. Like phosphorus, it is a fertiliser for plants and assist the growth of algae.	
Salinity	Units are EC's (electrical conductivity). Under 100 excellent; 600-1100 non-lethal effects, 1100+ lethal effects, 1500 saline, 50000 sea water.	
Turbidity	How muddy the water is. Pour water down the tube (nephelometer) whilst looking down it until you can no longer see the black lines. Units are NTU's. Good under 10, over 50 is poor.	

Biosphere

Plant communities can be described using the following characteristics:

- species diversity - the number of different species
- abundance - the number of each plant type (population)
- dominance - one species may determine the conditions under which the others live e.g. tall tree shades others
- structure - the number of height layers, the more layers, the better the habitat for animals.
- form - the basic plant shape including trees, shrubs, grasses, herbs, lichens, mosses and fungi.

When studying a plant community we don't have time to count every single plant so we study smaller, randomly selected samples of the bush by using quadrats, transects and combinations of these. Quadrats and transects can be any size.

Quadrat: size ___m x ___m

Identify and record the total number of trees, shrubs, herbs and grasses in your quadrat.

When doing a survey you would make several quadrats to have enough data to make valid conclusions. You should state the plants in each layer- canopy, understorey or ground cover. For ground cover use a percentage of cover rather than counting individual plants

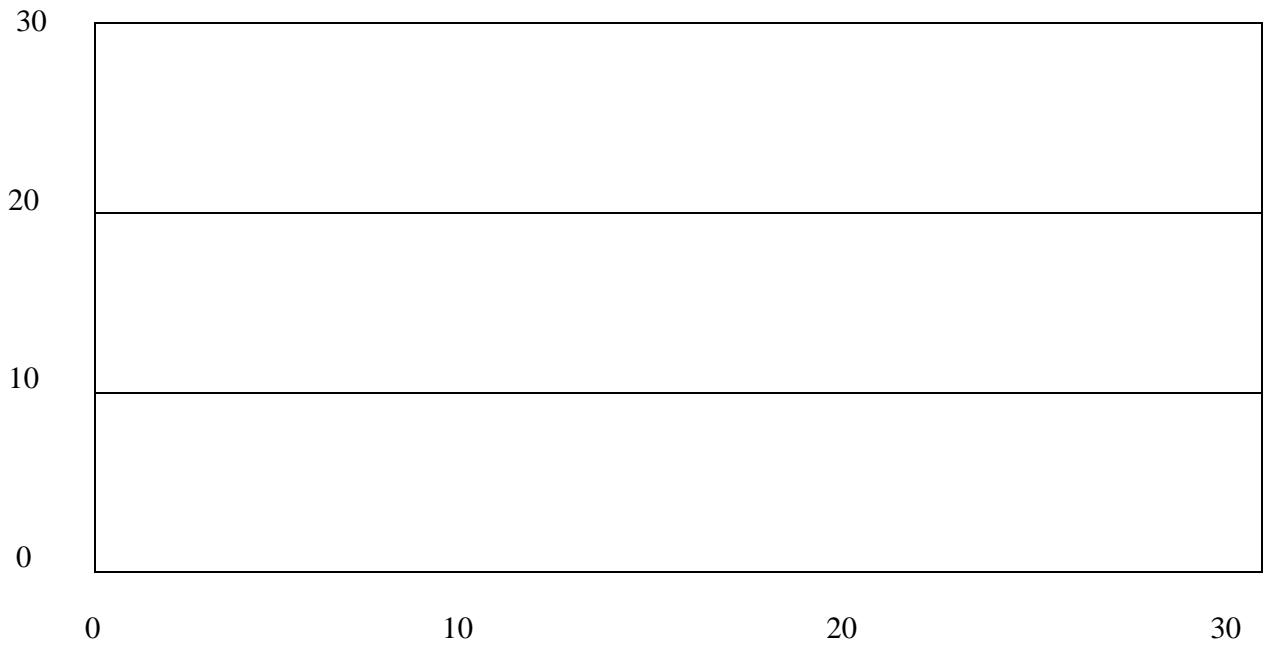
Plant							
Number							
Height							

Make a diagram of your quadrat as viewed from above. Show the location of the plant base and its canopy cover.

	Legend
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Transect: size _____ m X _____ m

Survey a rectangle _____m X _____m by laying out the tape measure and walk along it with a stick 2m wide. Record the trees and shrubs as you go and show their height.



Legend
Notes

Satellite Image Analysis



Landsat type satellites orbit approximately 700-800 kms above the Earth in a near polar orbit. It takes 90 minutes to complete each orbit and 16 days to scan the entire globe. They scan strips 185 km wide. Different objects can be identified because they reflect/transmit radiation of different wavelengths. Geographers then allocate different colours to the different wavelengths – false colour imagery – so features they are interested in stand out better.

Draw a précis (sketch) map of the Lake Albert catchment. Colour it the same as the satellite image then use the colour guide to annotate your map.

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White	cloud, snow, bare ground	Grey/black	cypress pine woodland, shadow
Cream	dry crop stubble	Red	healthy green vegetation
Blue/green	dry pasture	Pink	young green vegetation
	(dark – good cover, light – poor)	Red/brown	eucalypt forest
Blue - bright	industrial area (iron roofs)	Purple/red	houses/residential
- normal	shallow water	Brown	eucalypt woodland
- dark	deep, clear water	Grey/blue	grey soils/alluvium
Green	red soils, moist fields		