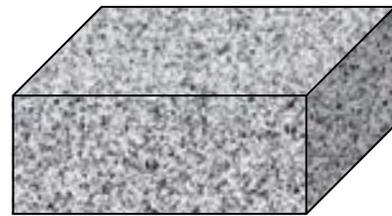


Root Growth/Crecimiento de las raíces

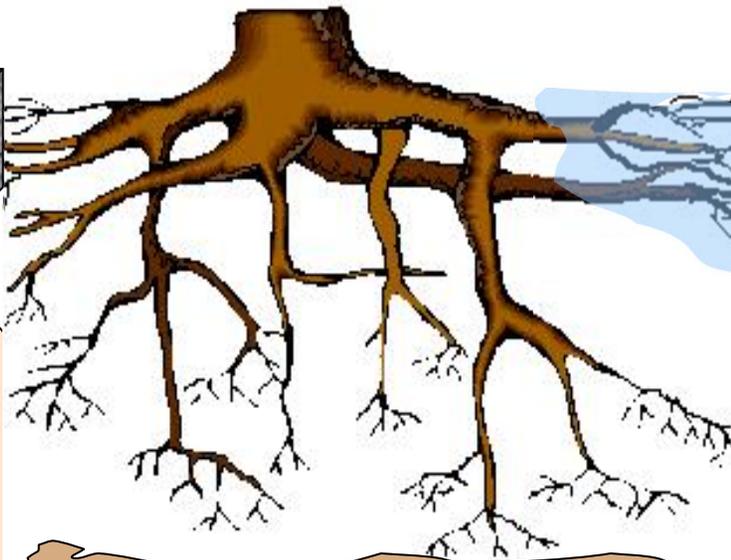
Roots are **opportunistic**, they grow where conditions are best/Las raíces son **oportunistas**,

crecen donde las condiciones son mejores..
Concrete sidewalk/Acera de hormigón

Root crown/Corona de la raíz



Compacted soil, few macro pores/Suelo compactado, pocos poros macro

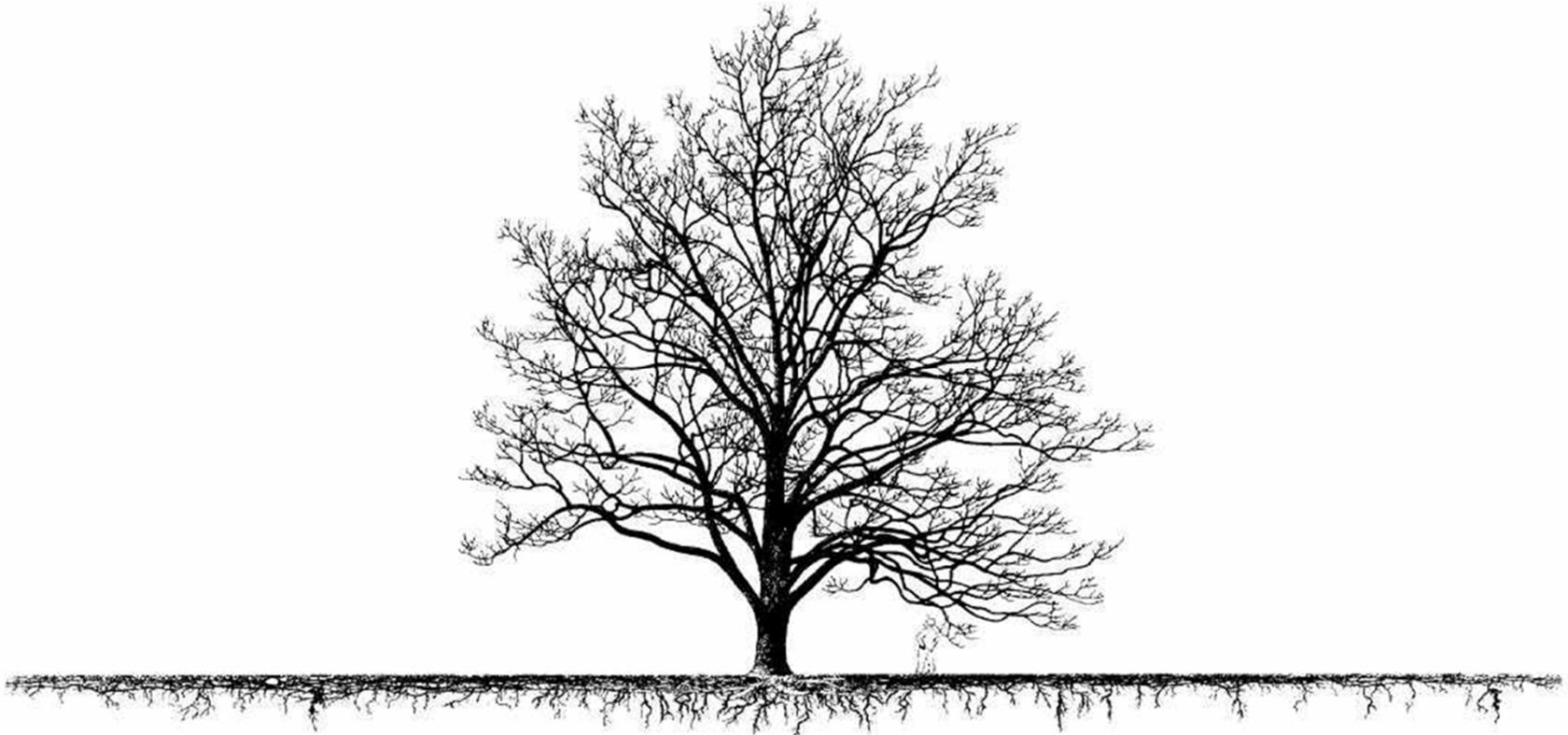


Moist friable soil/Suelo friable húmedo.

Dry soil, little oxygen/Suelo seco, poco oxígeno



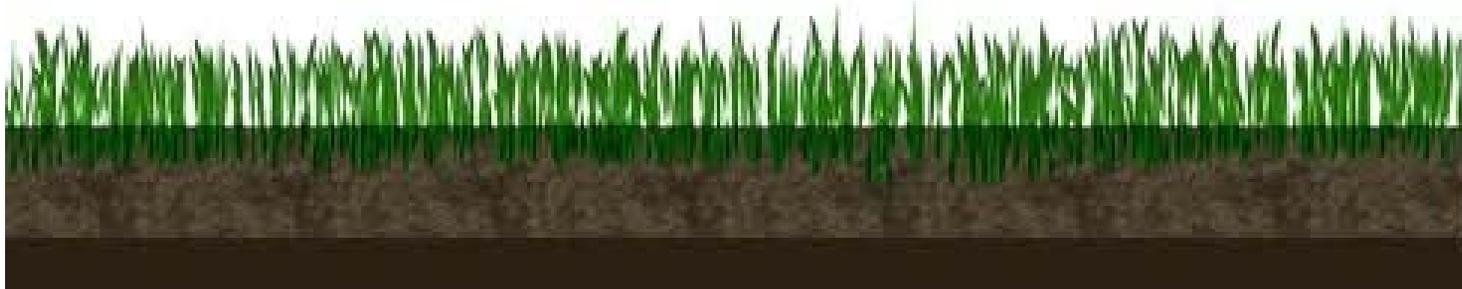
Root Function/Función de las raíces



1. Support and Anchor the Tree/Apoya y ancla el árbol
2. Absorption and Conduction of Water and Nutrients/Absorción y conducción de agua y nutrientes.
3. Storage of Food and Nutrients/Almacenamiento de alimentos y nutrientes.

It all starts with SOIL/ Todo comienza con SUELO

- 99% of a tree's root mass is in the top 3 feet of soil/El 99% de la masa de la raíz de un árbol está en los 3 pies superiores del suelo.
- This is where the tree absorbs water stored in soil from rainfall and takes up nutrients/Aquí es donde el árbol absorbe el agua almacenada en el suelo de la lluvia y absorbe los nutrientes



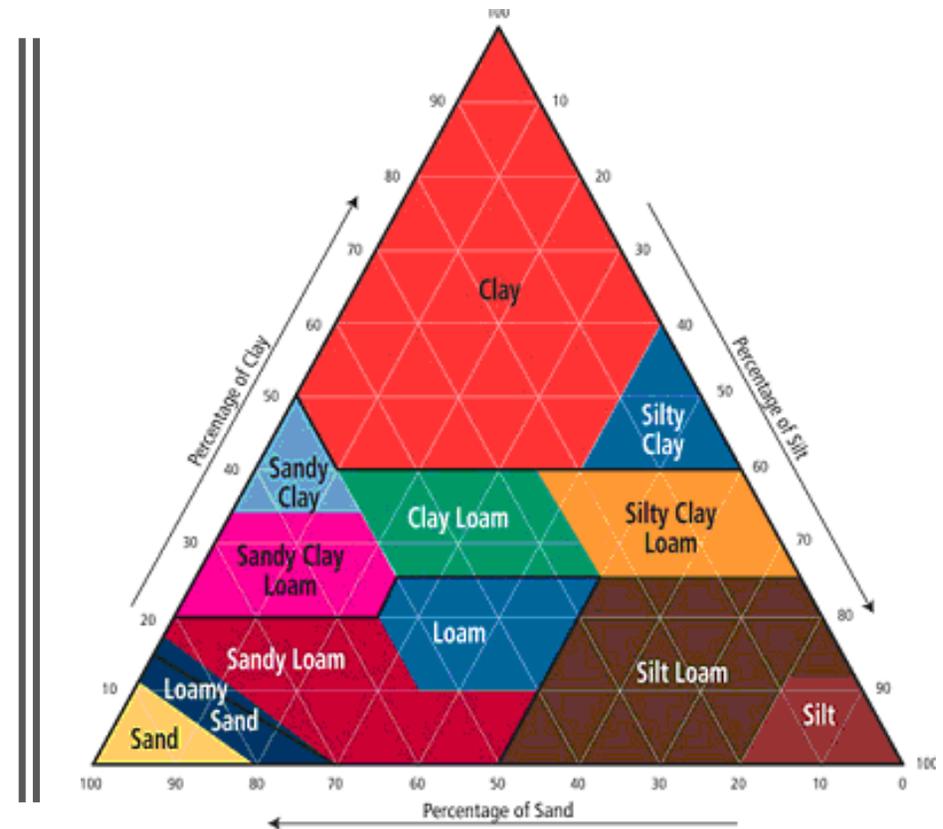
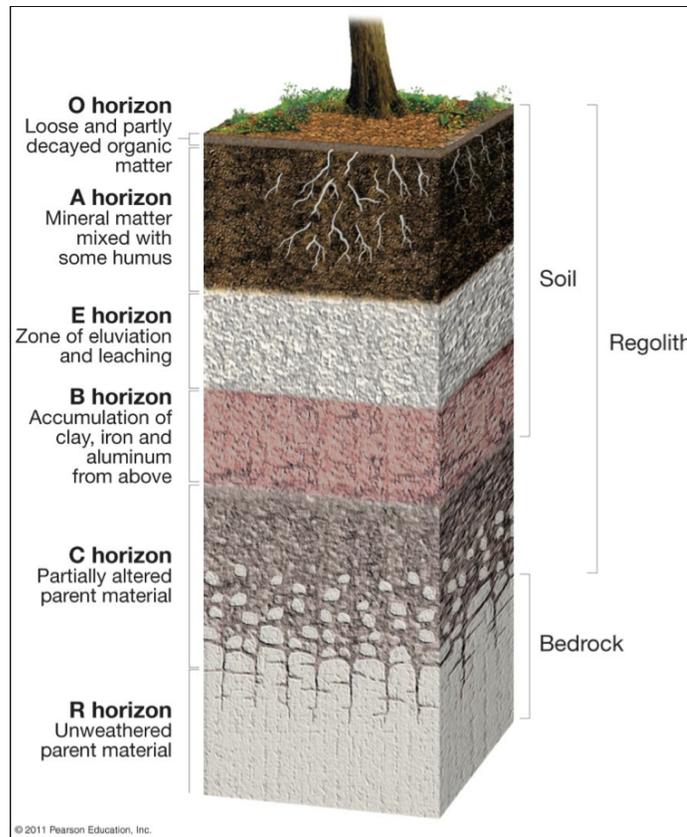
Soil Nutrients/Nutrientes en el suelo

Periodic Table of Elements

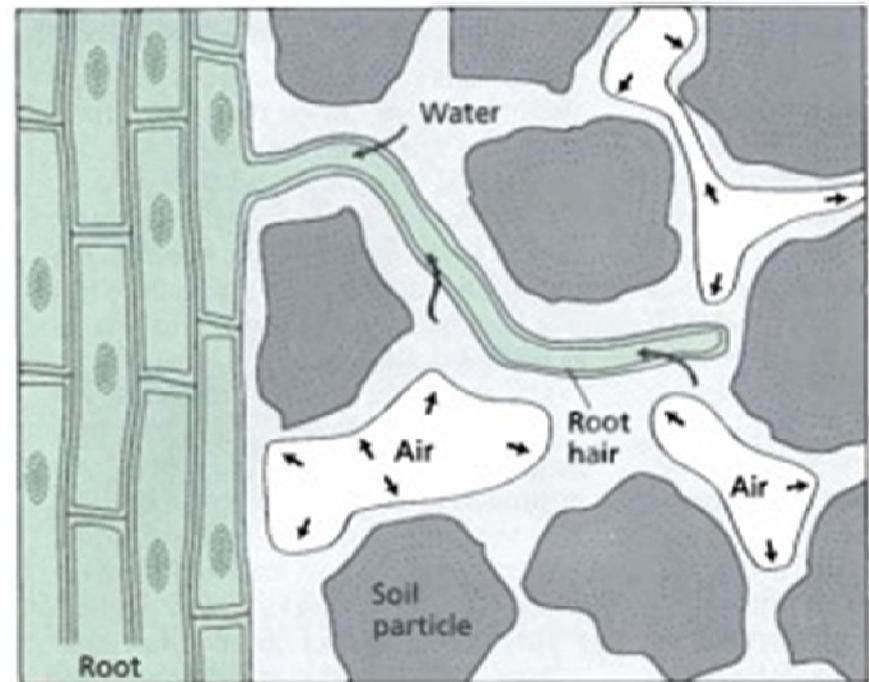
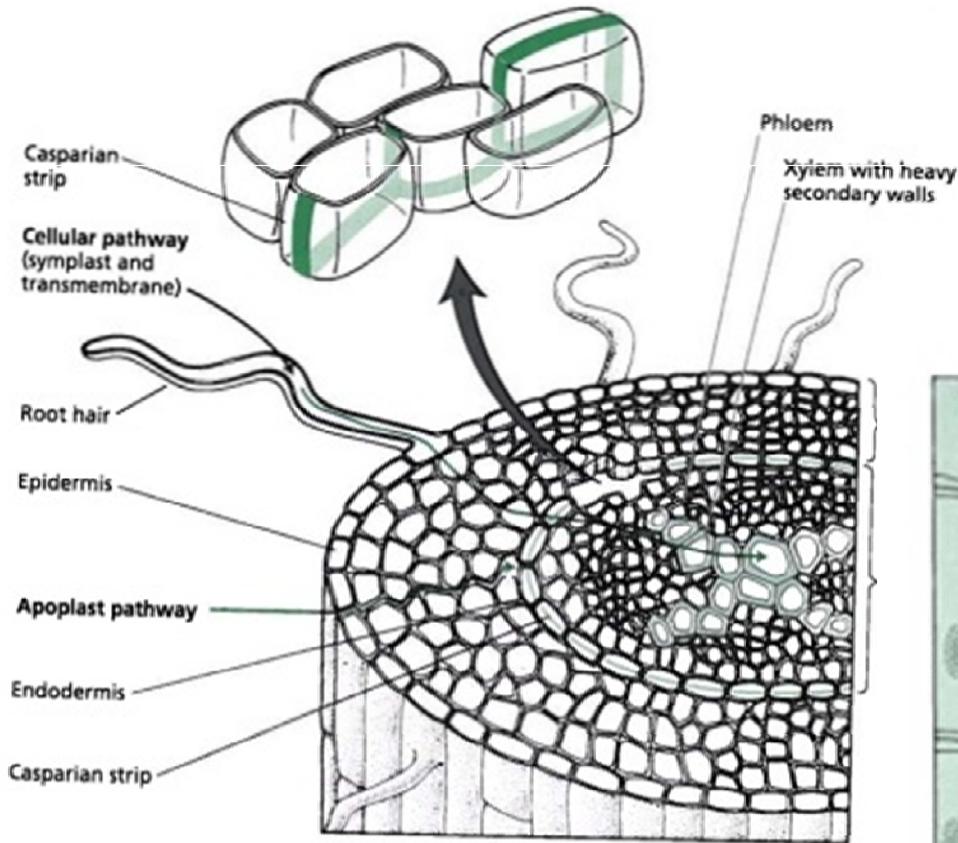
hydrogen 1 H 1.0079																	helium 2 He 4.0026
lithium 3 Li 6.941	beryllium 4 Be 9.0122											boron 5 B 10.811	carbon 6 C 12.011	* nitrogen 7 N 14.007	oxygen 8 O 15.999	fluorine 9 F 18.998	neon 10 Ne 20.180
sodium 11 Na 22.990	magnesium 12 Mg 24.305											aluminum 13 Al 26.982	silicon 14 Si 28.086	* phosphorus 15 P 30.974	sulfur 16 S 32.065	chlorine 17 Cl 35.453	argon 18 Ar 39.948
* potassium 19 K 39.098	calcium 20 Ca 40.078	scandium 21 Sc 44.956	titanium 22 Ti 47.867	vanadium 23 V 50.942	chromium 24 Cr 51.995	manganese 25 Mn 54.938	iron 26 Fe 55.845	cobalt 27 Co 58.933	nickel 28 Ni 58.693	copper 29 Cu 63.546	zinc 30 Zn 65.39	gallium 31 Ga 69.723	germanium 32 Ge 72.61	arsenic 33 As 74.922	selenium 34 Se 78.96	bromine 35 Br 79.904	krypton 36 Kr 83.80
rubidium 37 Rb 85.468	strontium 38 Sr 87.62	yttrium 39 Y 88.906	zirconium 40 Zr 91.224	niobium 41 Nb 92.906	molybdenum 42 Mo 95.94	(98)	rhodium 44 Ru 101.07	rhodium 45 Rh 102.91	palladium 46 Pd 106.42	silver 47 Ag 107.87	cadmium 48 Cd 112.41	indium 49 In 114.82	tin 50 Sn 118.71	antimony 51 Sb 121.76	tellurium 52 Te 127.60	iodine 53 I 126.90	xenon 54 Xe 131.29
caesium 55 Cs 132.91	barium 56 Ba 137.33	lutetium 71 Lu 174.97	hafnium 72 Hf 178.49	tantalum 73 Ta 180.95	tungsten 74 W 183.84	rhenium 75 Re 186.21	osmium 76 Os 190.23	iridium 77 Ir 192.22	platinum 78 Pt 195.08	gold 79 Au 196.97	mercury 80 Hg 200.59	thallium 81 Tl 204.38	lead 82 Pb 207.2	bismuth 83 Bi 208.98	polonium 84 Po (209)	astatine 85 At (210)	radon 86 Rn (222)
francium 87 Fr (223)	radium 88 Ra (226)	lawrencium 103 Lr (262)	rutherfordium 104 Rf (261)	actinium 105 Ac (262)	seaborgium 106 Sg (266)	bohrium 107 Bh (264)	hassium 108 Hs (265)	meitnerium 109 Mt (269)									

Soil Horizons and Types

Horizontes y Tipos de Suelo



Water and Nutrient Uptake/Absorción de agua y nutrientes



Water Transportation Video



Roots Video



Xylem and Phloem: Tree

Transportation
Highways/
Xilema y
floema:
carreteras de
transporte de
árboles

