Session title	Getting your hands dirty with SOIL!			
Learning objectives:	1. Learning what soil is made out of 2. Learning about what is a ‘healthy’ soil 3. Learning different ways to do soil analysis			
Resources needed:	Shovels; 4 buckets for different soil types; bucket of water, vinegar, 4 glass jars (without label); whiteboard; optional beamer to show PPP			
Workshop time:	~3 hours			
ACTIVITY	**TIME**	**COACH**	**METHOD**	**MATERIALS**
What is your definition of “soil”?	5 min.	- Ask group what they already know about ‘soil’ - Share different definitions about it (including the scientific: “a substrate where plants grow”)	brainstorm	Whiteboard + photos
Intro to composition of the soil	10 min.	- Draw an example of a mountain with trees with regular rains, and a valley with a river; - Ask group what you will find in the soil at the riverbanks	Draw an example and ask for explanation	Whiteboard
More in depth on composition and texture of soil	20 min	- Introduce the composition of 'soil' (pie chart) and of soil organic matter - Introduce soil horizons (and explain where plant roots get their nutrients from) - Introduce soil textures: clay, silt and sand (without explaining yet the 'pro's and con's')	Theoretical presentation	Whiteboard / PPP
Intro to what is a “healthy” soil	10 min	- Ask the group what are important elements for a "healthy" soil (possible answers: aerated, stable temp, root penetration, earthworms) - close this session by saying that in the end it's about seeing what lacks more than to say this is a "good" or "bad" soil and emphasize how crucial it is to add organic matter!	brainstorm	Whiteboard
break	*15 min*			
Collecting soil	15 min	Split the group in four and send the groups out to collect earth from four different preselected places (explain well from which soil horizon to take the sample)	Practical exercise	buckets and shovels
Soil analysis I: general soil type check	25 min.	Give one bucket of soil to every group of 4 and let them run through a list of check points: - **color** - **consistency** (soft and crumbly → more likely organic matter, gritty → more sand) - **smell** - **other elements** (like: stones, roots, larvae, etc) - **what could you grow in this soil?** - **do the ball test:** yes | so, so | no (sandy) - **stretch it towards a sausage:** breaks (sandy) | works out (holding from the head) (clay) - **add more water to make sausage into a circle:** breaks (not exclusively clay but reasonable clay content) | works out (lots of clay) End this session with every group sharing Shortly their findings	Division in groups of 4 to experiment	Notebooks + pens
Soil analysis II: pH test	10 min.	Pass by every group to add a bit of vinegar to their soil: - **no reaction** → soil is probably towards acid - **bubbles** → more alkaline - **foamy reaction** → strong alkaline End session by explaining that Acid + alkaline gives a chemical reaction; This quick, practical test is an easy first step to find out about the pH of your soil	Practical experiment with everyone together	vinegar
Soil analysis III: Jar test (practical if you can come back to the result 2-3 days later, otherwise just explain theoretically and give as homework)	10 min.	Tell every group to fill their glass jar with a bit of their soil and add water. Let the group have a break and explain the theory after that. Come back to the jar test results 2-3 days later in the course	Practical experiment	glass jar and water
break	*15 min*			

Theory behind pH Of the soil	15 min	- Let the groups repeat their results from the pH test and mention the alternative DIY option to test with baking soda (opposite effect: when there is a reaction --> soil is acidic) or using red cabbage boiled water - Introduce primary macronutrients, secondary macronutrients and micronutrients and the difference in availability for plants depending on soil pH - show **soil pH chart** - Ask if the group knows plants that indicate a more acid or alkaline soil. Then introduce a few important indicator plants in the climatic zone where you are	Theoretical presentation	Whiteboard / PPP
Jar test explained	15 min.	- Explain what information the result of your jar test gives you. - Show them the **soil triangle chart**. - Ask the group why you would take this effort to do a test like this? (To know what kind of plants would *naturally* grow with ease in this specific underlying soil type)	Theoretical presentation	Whiteboard / PPP
Questions and closing	15 min	Open the class for final questions or clarifications and give a snapshot of the next day's topic of how to make biochar, as a way to improve your soil fertility	Questions	

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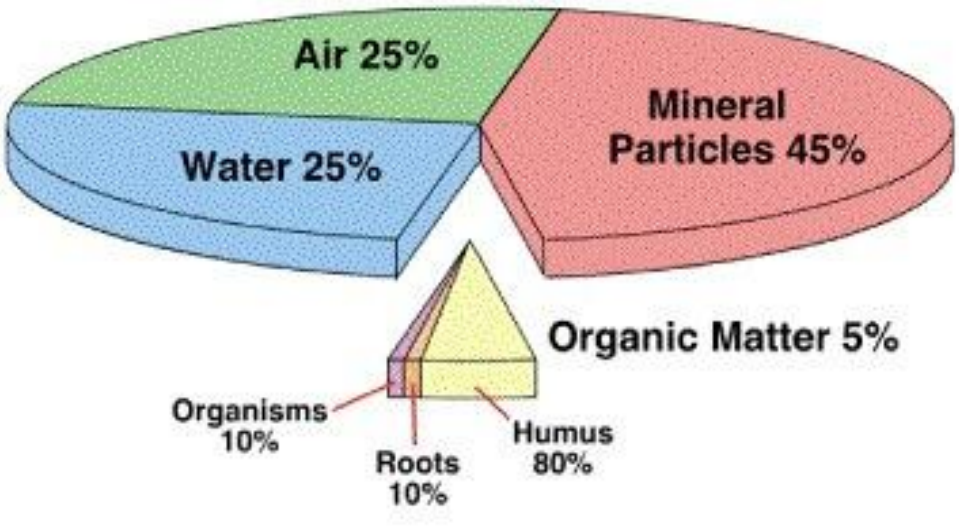
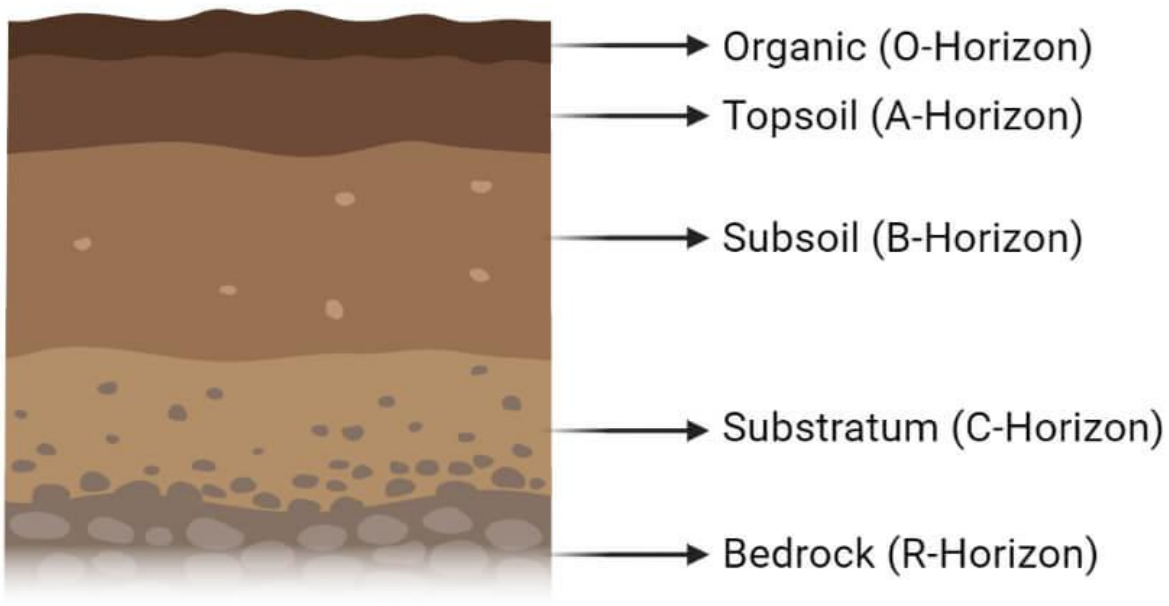
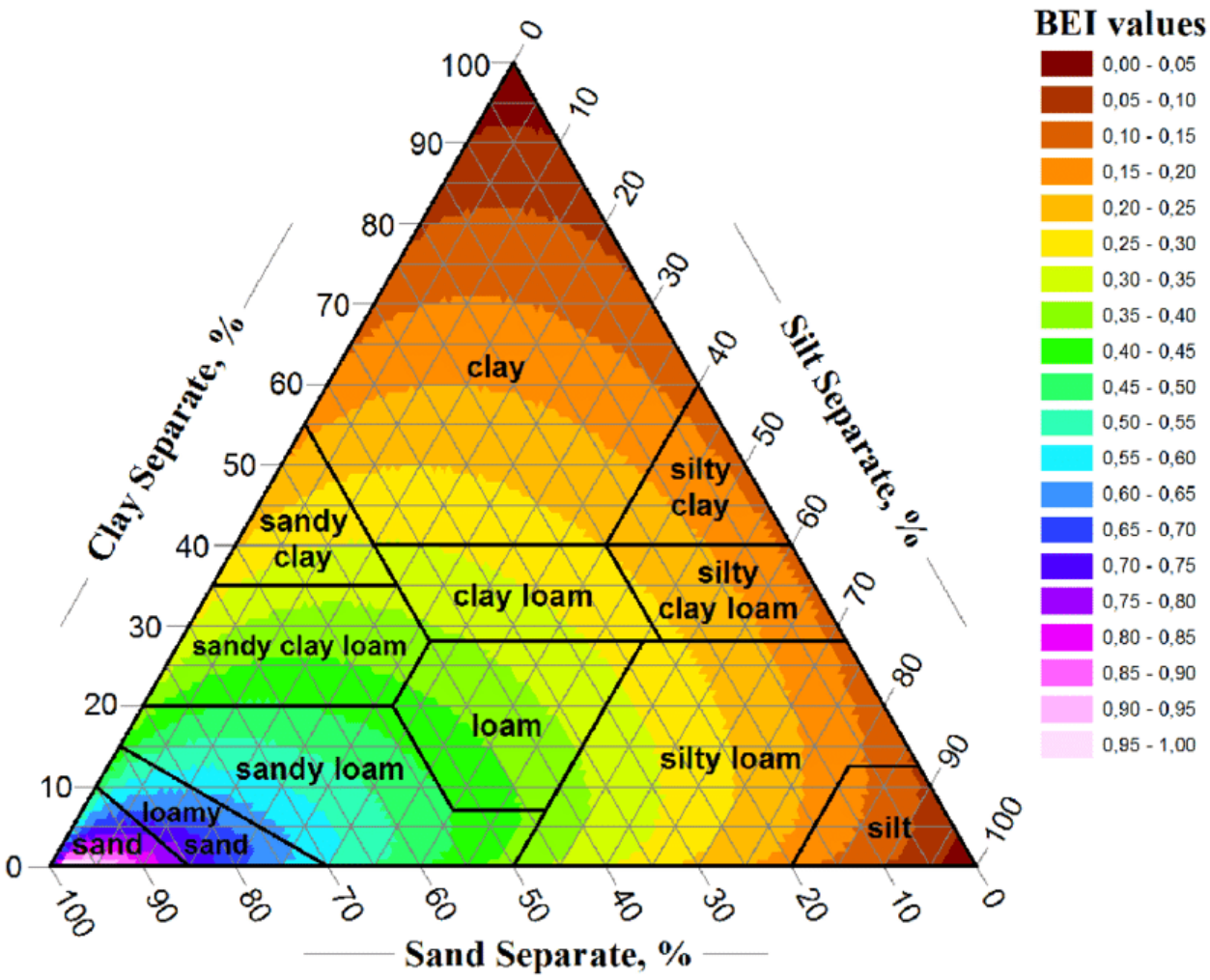
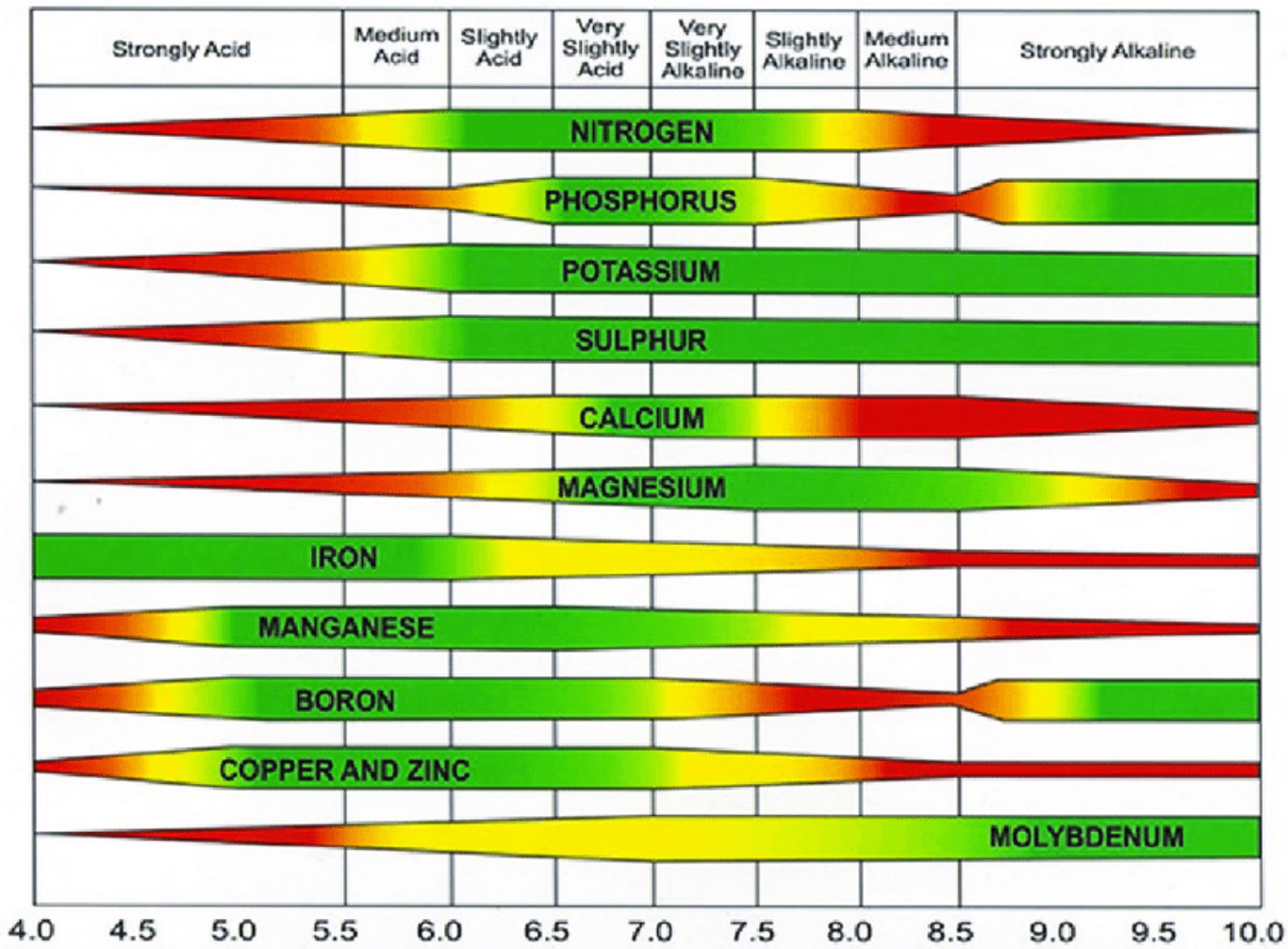
Charts to show during class









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