Lesson Plan Format

NC SCOS Objective		SCIENCE 2.02 Investigate and observe that different soils absorb water at different rates.
Essential Question		What is the difference between wet & dry soil?
Vocabulary		- Humus- clay- sand - topsoil - infiltration - soil particle sizes - milliliters - cups - ounces - saturation
Materials		-Plastic cups or glass jars- paper towels- stirrers- hand lenses- plastic dropper- cardboard trays- sand- clay- humus- topsoil (potting soil) - pencils- water- newspaper- measuring cups - Science notebooks or field books
Technology Integration		ipad camera: teacher should demonstrate procedure; ipad stopwatch to time how long it takes water to infiltrate into a give soil; powerpoint can be used to display pictures of different soils types and maps of different soil locations throughout NC.
Minute by Minute Assessment		*Be sure to pause every 2-3 minutes and ask students what they are observing throughout the experiment.*
Cultural Connection (Hook/Activator)		Everyday materials are made from soils like pottery (clay) and glass (sand). Farmers must understand how much water makes its way from the surface of the soil, down into the soil where plant roots are located to understand how well crops will grow during a given season.
Warm-Up		Turn & Talk: What do you know about soil? What do you know about wet soil? Do wet soil and dry soils look different?
15-20 Mins	**Me: Modeled**	Review the different types of soils discussed in class (clay, sand, humus, topsoil) and what regions they are found in North Carolina (coastal plains, piedmont, foothills, and mountains). Use pictures of the different soil types and a map of North Carolina to explain. Review procedures for recording scientific observations.
10-15 Mins	**We: Shared**	Discuss Warm- up as a class. Focus discussion with questions like these: • When it rains, what happens to the ground? How does it look and feel? • How does mud feel? What does it look like? Where do you find it? • At the beach or in a sandbox, what does the wet sand feel like? • What does wet clay feel like? Have you ever made things out of

		clay? What did you make? How did you make that shape? Students should be in pairs or small groups.
20-25 Mins	**Few: Guided Practice**	**Guide them through the procedure to moisten the samples:** ➢ Ask students to cover their desk with newspaper. Place several paper towels on the tables to assist with clean up or spills. ➢ Jars /plastic cups filled halfway with different soil types will be placed on each group's table (topsoil, humus, sand, clay). Pour some of the dry soil onto the trays. ➢ Ask students to record observations in their filed notebooks the dry soil samples by touching, feeling, looking (with and without hand lens) and smelling the soils. ➢ Measuring cups will be placed on the table and water will be provided. ➢ Ask students to predict if the water will infiltrate into the soil fast or slow. ➢ Ask students to take pictures of the dry soil samples. ➢ Have students measure 1 cup/250 mL/6 ounces of water. ➢ Using the dropper, take turns adding water to each pile, a few drops at a time, until sample is barely moist ➢ Have students time how long it takes the water to infiltrate into the soil and record the times in their field notebooks. ➢ Allow plenty of time for students to smell each sample and to inspect it with a hand lens. Then invite them to touch it, alerting them to wipe their fingers on extra paper towel before touching a new sample. Also ask students to take pictures of the soil as they being to add drops of water. ➢ Ask them to share what they observed about each wet sample and how it compares to the dry sample. ➢ Challenge them to roll each sample and see if they can make it into a ball. ➢ Set aside any successful balls (most or all will be clay) on the newspaper. ➢ Ask students to pour the remaining water into the jars of soils and observe if the water moves through the soil quickly or slowly. Have them take pictures of the soil as it becomes saturated. ➢ Have students share the pictures of the dry, moist and wet samples
10-15 Mins	**You: Independent Practice**	In science field notebooks, write a journal entry summarizing their procedures and observations. Encourage them to state what they learned as well as how they learned it, such as "dry humus felt soft, but after I added water, it got mushy" or "when we rolled wet clay, it made a smooth ball."

5-10 Mins	**Summary**	Discuss findings as a class…