CANADA
4-H Saskatchewan

Exploring 4-H at Home

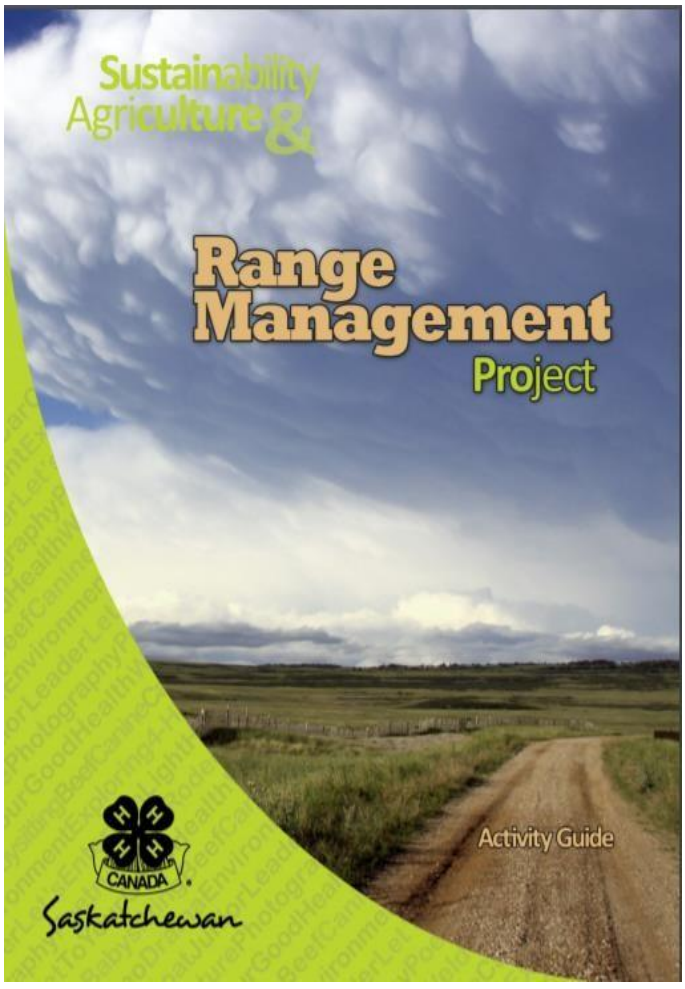
Environment & Healthy Living

Sustainable Agriculture and Food Security

Pillar: Environment & Healthy Living

Project: Range Management

Activity: Determining Soil Texture By Feel (pg. 68)



Materials

• Indoor location where you can play with the soil
• Notebook or paper for writing findings
• Pen or pencil
• Sand from a playground, flour, and modelling clay
• Water
• Container to pour small amounts of water out of
• Containers to place used samples in
• Wash pail & towels for hands
• Assortment of various soils (Enough for about 2 tablespoons each) collected from 5- 10 cm below the soil surface to avoid too much organic matter in the sample

Activity

Soil is one of the main factors that shaped the prairies. The soil texture can indicate what plant species are expected to be growing in the area and what amount of production is to be expected. You will learn how to determine soil texture by feel and practice.

1. First, you are going to practice feeling what the different soil textures will feel like.
2. Take a bit of sand in your hand and add some water to it just so it is moist. Rub the wet sand in your hand. What does it feel like? It will likely feel and sound gritty. When you squeeze it and try to roll it into a ball it will break apart. When you squeeze it up and out between your thumb and index finger it won't form a ribbon and will likely just fall apart. This is how sandy soils feels and acts.
3. Take a bit of flour in your hand and add some water to it just so it is moist. Rub the wet flour in your hand. What does it feel like? It will likely feel fairly smooth. When you squeeze it into a ball it will hold shape pretty good. When you try to rub it into a ball in your hand it should hold its shape okay. When you squeeze it up and out between your thumb and index finger a thick short ribbon will form before it breaks. This is how silt feels and acts.
4. Take a bit of modeling clay in your hand. Rub the wet modeling clay in your hand. What does it feel like? It will likely feel fairly smooth and sticky. When you squeeze it and roll it into a ball it will hold its shape really well and can be handled a lot. When you squeeze it up and out between your thumb and index finger a long thin ribbon will form before it breaks. This is how clay feels and acts. Dry clumps of clay are really hard to break.
5. Now that you have an idea of how the different soil textures will feel it is time to practice feeling different soils.
6. Take a small bit of the first unknown soil (a little less than 2 tablespoons each) in your writing hand. Add a small amount of water to the soil in your hand. You want it to not be crumbly or soupy (add more water or soil accordingly). Mush and

squeeze it in your hand.

7. Try to roll it lightly like you would with bun or cookie dough. What happens?
8. Next try to squeeze the soil up between your thumb and index finger to form a ribbon of soil. What happens?
9. Knowing what you have learned from the first part of the activity about how sand, silt and clay feels and reacts what do you think the soil in your hand is made of? How much sand, silt or clay do you think is in the soil in your hand?
10. Remember that soils will be a mixture of different soil textures. There likely will be different percentages of sand, silt and clay mixed together in the soils. Make notes in your notebook or on your paper for each soil sample. Option: If you are having difficulty determining the texture of a soil, have the unknown soil in one hand and then feel the 3 examples (sand, flour and modelling clay) your other hand.
11. Clean your hands off and try another soil sample. Try to determine as many soil textures as you can during the time of this activity.

Moisten a small amount of soil

1. If no ball will even form you have **Sand**
   Squeeze the moist soil between you thumb and pointer finger sliding your thumb up the pointer finger.
2. Does the ball of soil form into a ribbon? If yes, go on to #4. If no (will only stay as loose ball), you have **Loamy Sand**.
3. If soil forms a weak ribbon, less than 2.2 cm before breaking, you have Loam.
   a. Does soil feel gritty? If yes, you have Sandy Loam
   b. Does soil feel equally gritty and smooth? If yes, you have Loam
   c. Does soil feel smooth? If yes, you have **Silt Loam**.
4. If soil forms a medium ribbon, 2.2- 4.4 cm before breaking, you have **Clay Loam**.
   a. Does soil feel gritty? If yes, you have Sandy Clay Loam.
   b. Does soil feel equally gritty and smooth? If yes, you have Clay Loam.
   c. Does soil feel smooth? If yes, you have Silty Clay Loam.
5. If soil forms a strong ribbon, 4.4 cm or longer before breaking, you have **Clay**.
   a. Does soil feel gritty? If yes, you have **Sandy Clay**.
   b. Does soil feel equally gritty and smooth? If yes, you have **Clay**.
   c. Does soil feel smooth? If yes, you have **Silty Clay**.

Key adapted from USDA – Ag in the Classroom