# Lesson 3 - Know Your Soil Moisture Sensor: The Distress Signals of Plants

**Activity 1**

Multiple-Choice Quiz

Question: We often judge if plants need water by touching the soil moisture and observing leaf firmness. Is this method always reliable? (Choose and write your answer on the blank line below)

Answer:

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| A. No, it’s not always reliable – sometimes the topsoil feels dry, but the deeper soil (where roots absorb water) is still wet. |
| B. Yes, it’s always reliable – if topsoil is dry or leaves are wilted, the plant definitely needs water right away. |
| C. No, it’s not always reliable – leaves only start to wilt when the plant is already very thirsty (the "signal" comes too late). |
| D. Yes, it’s always reliable – small plants and big trees all show clear "thirst signals" through soil and leaves. |

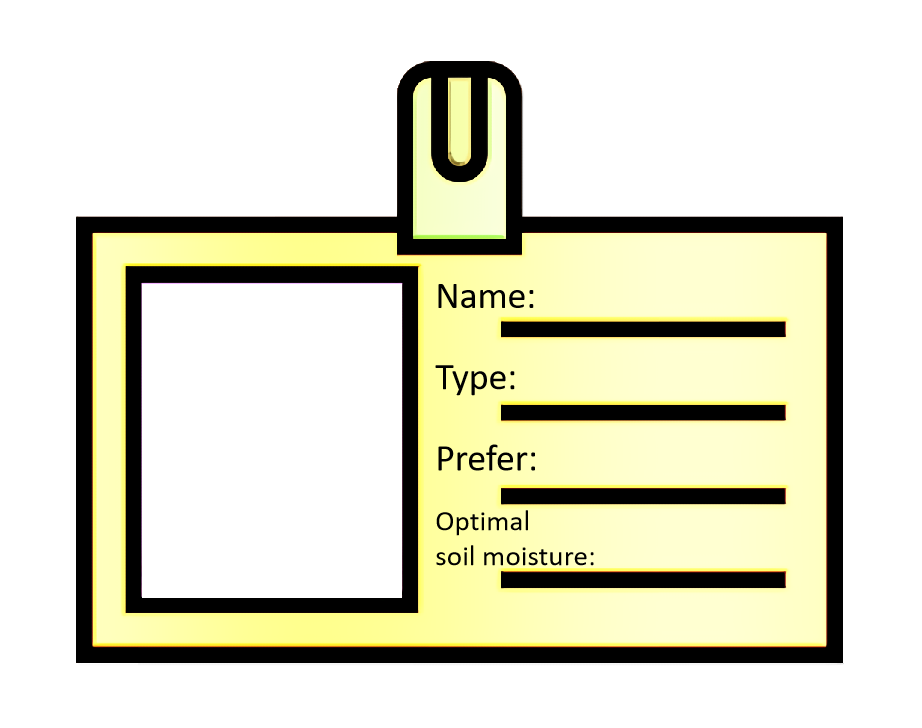
**Activity 2**

1. Get the code provided for this activity and upload it to your UNIHIKER K10.
2. Place the sensor in air and water. Observe the numbers displayed on the UNIHIKER K10 screen and record them in the table below.
3. Calculate the values of the soil moisture sensor corresponding to different percentages.

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| --- | --- |
| **Soil Moisture in Percentage** | **Sensor Reading** |
| 0% (in air) |  |
| 20% |  |
| 40% |  |
| 60% |  |
| 80% |  |
| 100% (in water) |  |

**Activity 3**

1. Pick a plant with your group: Choose one type of plant together (such as a succulent, basil, or fern).
2. Do plant research: Find out the plant’s name, type, and what it prefers (light, temperature, soil moisture).
3. Make the ID card: Fill in the ID card and cut it out from the sheet.
4. Stick it on the background board: Paste the cut ID card onto the correct spot on the background board.

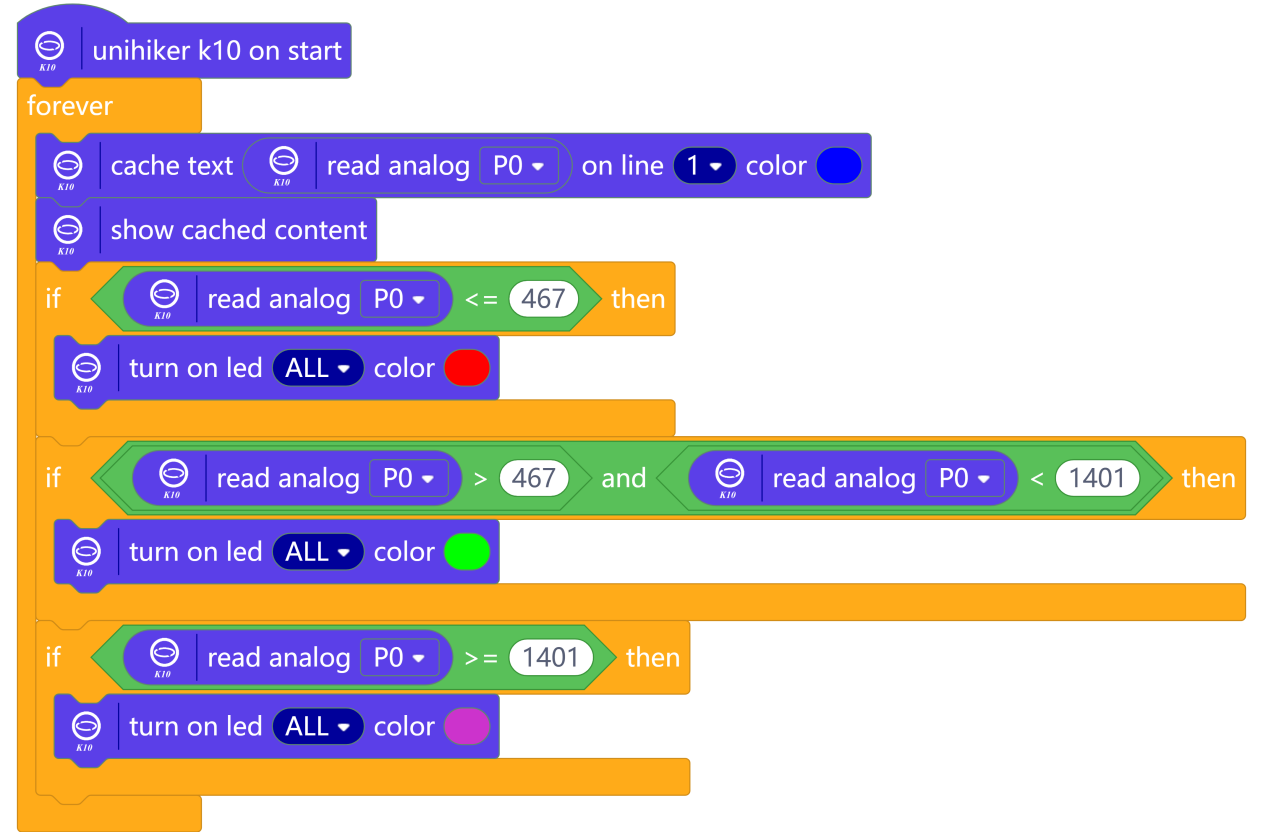


**Activity 4**

Build a Plant Watering Monitor

Design and create a program that makes the K10's LEDs show different colors to represent the level of soil moisture.

Here is a sample code you can refer to.



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| Can I answer it? | |
| Is it better to water plants as much as possible for their growth? | ✩ |
| What Is the Ideal Soil Moisture Level for Plants? | ✩ |
| In Activity 2, when the soil moisture sensor is submerged in water, what percentage of soil moisture does this represent? | ✩ |
| Please plot the range represented by the following code.  图片1 | ✩ |

(The answer can be found in the teaching guide.)