Exploring plants and soils:
Root depth comparisons

Summary:
Nearly all plants have roots and for those that interact directly with soil, it is almost an essential. We can examine plant roots easily by exposing a face of soil and looking at the mat of interweaved roots that descend down the soil profile.

It is difficult in this instance to separate individual plants, especially in vegetation such as a grass sward where there are multiple individual plants. This exercise structures looking at the collective root matter and removing individual plants root system. There is also a worksheet that allows you to record what you find.

Leanring Objectives:
- Explore and gain knowledge through interaction with plant roots about the depths they travel into the soil.

- Consider the structure of the soil upon the development of roots and vice-versa.

Equipment:
- 5x 30cm clear rulers

- Worksheet (avilable on website)

- Water in a spray bottle

- An already exposed soil face (or the following)

- Spade with treads

- Trowel

- Tarpaulin

Time Required:
Introduction 5 minutes maximum.
Optional; exposing a soil face- 20 mins
Measuring roots - 10 mins
Recording roots- 10-20 mins

Total timing 25-55 minutes.

Background Leanring Needs:
- Understanding of the processes roots carry out for plants
- Understanding of the processes roots carry out in soil
- Basic understanding soil structure and root relationship

Risk Assessment:

Hazard	Liklihood	Severity	Mitigation
Injury illness from soil ingestion	Low	Medium	Use gloves when handling the soil
Site/local specific risks	Unknown	Unknown	Anyone running this activity is advised to conduct a risk assessment for the specific site and conditions

Description of Activities:

1. Expose soil face if needed
2. Use water sprayer to spray the soil surfaces until the water drips down and removes soil particles with it
3. Examine the visible roots in the profile and use the ruler to measure those which are exposed, make a note of these
4. Use the nose of the trowel blade to tease out individual plants at the edge of the soil profile, pull the plant above ground body downwards slowly and try to locate where the roots are located within the soil

Optional: record on the record sheet [available on the website] the plant type and root depth and pattern seen eg. 10cm at deepest and spreading sideways with only ½ long roots.