National Education Nature Park

Grassland indicator plants and soils

What is an indicator species, and how can we use them to learn about the ecosystem in an area? Learners are guided in connecting the plants and soils topics and understanding some of the ways that plants can be suited to their environment.

This resource also supports the Grassland Plant Survey. Learners will be prepared with background knowledge that will help them interpret the results of their surveys. Key learning points include that plants get much of what they need to survive from soil, and that plants live in habitats to which they are suited.

Learning outcomes

- understand that plants live in habitats to which they are suited, and get much of what they need from the soil
- understand that human activities have effects on soils, and that this affects what plants can live in a habitat
- able to infer things about soils and habitats by using the presence or absence of indicator species

Key words

Indicator species - an organism whose presence, absence, or population size tells us something about the environment or ecosystem
Mowing - cutting grass shorter, usually with a machine
Compaction - squashing together soil particles. This reduces the rate at which air and water can move through the soil
Nutrients - any substance that living things need to survive and grow. Nutrient concentrations have big impacts on an ecosystem

Teaching time 30-45 minutes

Suitable for KS2

Green skills

Identification and ecology
Learners will develop their ability to recognise common plants and use them to infer information about the ecology of the area.

Environmental stewardship and horticulture
Learners will develop their ability to make evidence-based decisions about the care and maintenance of local landscapes.

Common daisy in grass

Subject area

Science

What you need

- grassland indicator species presentation
- indicator species tables
- example quadrat images

Optional

- survey results from your Grassland Plant Survey
- photos of your quadrat areas

Related resources

Grassland ecosystems

Grassland plant survey

Habitats: biotic and abiotic factors

Accredited by

RMetS Royal Meteorological Society

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Learning outcomes (Slide 3)

Key vocabulary (slides 4-5)

Overview of key vocabulary in this resource. For more detailed definitions and examples see the Grassland indicators vocabulary presentation.

How indicator species work (slides 6-18)

These slides explain the concept of an indicator species and walk learners through three important characteristics of grassland soils and environments. Amount of nutrients in the soil, compaction, and amount of nutrients.

Nature Park grassland types (Slides 19-21)

These slides present information about the two main Nature Park grassland types and what details the indicator plants can tell us about the area.

Grassland Plant Survey indicator species (Slides 22 – 30)

Profiles of the plant used as indicator species in the Grassland Plant Survey.

Practice

Use the indicator species tables and the example quadrats to practice doing the Grassland Plant Survey and inferring the quality of the habitat using the indicator species.

Or get outside and find a few areas where you can do the Grassland Plants Survey. Then use the tables with your survey results to learn more about the qualities of the grasslands around your site.

Next steps

Now that learners have a better idea of the qualities of the grasslands around their site, use the Find that Plant! resource, or research the habitats in the National Plant Monitoring Scheme, to find other species that live in similar habitats.

Use the How to identify soil texture resource to learn more about the soil on your site.

Example quadrat with common mouse-ear, daisy, and dock, indicating neutral soil pH and nutrient enrichment.

Nature Park groups together several types of biodiverse grassland under the label meadow.

Useful links

Frontiers for Young Minds - The Living Meadow: How Mowing Affects Insects and Spiders

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