



Pathfinder Honour: Trainer's Notes

Grasses



Instructions to Trainers / Instructors of this Honour

Thankyou for being involved with this Honour. These notes have been developed to assist in teaching / instructing this honour. We recognise that there is much more information available and we are grateful that you should share your expertise.

Please remember that Honours are designed to develop our Pathfinders in many ways; their interests, their knowledge and their relationship with their Saviour and Creator. Your enthusiasm and creativity will have a huge impact on those doing the honour.

To complete an Honour, the following (where applicable) must be completed satisfactorily:

- Physical and Practical Requirements.
- Honour Workbook.
- Honour Assessment Sheet. (*On SPD Honour Website but Leader's level access is required*)

Additional Reference Material

AusGrass - Grasses of Australia. Check out the following site:

<http://www.environment.gov.au/biodiversity/abrs/publications/ausgrass/index.html>

Acknowledgements

Original honour notes from Youth Dept, South Queensland Conference of SDA Church.
Wikipedia.org/wiki/Poaceae

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REQUIREMENT 1.

a. What is the scientific classification of the grass family?

The scientific classification is:

- i) Kingdom: Plantae
- ii) Division: Magnoliophyta
- iii) Class: Liliopsida
- iv) Order: Poales
- v) Family: **Poaceae**

b. Give a general description of grasses.

Grass is a common term that generally describes a green plant in the family Poaceae and is also known as Gramineae.

The term “grass” is also applied to many grass-like plants not in the Poaceae family, leading to plants of this family being called “true grasses”.

True grasses include most plants grown:

- As cereals, and include varieties such as wheat, barley, oats, rye
- For pasture
- For lawns

Grass related plants include:

- The rush (Juncaceae) and
- Sedge (Cyperaceae) families that resemble grass somewhat.

Unrelated grass plants, of similar appearance, with leaves rising vertically from the ground.

c. What characteristics must a plant have to qualify as a grass?

To qualify as a grass the plant must have:

- i) Thin hollow stalks called **culms**, with nodes at intervals called **nodes**.
- ii) Leaves are alternate, distichous (in one plane) or rarely spiral, parallel-veined and arise at the nodes.
- iii) Each leaf is differentiated into a lower **sheath** hugging the stem for a distance and a **blade** with margin usually the entire length.
- iv) The leaf blades of many grasses are hardened with silica polytoliths, which helps discourage eating by grazing animals. In some cases (such as sword grass) this makes the blades sharp enough to cut human skin.
- v) A membranous appendage or ring of hairs, called the **ligule**, lies at the junction between the sheath and blade, preventing water or insects penetrating into the sheath.
- vi) Fibrous roots.
- vii) Small inconspicuous flowers.

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REQUIREMENT 2. What kind of roots do all grasses have?

Grass plants have fibrous roots.

Root growth habit describes the type of shoot growth present in particular grass plants and is directly related to their ability to spread out from the parent plant and to ultimately form a clonal colony.

The three general classifications of growth habit are:

- Bunch-type
- Stoloniferous, ie, reclined or prostrate branch that strikes root and develops a new plant.
- Rhizomatous, ie, prostrate or subterranean root-like stem emitting roots from the lower side and sending up leafy shoots from the upper surface.

REQUIREMENT 3. How many species in the grass family are known as Gramineae or Poaceae?

There are approximately 600 genera and between 9,000 and 10,000 species of grasses (Kew Index of World Grasses).

Plant communities dominated by Poaceae are called grasslands; and comprise an estimated 20% of the vegetation cover of the earth.

REQUIREMENT 4. Do the seeds of grasses have two halves as in the bean (a dicotyledon) or does the seed consist of just one part as in the lily, date and coconut (monocotyledons)?

All True Grasses are a monocotyledonous plant. This means that the plant has a single cotyledon or seed-leaf.

REQUIREMENT 5. What unique characteristic in the growth of grass leaves makes it possible for the plant to flourish even though continually mowed or grazed?

Grass blades grow at the base of the blade and not from the tips. This location of the grass growing point near the ground allows it to be grazed or cropped regularly without damage to the growing point.

REQUIREMENT 6. Name three annual grasses (that is, grasses that sprout from seeds, blossom, bear seeds, then die the same summer).

Three annual grasses, includes but not confined to:

- Townsville Lucerne
- Prairie grass
- Wheat
- Rye
- Rice
- Corn

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REQUIREMENT 7. Name three perennial grasses (that is, grasses the roots of which live on from year to year, although the top dies down to the crown each autumn).

Three perennial grasses, includes but not confined to:

- Rhodes grass
- Kikuya grass
- Para grass
- Molasses grass
- Perennial rye grass
- Perennial prairie grass

REQUIREMENT 8. In each of the following cases name a single grass, or more where indicated from which the named product is made:

	<u>Product</u>	<u>Grass</u>
a.	Bread (three grasses)	Wheat, Rye, Corn
b.	Porridge	Oats, Wheat, Millet
c.	Brooms	Millet
d.	Molasses	Sugar Cane
e.	Fishing rods	Bamboo
f.	Oatmeal	Oats
g.	Gluten	Wheat
h.	h) Starch	Corn, Rice
i.	Grain alcohol (two grasses)	Barley, Rye
j.	Sugar	Sugar Cane
k.	Hay	Lucerne, Oats, Sudan
l.	White Flour	Wheat

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REQUIREMENT 9. Do one of the following:

- a) **Collect and correctly label ten cultivated grasses.**
- b) **Write an essay on the various uses of grasses by different peoples around the world.**

Agricultural grasses grown for seed for human food production are called cereals. Cereals constitute the major source of protein, and include:

- i) Rice in southern and eastern Asia,
- ii) Maize in Central and South America,
- iii) Wheat, barley and oats in Europe, Australia, the Americas and northern Asia.

Other grasses are of major importance for foliage production. Sugar cane is a major source of sugar production.

Many grasses are grown for forage and fodder for animal food, particularly cattle and sheep.

Grasses are used for construction; larger bamboos and *Arundo donax* have stout culms that can be used in a manner similar to timber, and grass roots stabilise the sod of sod houses.

Grass fibre can be used for making paper and biofuel production, and are the primary plant used in lawns.

REQUIREMENT 10. Press, mount, and correctly label the flower stalks or seed stalks of five pestiferous grasses that are commonly considered to be weeds.

REQUIREMENT 11. In addition to your collection of flower or seed stalks of pestiferous kinds, press, mount, and correctly name the flower stalks or seed stalks of ten additional grasses that grow in your neighbourhood. This collection may include the plants whose seeds are in your collection of cultivated grasses.