

REVIEW ... Key Concepts

Unit 2 – Plants For Food And Fibre

1.0 Structures and Life Processes

- ❖ Seed plants have roots, stems, leaves and either flowers or cones
- ❖ Each structure performs a specific function
- ❖ Life processes in plants include: **Photosynthesis, Transpiration Gas exchange (cellular respiration)**
- ❖ Seed plant life cycle includes three stages: **Seed stage, Seedling stage, and Adult stage**
- ❖ **Pollination** is the joining of pollen and ovary
- ❖ Seed plants can also reproduce in ways not involving seeds: **Runners, rhizomes, suckers, cuttings and grafting**
- ❖ Adaptations help plants get what they need from the environment
- ❖ Growing conditions varies between and among plants, and can be modified using technology

2.0 Role of Plants to Meet Human Needs

- ❖ Plants supply oxygen and food
- ❖ Plants are used for food, fibre (to make things), medicine, and other products
- ❖ Natural resources vs Managed resources

3.0 Soil

- ❖ Minerals and organic matter in different amounts make clay, sandy soil or loam
- ❖ Growing and harvesting methods can improve or degrade soil

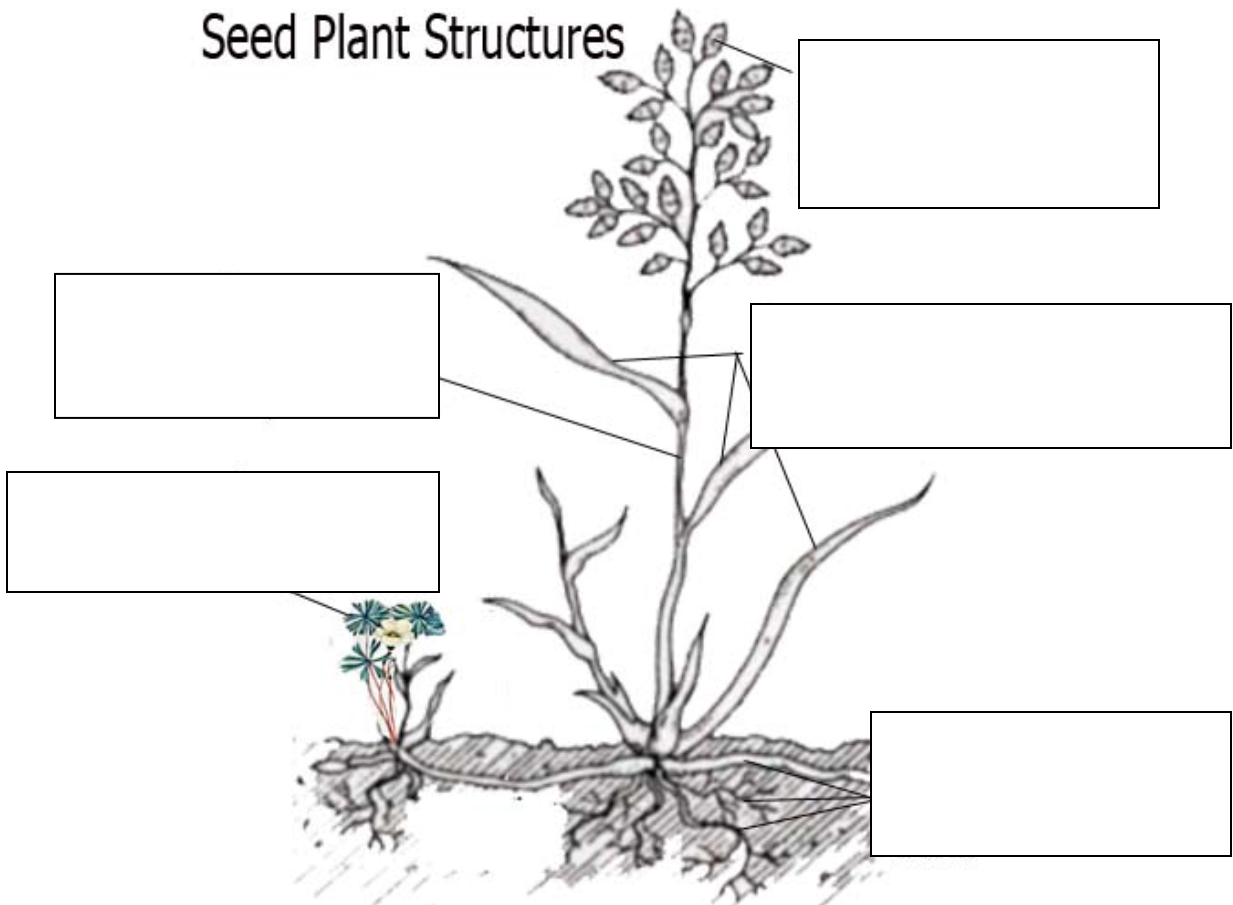
4.0 Growing and Using Plants – Sustainability

- ❖ **Selective breeding** provides specific desirable traits
- ❖ New varieties may lead to environmental problems
- ❖ **Resistance**, loss of species or pollution can occur with long term use of herbicides and pesticides
- ❖ **Sustainability** – balancing out needs with the needs of the environment and the consequences (social and economic)

1.0 Structures and Life Processes

- ❖ Seed plants have roots, stems, leaves and either flowers or cones

Identify the structures of a seed plant from the illustration below



- ❖ Each structure performs a specific function

Explain the function of the following seed plant structures

| Structure | Function |
|-----------|----------|
| Roots | _____ |
| Stems | _____ |
| Leaves | _____ |
| Flowers | _____ |
| Seeds | _____ |
| Cones | _____ |

Why do plants produce seeds? _____

❖ Life processes in plants

Explain the following life processes of a seed plant:

Moving water from the roots to the other parts of the plant

Transpiration _____

Capillary Action _____

Moving substances in and out of plant cells

Diffusion _____

Osmosis _____

Active Transport _____

Making food

Photosynthesis _____

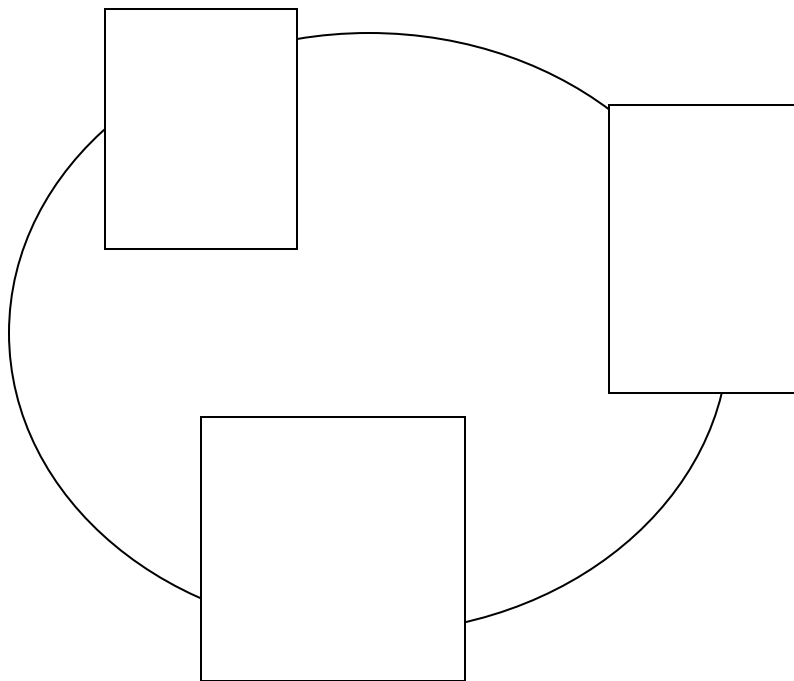
Using Food

Gas exchange (cellular respiration) _____

Illustrate a word equation for this process (cellular respiration)

❖ Seed plant life cycle includes three stages:

Illustrate the life cycle of a typical seed plant, such as a dandelion.



❖ **Pollination** is the joining of pollen and ovary

Explain the process of **pollination**

What organisms are considered to be **pollinators**?

What else can be a pollinator?

❖ Seed plants can also reproduce in ways not involving seeds:

Describe how each of the following types of **vegetative reproduction** can produce new plants

Runners _____

Rhizomes _____

Suckers _____

Cuttings _____

Grafting _____

❖ **Adaptations** help plants get what they need from the environment

Illustrate with examples plants that have adapted to the environments described below.
(Explain how the adaptation helps the plant to survive in the environment in which it grows.)

| Desert Environment | Mountain Region |
|-------------------------------|-----------------|
| | |
| Open Flat Prairie Environment | Lake |
| | |

❖ Growing conditions vary between and among plants, and can be modified using technology

What are the best **growing conditions** for plants?

3.0 Role of Plants to Meet Human Needs

- ❖ Plants play an essential role in the environment

What specific roles do plants have in our environment?

- ❖ Plants are used for food, fibre (to make things), medicine, and other products

Give examples of how plants are used for the following purposes.

| Food | Fibre |
|-----------------|-----------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| Medicine | Other Products |
| | |
| | |
| | |
| | |
| | |

❖ Growing and harvesting methods can improve or degrade soil

Soil is an important resource in our environment. How are nutrients replaced in the soil when they are used up?

What are some **practices** that can improve, or cause harm to soil quality?

| Improving soil quality | Degrading soil quality |
|------------------------|------------------------|
| | |
| | |
| | |
| | |
| | |

4.0 Growing and Using Plants – Sustainability

Describe three different ways to modify an environment

What technologies have been developed to improve **yields**?

❖ **Selective breeding** provides specific desirable traits

Match each of the following terms:

- | | | |
|------------|-------|---|
| 1. Species | _____ | A subset of a species |
| 2. Variety | _____ | Specific characteristics that distinguish it from other organisms |
| 3. Trait | _____ | A group of organisms with similar traits |

What is **selective breeding**?

What is **genetic engineering**?

Explain what a **hybrid** is.

What happens when parents with different traits reproduce?

❖ New varieties may lead to environmental problems

Describe an '**unintended**' consequence when a new variety of plant is produced.

❖ **Resistance**, loss of species or pollution can occur with long term use of herbicides and pesticides

What are the different kinds of **pests** that can affect plants?

Explain why each of the following are used and what 'unintended' consequence has occurred as a result of its use.

Herbicides _____

Pesticides _____

Biological Control _____

❖ **Sustainability** – balancing out needs with the needs of the environment and the consequences (social and economic)

'Unintended' consequences often happen when we don't know or don't think about all of the factors in a particular situation.

Describe a situation where you experienced an 'unintended consequence'.

Find an article from your local newspaper that outlines an 'unintended' consequence.

Paper: _____

Date: _____

Section: _____

Summary:

How does **monoculture** affect **biodiversity**?
