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

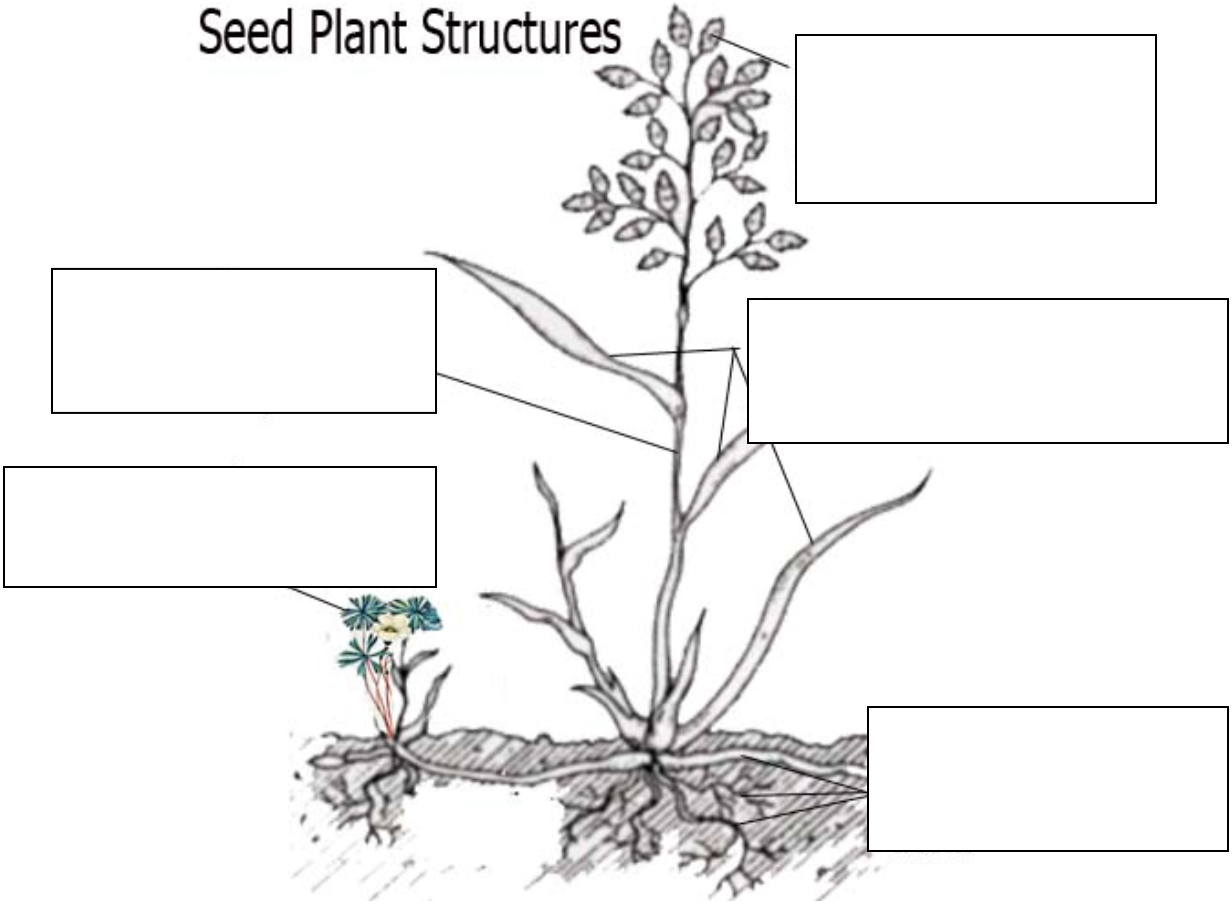
4.0 Growing and Using Plants – Sustainability

- **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) _____

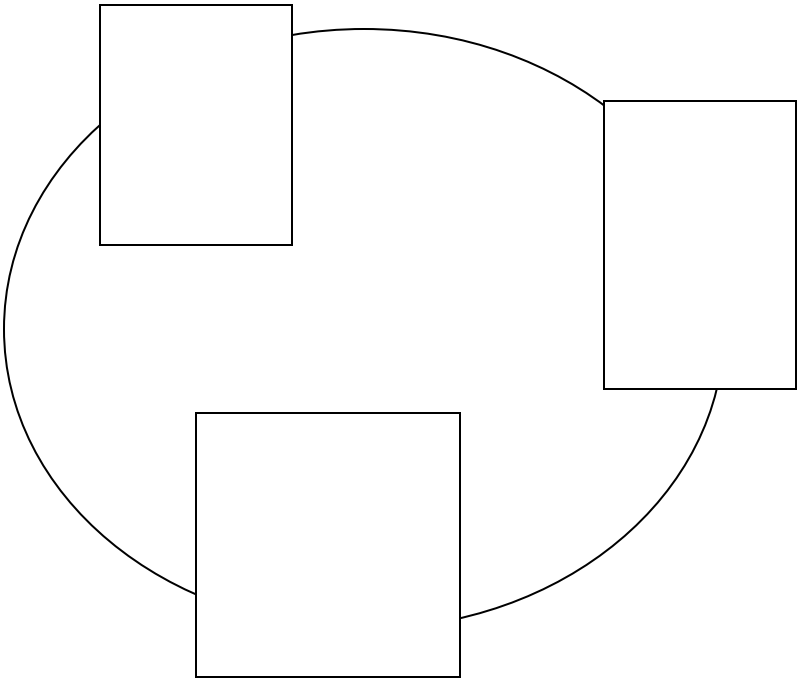
_____

_____

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**

❖ Natural resources vs Managed resources

Explain what living resources are.

_____

_____

What human activities caused changes in the supply of living resources.

_____

_____

Who is responsible for managing the living resources we have in Alberta? Canada?

Alberta _____

Canada _____

3.0 Soil

❖ Minerals and organic matter in different amounts make clay, sandy soil or loam

What is the difference between organic particles and mineral particles in soil?

_____

Briefly describe the characteristics of each type of soil.

Sandy Soil	Clay Soil	Loam Soil

❖ 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**?

_____