**JESUS AND MARY SCHOOL**

**Class – 5**

 **Sub –Science MODULE . 1**

**Syllabus**

1. **Reproduction in plants**
2. **Skeletal system**
3. **Simple machines**
4. **Soil erosion and its conservation**

These chapters will include all question and answers, fill in the blanks, true and false match the following and diagrams.

 **REPRODUCTION IN PLANTS**

**Text book**

**Reproduction**

Reproduction is the process of producing more of its own kind . Just like animals, plants also reproduce to produce more of their types on the Earth

(a) by seeds

(b) by plants parts

(c) by spores

**REPRODUCTION BY SEEDS**

Most of the plants bear flowers. Once, the flowers bloom, they turn brown and change and they have seeds inside them. New plants arise from these seeds.

**PARTS OF A FLOWER**

A flower has four important parts. Firstly, sepals are the green leafy layers which protect the flower in the bud stage.

Secondly, petals are the bright colourful part with a sweet smell that attracts insects.

Thirdly, stamens are the male parts of the flower. It is made of filament and anther. The anther contains a yellow powder called pollen grains. Fourthly, carpel or pistil is the female part with a sticky top called stigma, a long tube called style, and an ovary which contains ovules.

**POLLINATION- THE PROCESS OF FLOWER REPRODUCTION**

 Pollen grains are the male part. Ovary produces female cells called ovules. The transfer of pollen grains from the male part (Anther) to the female part (stigma) is known as pollination. Pollination can take place within the same flower or to a different flower.

After pollination the male and female cells unite to form a zygote which develops into a seed. This fusion of male and female gametes is called fertilization. The ovary will finally develop fruit. The ovule will finally form seeds.

If pollination is done within the same flower, it is called self pollination. If pollination is carried with another flower, it is called cross pollination. Wind, water, and insects are some agents which help in cross pollination

 A plant produces a large number of seeds because all the seeds do not grow into a new plant due to many reasons such as the following:

1. They are unhealthy.
2. They get destroyed by unfavorable weather conditions
3. They are eaten up, by birds, animals, insects etc.
4. They do not get favorable conditions to germinate.

**STRUCTURE OF A SEED**

1. A seed has the following parts.
2. Seed coat is the hard outer covering which protects the seeds.
3. Cotyledons or seed leaves are the thick, fleshy parts which store food for baby plants.
4. Embryo or baby plant is present between the cotyledons. It develops into a new plant.

**GERMINATION**

It is the process of the conversion of a seed into a seedling under favorable conditions of air, water, and sunlight

The seed coat softens on absorbing water. A small root or radical grows downwards after emerging from the seed. Then, a small shoot or plumule grows upwards from the seed. The seedling uses the food stored in cotyledons for its growth. Once green leaves appear on the shoot, they start preparing food by photosynthesis. The cotyledons dry up and fall off the plant.

**Explanation**

Reproduction is a process by which living thing produce new individuals of their own kind. Plants reproduce by 3 ways-

1 – Through seeds

2- Through spores

3- Through other parts of the plants.

Ex- A mango tree produce only mango , an apple tree produces only apples but a mango tree cannot produce apples.

**Reproduction from seeds**

Flowers are the reproduction organ of a plant. Flowers grow into fruits. Fruits contain seeds. Seeds germinate to grow into a plant .All seed do not grow into a plant .Some seeds are eaten by animal , some seed are destroyed by rain or wind , some seeds do not get right soil or enough air and water.

**Parts of a flower**

**Sepals**- These are the small , leaf like parts growing at the base of the petals . Sepals protect the flower before it blossoms (in the bud stage)

**Petals –** This layer lies just above the sepal layer . They are often bright in colour as their main function is to attract pollinators such a insects, butterflies etc. to the flower .

**Stamens-**These are the main parts of a flower . Stamens are divided into two parts

1. **Filament –** The part that is long ,slender and is attached to the flower .
2. **Anthers -** It is the head of the stamen and is responsible for producing the pollen which is transferred to the pistil or female parts of the plant .

**Pistil –** This forms the female parts of a flower .

**Style –** Style is a long slender stalk that holds the stigma . Once the pollen reaches the stigma the style starts to become hollow and forms a tube called the pollen tube .

**Stigma –** This is found at the sticky top of the style . It forms the head of the pistil . The stigma contains a sticky substance whose job is to catch pollen grains from different pollinators or those dispersed through the wind .

**Ovary –** They form the base of the pistil . The ovary holds the ovules .

**Ovules –** These are the egg cell of the flower .

**The process of flower reproduction ÷**

Reproduction of flowering plants begins with pollination .The transfer of pollen from stigma on the same flower or to the stigma of another flower on the same plant is called self -pollination or from stigma of another plant to the stigma of another plant is called cross-pollination. Once the pollen grain lodges on the stigma , a pollen tube grows from the pollen grain to an ovule . Two sperm nuclei then pass through the pollen tube. One of them unites with the egg nucleus and produces a zygote . The other sperm nucleus unites with two polar nuclei to produce an endosperm nucleus . The fertilized ovule develop into a seed . All seeds of a plants do not grow plants because of following reasons .

1. Some of the seeds are damaged by the animals or by naturals process like rotten in excessive water.
2. Some of them are moved by wind to different places , where it’s germination is not possible.

**Structure of seed ÷**

A seed has the following parts .

**1** - **Seed coat-** It is the outer protective covering which protects the baby plant inside the seed . It has a tiny hole through which the seed gets water .

**2** – **Seed leaves or cotyledons** ÷ They contain food for the growing baby plant .

**3** – **Embryo** ÷ A baby plant that is present between the cotyledons . It developed into a new plant .

**Germination –** The development of a seed into a seedling (baby plant) is called germination . When the seeds get proper air , water and warmth(sun light) they germinate to form a new plant .

**Stages of germination** ÷

Seed absorbs water from the soil . As a result , the seed coat becomes soft . It breaks up and baby root comes out . It develops roots that goes deep into the soil . Baby shoot develops and grows towards the sunlight . Gradually the shoot and tiny leaves grows . They start preparing their own food . The new plant produces flowers which grow into fruits . Fruits contains seeds. Under suitable condition of air, water and warmth , these seeds germinate and grow into new plants . In this way , the cycle of reproduction continuous .

 **WORK SHEET**

**DO THE FOLLOWING EXERCISES IN YOUR COPY / NOTE BOOK.**

**Short type Ques/Ans**

**Q 1. *Write the ways in which a plant reproduce?***

**Ans.**  Plant reproduce in different ways ÷

1. From their seeds
2. From spores
3. From their different parts.

**Q 2. *What is the main parts of a flower ?***

**Ans.**  The main parts of a flower are ÷ petals ,sepals ,androecium(stamen) and gynoecium(pistil) .

**Q 3. *What do you mean by pollination?***

**Ans.** The transfer of pollen grain from the anther of a stamen to the stigma of the pistil is called pollination .Pollination is the first step of reproduction in plants.

**Q4. *What do you mean by pollinators?***

**Ans.** There are various agents such as wind, water, insects and animals which also helps in pollination.These agents are called pollinators.

**Long type Ques/Ans**

**Q1. *What is Germination? How does a bean seed germinates ? Describe it with diagram.***

**Ans .** The development of the embryo within a seed into a seedling is known as germination.

**Germination of a bean seed**

**1.**The seed absorbs water through the seed hole ,making the seed coat loose.

**2.**The lower part of the embryo starts growing first . It grows downward to form the root.

**3.** The upper part of the embryo starts growing upwards. It grows to form the shoot.

**4.** At this stage, the little plant ,which is now called a seedling ,uses the food stored in the seed leaves.

**5.** It’s root and shoot grow bigger and the seedling develops green leaves .It starts making it’s own food and grows into an adult plant.

**Q 3. *What are Rabi crops and Kharif crops ?***

**Ans .** The crops grown in winter and harvested by march or April are called rabi crops . Ex: wheat, mustard .

The crops grown in summer and harvested at the end of the monsoon , they are called kharif crops.Ex: Rice, maize, jowar .

**Q3. *Define (1) Dicotylendonous and (2) Monocotyledonous***

**Ans .** Plant that produce seeds with two cotyledons are called **dicotyledonous plant** or **dicot .**Ex : Mango, Apple etc.

 Plants produce seeds with one cotyledon are called **monocotyledonous plants or monocots** .Ex : Maize, Wheat, Grass, Paddy (rice)etc.

 **WORK SHEET**

**EXERCISE – 1 Word/ meanings**

1. **Fusion:-** result of joining two or more things.
2. **Dispersal:-** the action or process of distributing or spreading things over an area
3. **Cultivation:-** growing crops in fields.
4. **Insecticides:-** a substance used for killing insects .

**EXERCISE - 2**

 **Give two example of each one of the following.**

1. Dicots - Beans Peas
2. Monocots -. Rice Wheat
3. Underground stems -. Onion Potato
4. Seeds dispersed by water -. Lotus Coconut
5. Seeds dispersed by wind - Maple Cotton

**EXERCISE – 3 WRITE TRUE OR FALSE**

1. Stamens are the male parts of the flower. (T)
2. The anther contains a red powder called pollen grains.(F)
3. Style is a long tube.(T)
4. Pistil is the female part with a sticky top.(T)
5. Seed coat is the hard outer covering which protects the seeds.(T)

Q4. Draw and label the diagram of

1. A flower

2. A seed

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