Honors Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
NDHS Per: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PLANTS**

**What is a plant?**Eukaryotic
Multicellular
Autotrophic

**Why are plants important?**

**PLANT Tissues**:
: interconnected cells that make
 : move  from the roots to the leaves
 : move  from roots to leaf buds () or leaves to roots ()

: stores food as
  –  cells – carrots and potatoes

: gives  to tissues
  – stick like

: keep
  on stems
  on leaves – makes a waxy layer called the

:
  **:**  inside of leaves

**Plant Organs:**
:
 - hold plant in the soil
- absorb water and nutrients
- store food
- reproduction

:
 - support leaves and reproductive structures
- can be specialized to store food or water or  (potato, strawberry runners, bamboo shoots)
- modified for defense =

:
 - photosynthesis
- can store water ()
- modified for defense =  (cactus)
- specialize for reproduction =

**External Structure of Leaf: Internal Structure of Leaf**



**Important Structures:** : opening for gas exchange
 : regulate size of stoma
 : photosynthesis
 : protective waxy layer
 : xylem and phloem – vein of leaf

**Types of Plants:** : No  – can only move water and sugar by osmosis and diffusion – keeps them
 Ex: : Mosses and the their relatives (Liverworts, Hornworts)
 - reproduce using  – produced in specialized structures called

 - require  for reproduction – sperm must  to the egg



**Vascular Plants**: Have xylem and phloem

**Types of Vascular Plants**:
 : Reproduce using
 EX:  – produce spores which grow in  on the underside of the leaf, which is called a



 - spores land on ground and grow into a  which produces the
 - water hits this and allows the sperm to  to the egg and the zygote grows into a new fern



Other Types: Horsetails, Ground Pine

 : Produce specialized structures () that make egg cells in an ovary and sperm cells which are housed inside of
 - pollen is transferred to the cone or flower by a  **( )** to make a new plant and a  which is protected inside of a  and the cone or the developing fruit

**Types of Seed Plants**:
 : “” seeds – seeds only have a seed coat and are
Ex: :  bearing trees

 - produce two types of cones:
 – very small
  – egg is housed in the scales of the cone
 - pollen is blown by the  from the male cone to the female cone and fertilizes the egg –  and protect the developing seed – sperm and egg fuse to make the embryo and other unfertilized eggs divide to make a food source in the seed – after  – some conifers require the  to cause the cones to open and release the seeds



: “ – seeds that develop from  and have a protective coating around the seeds that is the  - Flowering Plants

* **Typical Flower Structure and Reproductive Cycle**:



* :  (houses the sperm and a specialized cell called the tube cell)
- pollen is transferred to the  and germinates releasing the  and the sperm cell
* Tube cell makes a  for the sperm cells to the
* to make the and the  to make the  =
* The food source develops into the seed part that we eat and the embryo develops into the young plant
* At the same time the  to  or help spread the seeds
 **Types of Fruits**:
 - : sunflower seeds, Maple tree helicopters, burrs,
 - : Apples, bananas, tomatoes, peppers, cucumbers

**Types Of Angiosperms**:
 – “” refers to the  or the “” in the seed – the first  that emerge from the growing embryo -



|  |  |  |
| --- | --- | --- |
| **Characteristic** | **Monocots** | **Eudicots** |
| Seed Structure |  |  |
| Flowers Parts |  |  |
| Leaf Veins |  |  |
| Roots |  |  |
| Vascular Bundles in Roots |  |  |
| Vascular Bundles in the Stems |  |  |
| Secondary Growth |  |  |

**Life Cycles**:
: live for one year and then die
 : grow for one year but do not flower – flower the second year and then die
: live for more than two years and up to thousands

