Name: _____ Date: _____ Per: _____

Evolution of Land Plants (Life Science: Session 4) ** All links are found on my Neshaminy website under "Plants" http://www.learner.org/courses/essential/life/session4/closer2.html

A. **How did land plants evolve?** Evidence is that ancestors of modern land plants evolved in _____ _____. They existed and diversified over _____ of years, from one group of organisms – probably ancestors of the modern species of _____ known as green _____. From this branch arose four groups of land plants, including; _____, _____, _____, and the _____ _____.

1. **What adaptations occurred with the transition from water to land?**

Body Support As plants evolved from aquatic to terrestrial environments, several obstacles stood in the way. One obstacle was _____ _____.

Write the all evidence and examples for each:

In Water	On Land

2. **Transport of Materials** A second challenge to life on land was the distribution of _____ and other _____ to each cell.

Write the all evidence and examples for each:

In Water	On Land

3. **Fertilization** A third challenge during the transition to land involved bringing _____ _____ together.

Write the all evidence and examples for each:

In Water

On Land

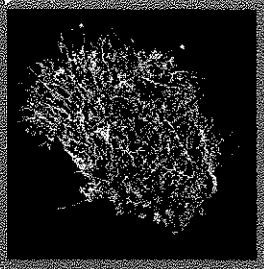
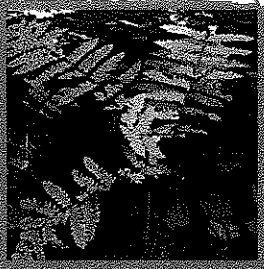
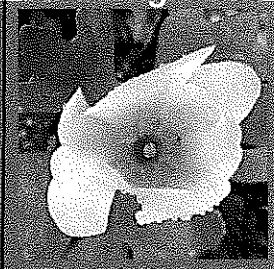
4. **Development and Dispersal of the Embryo** A fourth challenge for land plants resulted in the evolution of _____.

Write the all evidence and examples for each:

In Water

On Land

Transition From Water to Land

Plant Group				
_____	absent	present	advanced	advanced
_____	absent	present	advanced	advanced
True _____ and _____	absent	_____	_____	_____
_____	absent	_____	_____	_____
_____ and _____	absent	absent	exposed on	enclosed in _____
_____	_____	absent	_____	_____
required for fertilization	_____	yes	_____	_____

Plants: Adaptations to Life on Land

http://nbsp.sonoma.edu/resources/teachers_materials/life-science_01/06plantlecture1/tsld027.htm

Write the five adaptations of plants to live on land:

1.

2.

3.

4.

5.

Plants – Adaptations to Land http://home.earthlink.net/~dayvdanls/PlantEvol.html

Fill in the blanks:

Some of the adaptations of plants to a terrestrial existence include a _____ cuticle, surface pores (_____) that enable _____ exchange, protected _____ structures, and the retention of the embryonic _____ within the female gametophyte.

Review and complete the table below for more adaptations for life on dry land.

Problems	Solutions
Spatial Segregation of Resources _____ in the soil and water _____ in the air	Regional Specialization Roots • lack wax and chlorophyll • have large surfaces area (aided by mycorrhiza • have _____ for conduction of _____ Leaves and Stems • have _____ coverings to _____ • chloroplasts _____ to obtain the best arrangement for absorption of light • turgor pressure _____ • _____ regulate water loss and _____.
Gravity prevents _____	Lignin reinforces cellulose. This _____ allows turgor pressure to increase to help maintain rigidity.
Increase in Height requires mechanism to prevent water loss and _____ more effectively	Vascular Transport System allows plants to _____ in order to reach light. The vascular system is made of microscopic pipes, the xylem and phloem. Xylem is lignified adding to the other _____ _____.
_____ to Dryness	Seeds help _____ plants and are able to survive the _____ conditions. Some can _____ waiting for just the right conditions to _____. Pollen Pollen, the male gametophyte, is designed to _____ Dominance of Sporophyte Generation The diploid condition exhibits all the _____