Life Sciences 11 Algae & Bryophyta Name:

**Objectives:**

By the end of the lesson you should be able to:

* State the 3 types of algae **∙** Draw and explain the lifecycle of a bryophyte
* Explain why we believe land plants developed from algae **∙** Give examples of bryophytes

**The First “Plants”:** were not truly plants!

* For more than 3 billion years, Earth’s terrestrial surface was lifeless
  + life evolved in the seas
  + plant life evolved in the seas from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + 1st photosynthetic organisms were \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ algae

**Chlamydomonas**



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**Brown Algae:**

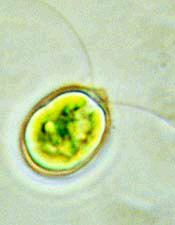
* Kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Mostly marine and temperate

**Red Algae:**

* Kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most common in warmer tropical waters
* In temperate zones, found in deeper water

**Green Algae:**

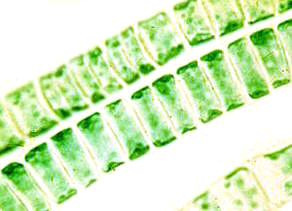
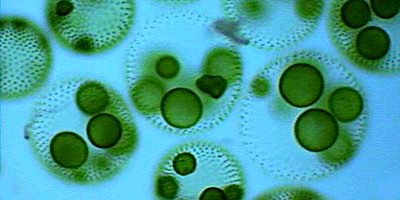
* Kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Very diverse group
* Include 3 forms:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Live in all environments: fresh and salt water, soil

1. **Unicellular Green Algae:**

* Very common in fresh water as part of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Ex. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. **Colonial Green Algae:**

* Live in long \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_or as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. **Multicellular Green Algae:**

* Mostly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of land plants
* Ex \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Evolution of Land Plants:**

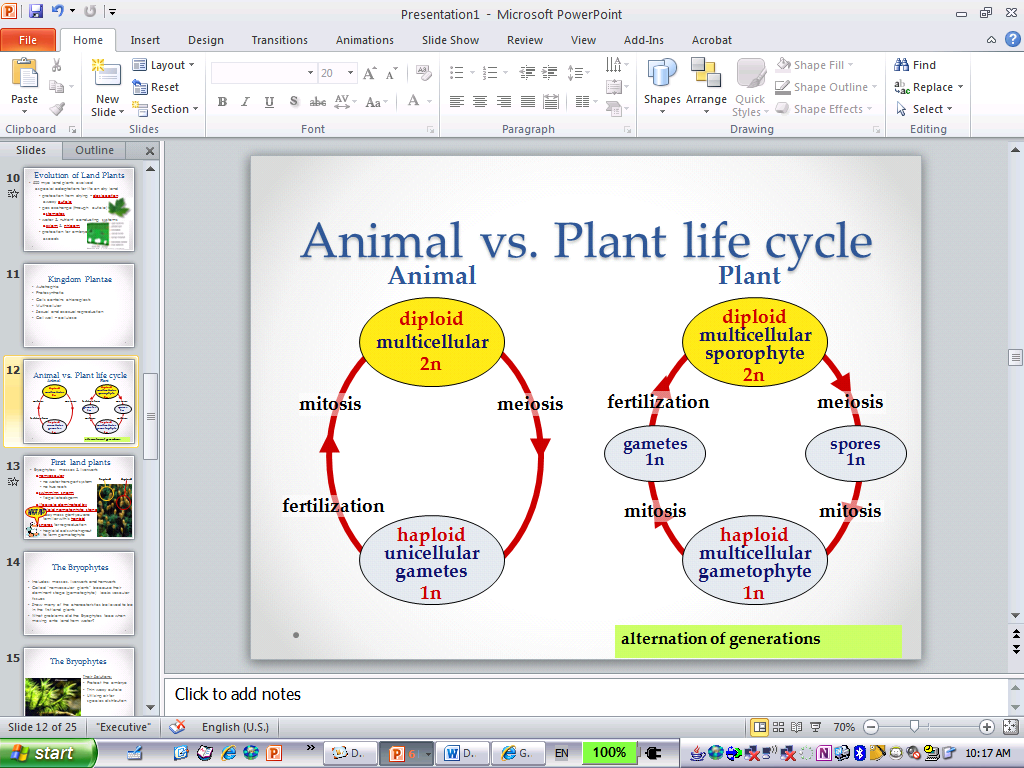
* 500 mya land plants evolved
  + special adaptations for life on dry land
    - protection from drying = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * waxy \_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - gas exchange (through cuticle)
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - water & nutrient conducting systems
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - protection for embryo
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Kingdom Plantae:**

Cell type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mode of Nutrition: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Photosynthetic Cells contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number of cells: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sexual and asexual reproduction

Cell wall – cellulose Life Cycle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



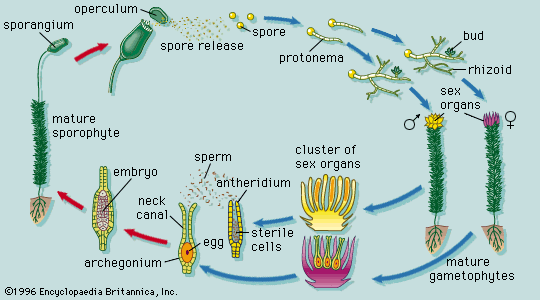
**First Land Plants:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: mosses & liverworts
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - no \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system
    - no true \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - flagellated sperm
  + lifecycle dominated by \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ stage
    - fuzzy moss plant you are familiar with is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for reproduction
    - haploid cells which sprout to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

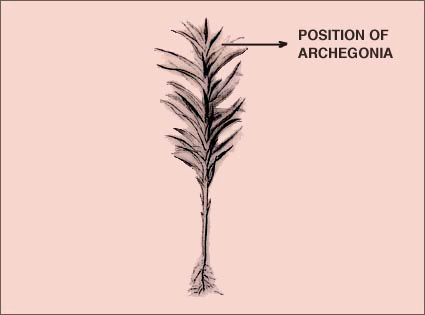
**The Bryophytes:**

* Includes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Called “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” because their dominant stage (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) lacks vascular tissues
* Show many of the characteristics believed to be in the first land plants
* What problems did the Bryophytes face when moving onto land from water?
* Their solutions:

Protect the \_\_\_\_\_\_\_\_\_\_\_\_ Thin waxy \_\_\_\_\_\_\_\_\_\_\_\_ Utilizing \_\_\_\_\_\_\_\_ for species distribution

**Typical Bryophyte Life Cycle:**

* Utilize \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from algae
* **Gametophyte** (n) shows two distinct sexes: the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* This is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_stage (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) and is involved in \_\_\_\_\_\_\_\_\_\_\_\_\_ reproduction

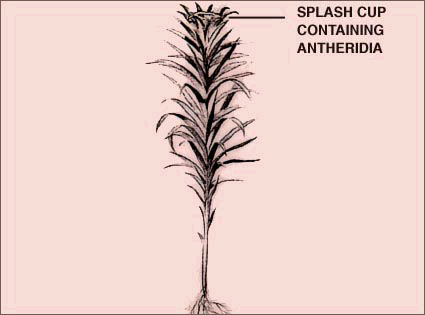
**The Archegonium:**

* This is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_shoot
* It contains the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(at the top of the shoot) which is:

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (n)

- produces by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and contains the \_\_\_\_\_\_\_\_\_\_\_\_\_

**The Antheridium:**

* The\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gametophyte, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(top of shoot), is:

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

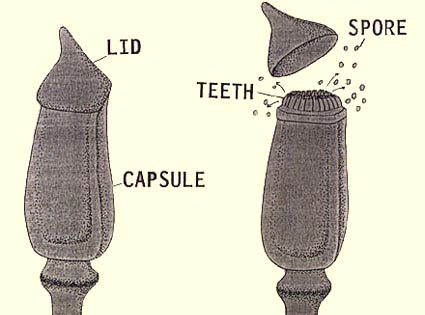
- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (n)

- produces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs when there is enough water for the \_\_\_\_\_\_\_\_\_\_\_ to swim to the \_\_\_\_\_\_\_\_ (in the archegonium)

**The Sporophyte:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ results in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which grows out of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Sporophyte contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue
* It produces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ borne spores by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



These \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_then germinate to form the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Other Bryophytes**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Can you …**

**… state the 3 types of algae?**

**… explain why we believe land plants developed from algae?**

**… draw and explain the lifecycle of a bryophyte?**

**… give examples of bryophytes?**