



**EQUISETALES**  
**ХВОЦИ**

# Clubmoss



# Horsetail



# Fern



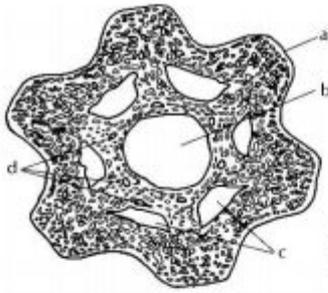
# Задание:

1. Рассмотреть слайды, обратить внимание на строение хвоща, жизненный цикл (слайд 5) и эволюцию стробила (слайд 11).
2. Подписать части хвоща (слайд 4)
3. Зарисовать в тетради цикл развития и подписать стадии

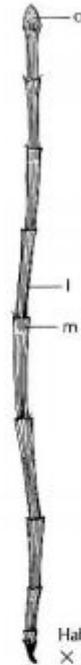


# Подписать части

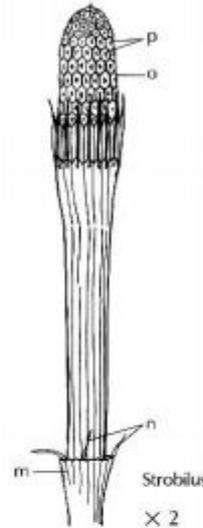
## Horsetails & Scouring Rushes



*Equisetum variegatum*  
Variegated Scouring Rush  
stem cross section  
× 34

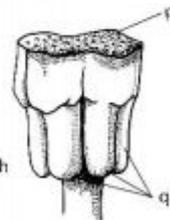


Habit  
× ½

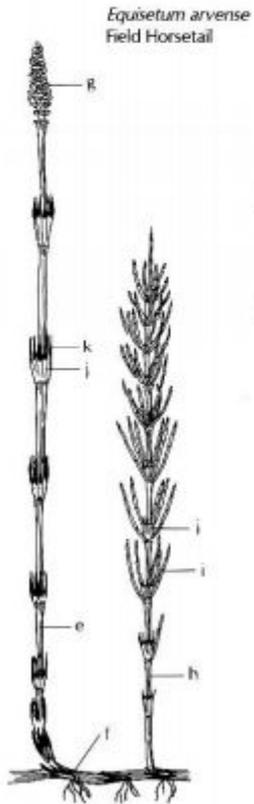


Strobilus  
× 2

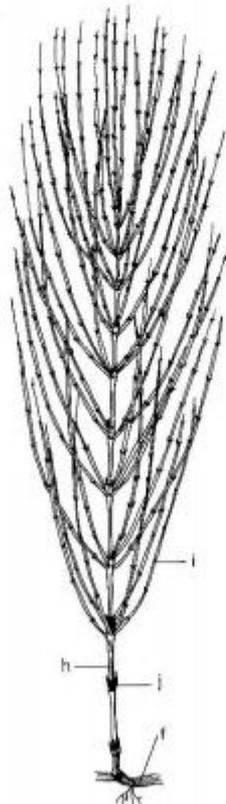
*Equisetum laevigatum*  
Smooth Scouring Rush



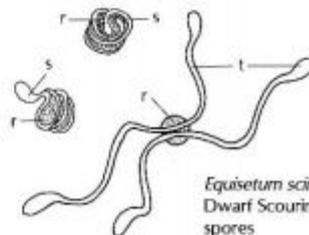
*Equisetum hyemale*  
Common Scouring Rush  
sporophyll  
× 20



Spring Habit  
× ½

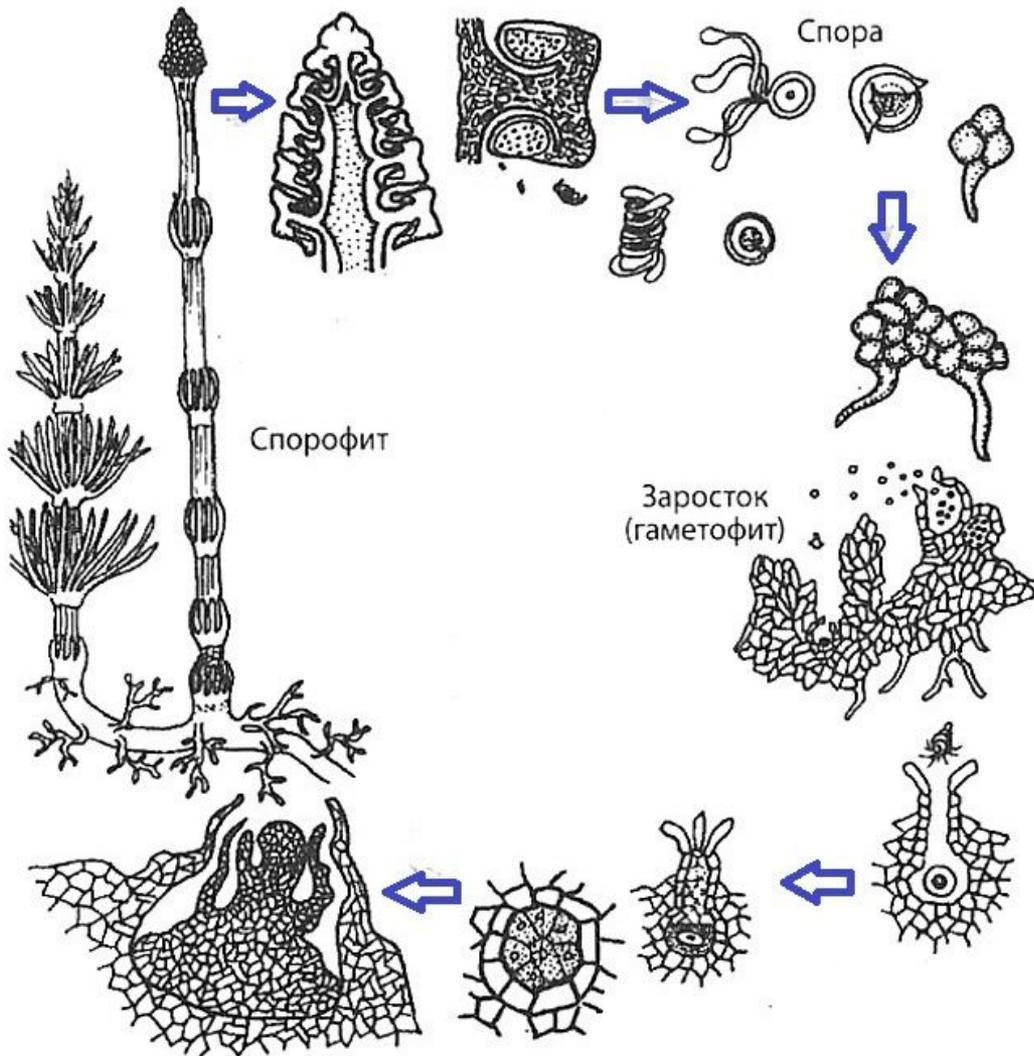


Summer Habit  
× ½



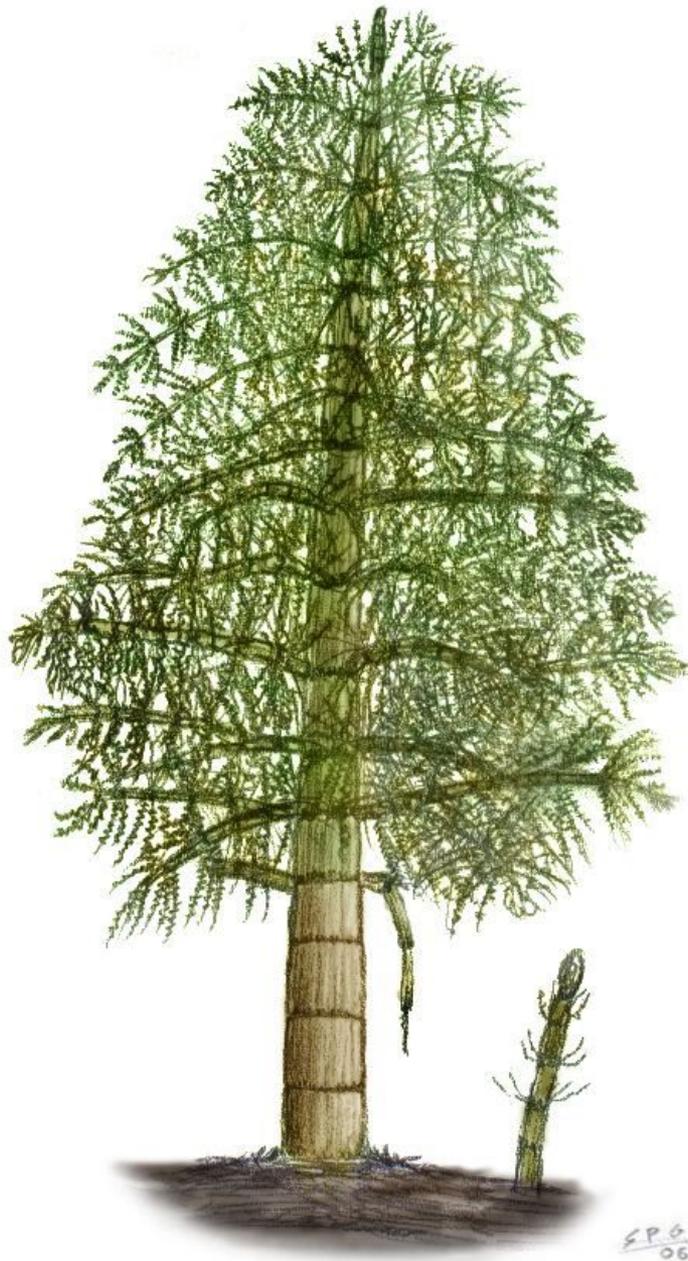
*Equisetum scirpoides*  
Dwarf Scouring Rush  
spores  
× 107

### Схема жизненного цикла хвоща

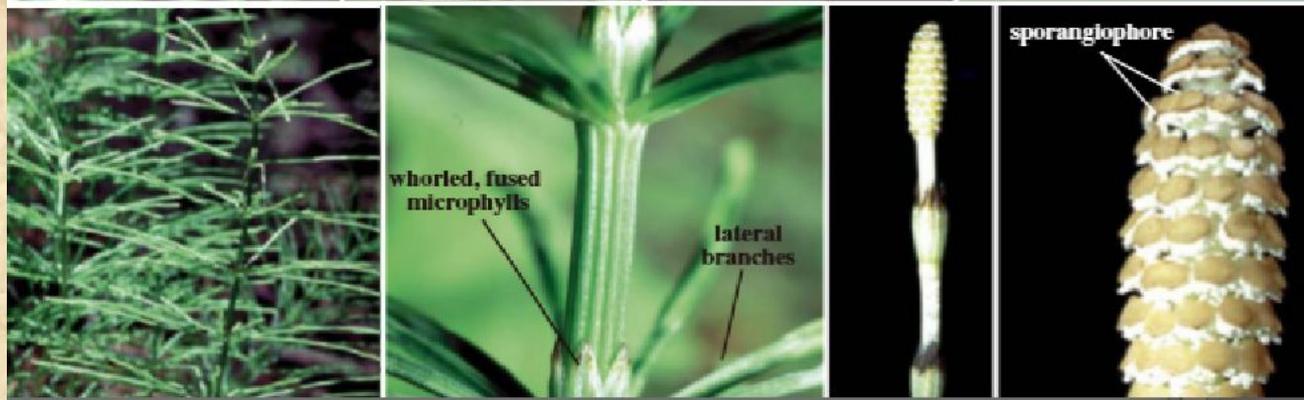
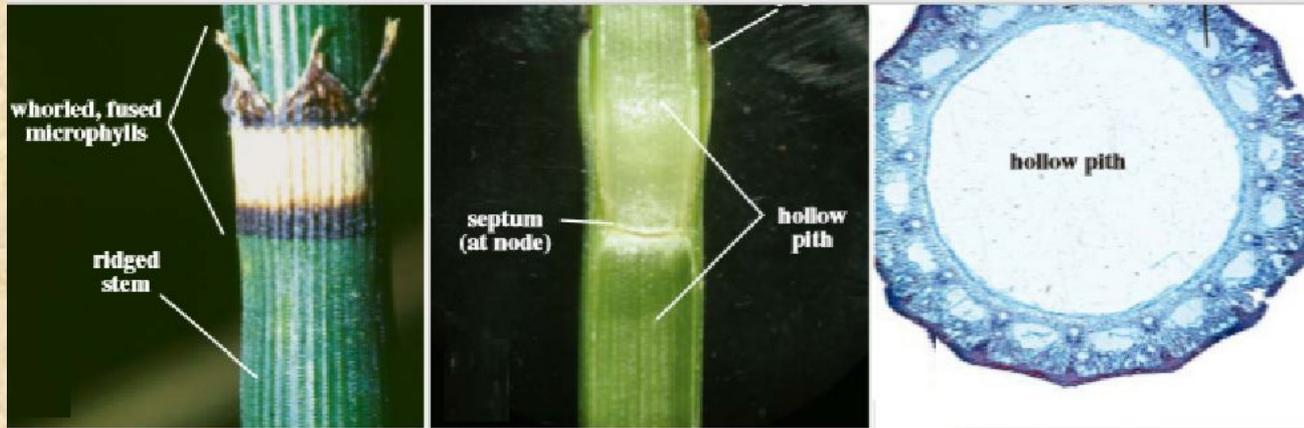


- [uchitel.pro/хвоци](http://uchitel.pro/хвоци)

# Каламиты – ископаемые хвощевидные



# EQUISETALES









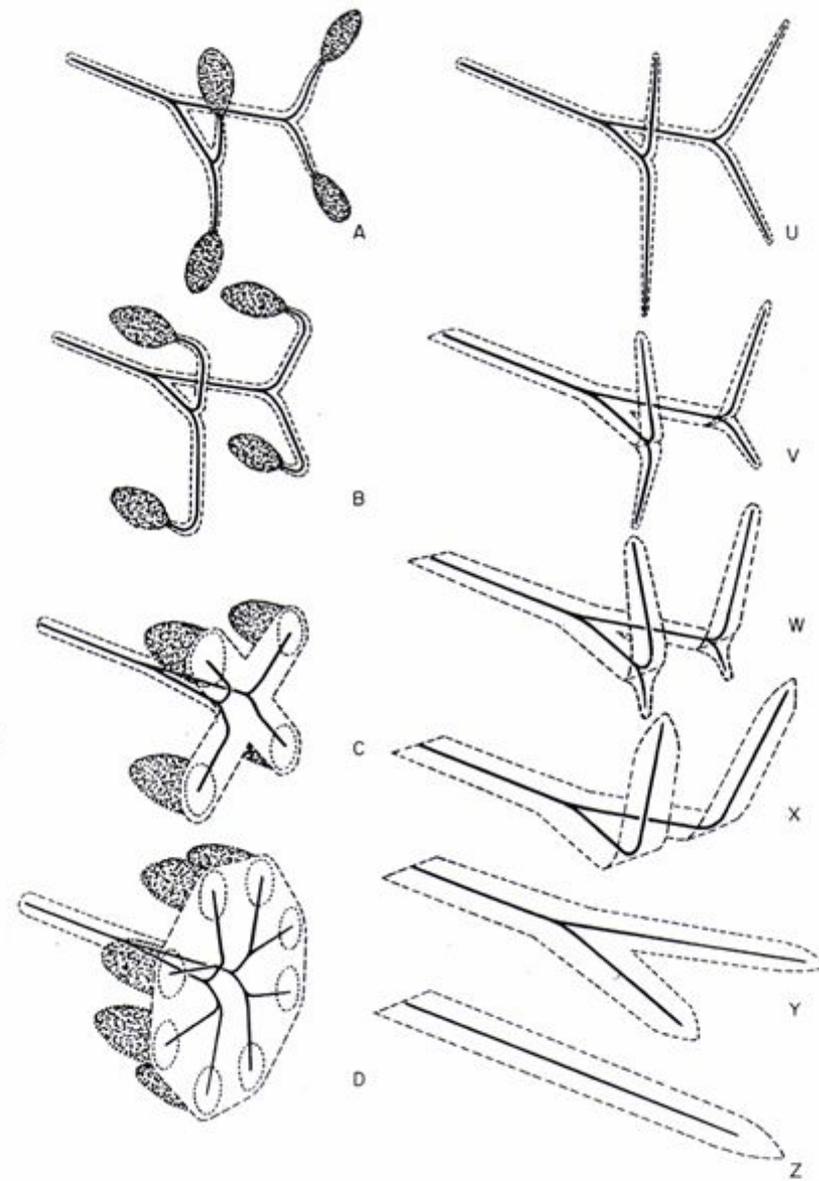


Figure 11. Diagram illustrating the suggested evolutionary stages of the *Equisetum* appendages: A–D sporangiophores, U–Z leaf. Broken lines indicate the outline of the appendage, stippled areas the sporangia and solid lines the vascular supply. A and U are the primitive appendages orientated in their probable planes of growth on a vertical shoot and differ from one another only in the presence or absence of sporangia. D and Z represent the morphology of sporangiophore and leaf of modern *Equisetum* respectively. B–C and V–Y are the suggested intermediate evolutionary steps.













































































