

*Simple Seedless Nonvascular & Vascular Plants
PowerPoint Worksheet*

Seedless Nonvascular plants

1. Name the 3 divisions of seedless vascular plants and a member of each division.

- a.
- b.
- c.

Division Bryophyta

2. What is the common name for mosses, liverworts, and hornworts?

3. Bryophytes lack what type of tissue?

4. Name the 2 vascular tissues lacking in bryophytes and tell their function.

5. What is the 2 stage life cycle of plants called?

6. Name the 2 life cycle stages.

7. Which stage is DOMINANT in bryophytes (mosses, liverworts, & hornworts)?

8. How do bryophytes reproduce?

9. Which stage of the moss looks like a lush green carpet?

10. Name the division for moss.

11. Why are moss plants small?

12. Does moss have TRUE roots, stems, or leaves?

13. In what type of area do mosses grow? Give several examples.

14. Moss gametophytes must grow close together in moist areas. Give 2 reasons why this is so.

- a.
- b.

15. What covers the outside of a moss plant to prevent water loss?

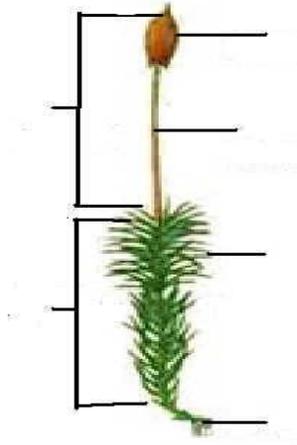
16. What anchors moss plants?

17. Can rhizoids absorb water like true roots?

18. Where does the sporophyte generation occur on moss plants?

19. What is at the top of the sporophyte?

20. Label the following moss plant.



21. _____ moss is used by florist. What characteristic makes it useful?

22. Because moss will grow on bare ground, it is called a _____ plant.

23. How is peat moss used?

24. Give 4 other uses for moss.

25. Moss is capable of asexual reproduction. Name and describe 2 types of this vegetative reproduction.

a.

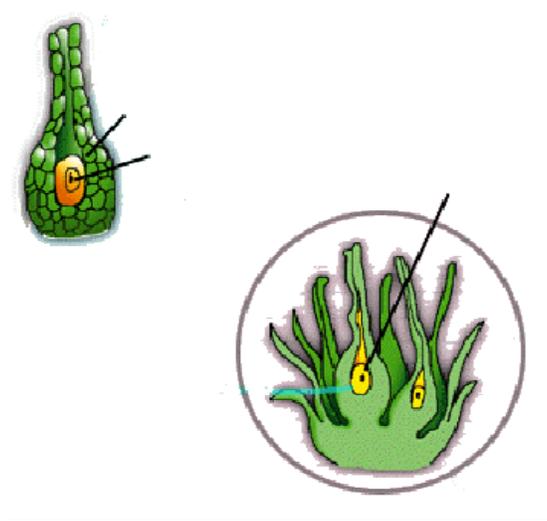
b.

26. What are gemmae?

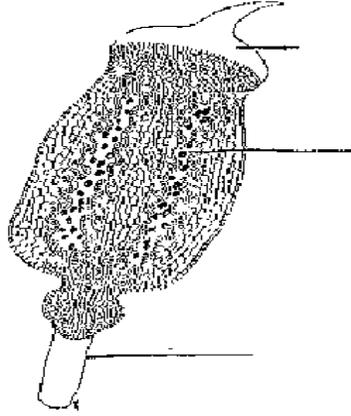
27. How are gemmae separate from the parent plant & dispersed?

28. Which stage of the moss is haploid and which is diploid?

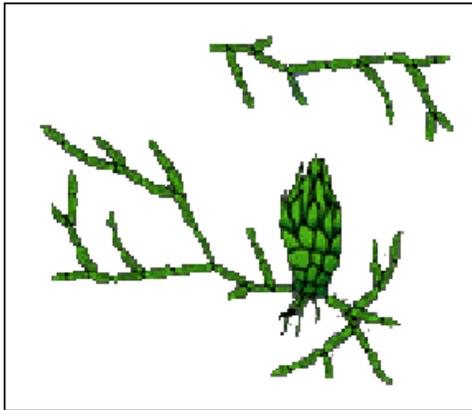
29. The gametophyte generation produces what 2 cells?
30. Why do these cells have half the chromosome number?
31. _____ have a _____ set of chromosomes and reproduce _____.
32. the sporophyte grows attached to the top of the _____.
33. Since sporophytes lack chlorophyll, what cellular process are they incapable of doing?
34. How does the sporophyte get its food?
35. What is the setae on a moss plant?
36. How are the moss gametes protected?
37. Name the female gametangia & tell what it produces.
38. Eggs of moss are _____ & _____.
39. Label the female gametangia.



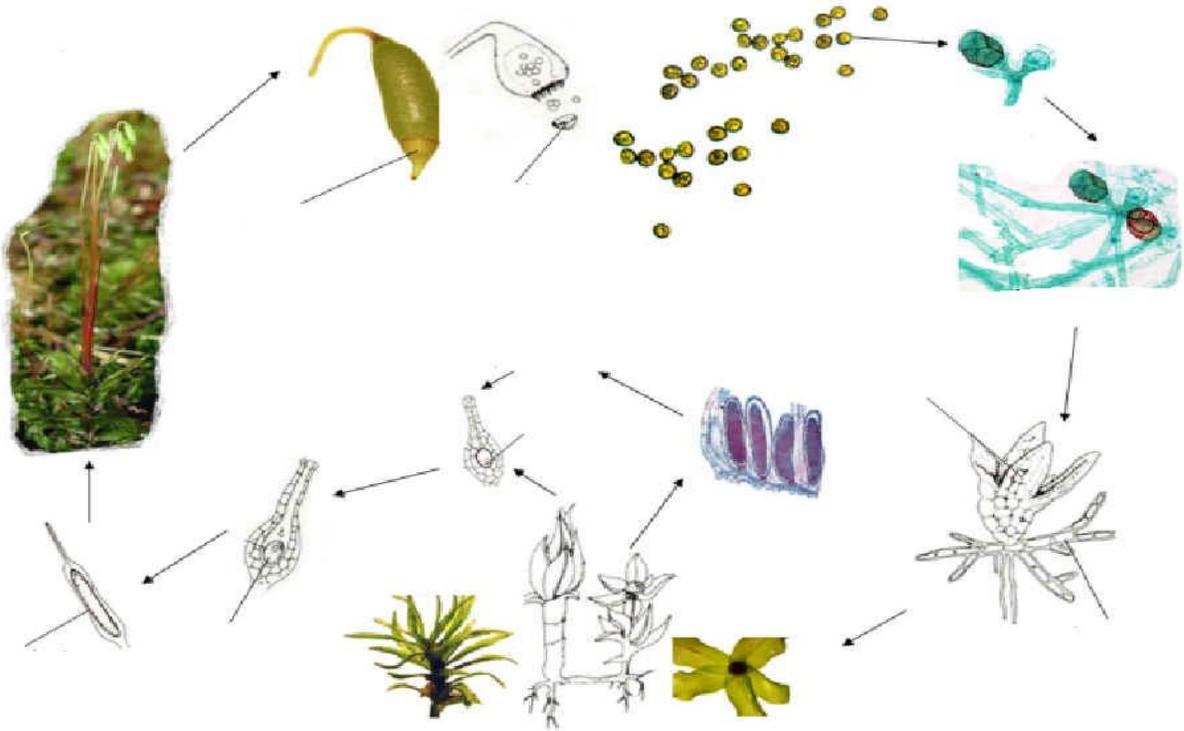
40. Name the male gametangia & tell what it produces.
41. How does the sperm cell know the direction in which to swim to the egg?
42. Label the male gametangia.



43. The moss _____ or fertilized egg develops into the _____.
44. Spores of the sporophyte capsule germinate into young plants called _____.
45. Protonema develop into the _____ stage
46. Label the protonema & developing gametophyte in this picture.



47. Label the life cycle of the moss.



Division Hepatophyta

48. _____ are nonvascular, _____ producing bryophytes.

49. What stage is dominant in liverwort's life cycle?

50. Describe the liverwort gametophyte.

51. Liverworts are found growing where?

52. Liverworts need lots of water for _____.

53. How do liverworts reproduce asexually?

54. How do liverworts reproduce sexually?

Division Anthocerphyta

55. _____ are small, nonvascular _____ with a dominant, leafy _____ like liverworts.

56. Where are the antheridia & archegonia in hornworts?

57. Zygotes develop into _____ sporophytes.

58. Is the horn-shaped sporophyte capable of photosynthesis?

59. Is the horn-shaped sporophyte attached to or separate from the gametophyte?

60. Label the parts of the hornwort.



Seedless Vascular Plants

61. Label these structures on the back of this fern.



62. Name and give an example of a plant in the 4 divisions of seedless vascular plants.

- a.
- b.
- c.
- d.

63. Name the vascular tissues.

64. Do seedless vascular plants go through alternation of generations?

65. Which stage is dominant?

66. How do they reproduce?

Division Psilophyta

67. Describe whisk ferns.

68. Do they have true roots, stems, or leaves?

69. How many extant genera are there?

70. Name the root like structures of whisk ferns and tell whether they can or can't absorb water.

71. How do whisk ferns reproduce asexually?

72. How do whisk ferns reproduce sexually?

73. Make and label a sketch of an aerial branch of whisk with sporangia.

74. What is the purpose of sporangia?

Division Lycophyta

75. The division Lycophyta contains the _____ living vascular plants.

76. Club moss are commonly called _____. Explain why this is true.

77. Club moss have _____ growing root like _____.

78. Describe the habitat needed by club moss.

79. Describe the leaves of club moss.

80. Are these TRUE leaves? Explain why.

81. What is found in the axils of the leaves & what is their purpose?

82. What are strobili?

83. Some club moss are homosporous while others are heterosporous. Explain what each of these terms means.

a. homosporous-

b. heteroporous-

84. Give an example of a homosporous club moss.

85. *Lycopodium* is used in fireworks. Explain the reason for this.

86. What do the spores of *Lycopodium* look like?

87. What is the purpose of each of these structures.



88. Give 3 other uses for club mosses.

a.

b.

c.

Division Sphenophyta

89. How many extant species of horsetails are there?

90. Name the living genera of horsetails.

91. What is another name for horsetails?

92. Why are they called this?

93. Describe the stems of horsetails.

94. Where does photosynthesis take place in horsetails?

95. How are horsetails anchored?

96. How do horsetails reproduce?

97. Where are their spores found?

98. In prehistoric times, what was true of the size of horsetails?

99. Describe the habitat of horsetails.

100. How do horsetails prevent water loss from the parts of the plant above ground?

101. What special spore dispersing structures are found on the spores of horsetails?

102. Describe how elaters work.

103. Label the stem, node, and leaves on this horsetail.



104. Give 3 other uses for horsetails.

a.

b.

c.

104. Can animals eat horsetails? Why or why not?

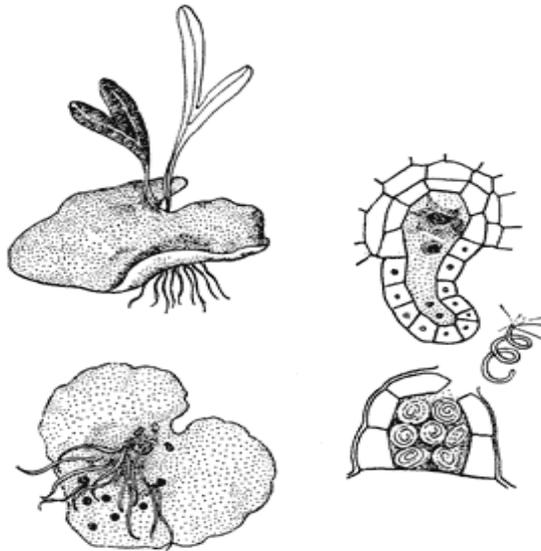
Division Pterophyta

105. Ferns are in the _____ group of extant vascular plants.

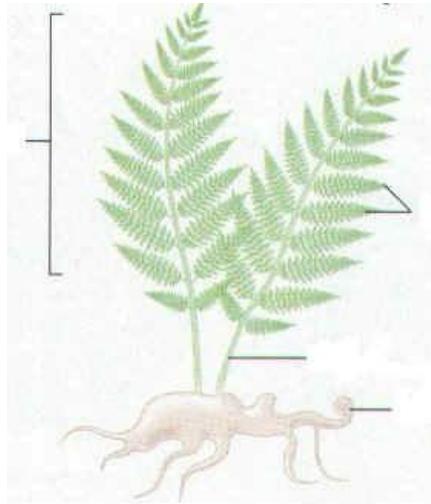
106. Describe the habitats for ferns.

107. How do ferns reproduce asexually?

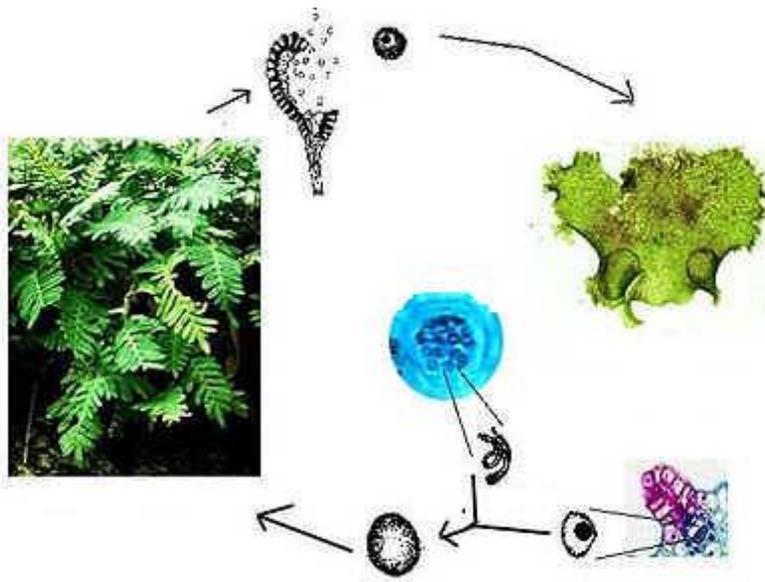
108. What stage is dominant in the life cycle of the fern?
109. What is the only part of the fern plant that appears above ground? What parts are found below ground?
110. Fern leaves are called _____ and are attached to the plant by short stems called _____.
111. Describe the appearance of newly forming fern fronds and tell what they are called.
112. What are sori and where are they found?
113. How are fern spores spread?
114. What forms when a fern spore lands on moist ground and germinates (starts growing)?
115. The prothallus starts what stage in the life cycle?
116. What is the shape of the gametophyte and does it live long?
117. What 2 structures grow ON the gametophyte?
118. Label the gametophyte and the male and female gametangia.



119. Label the parts of a fern.



120. Label the life cycle of the fern.



121. Give 4 uses for ferns.

- a.
- b.
- c.
- d.