Ecological Succession

Directions: What kind of ecological succession occurs after each of the following events? Write either **primary succession** or **secondary succession** under each diagram.

1. ______________
2. ______________
3. ______________
4. ______________

Directions: For each of the following, write either P for pioneer species or C for climax community in the lines provided.

_____ 1. beech-maple forest  _____ 2. lichens  _____ 3. mosses and ferns

Directions: Complete the events chain about primary succession by placing the following entries in the correct order.

Animals arrive.
Lava forms new land composed of rock.
Large plants grow.
Lava cools.
Lichens die and decay.
Soil forms.
Lichens and the forces of wind and erosion help break down rocks.
1. Primary succession occurs when a land area is formed. This may occur following a volcanic eruption, when new sand is deposited on a beach, or when a glacier retreats. The first plants attach to rocks and break them down to produce soil. Over time, grasses and flowers are replaced by shrubs and trees. Which graph illustrates the relationship between number of species and time in an area where primary succession is occurring?

![Graph A](image1)

![Graph B](image2)

![Graph C](image3)

![Graph D](image4)

2. Lava from an underwater volcano piles up over many years. Eventually, the pile of lava sticks up above the ocean surface, forming a new island. To show that succession is occurring on the island, it would be MOST helpful for a scientist to measure changes in —

A. average temperature
B. day length
C. annual precipitation
D. soil depth

3. Which of the following sequences MOST likely represents ecological succession on a recently abandoned farm?
A. grasses → flowering plants → shrubs → maple trees
B. maple trees → shrubs → flowering plants → grasses
C. shrubs → grasses → maple trees → flowering plants
D. flowering plants → maple trees → shrubs → grasses

4. Which of these types of environments is MOST LIKELY to experience the arrival of pioneer species?
A. An old growth forest
B. An undisturbed prairie
C. An established mountain lake
D. A newly formed volcanic island

5. Which of these types of environments experiences the LEAST change in the total number and type of species over time?
A. An ecosystem with only pioneer species
B. An ecosystem that is in primary succession
C. An ecosystem that is in secondary succession
D. An ecosystem with a climax community

6. A volcanic eruption covers a wide area of forest with ash, lava, and volcanic rock. Which of these describes the first stage of ecological succession that will begin to return biotic factors back to the forest community and return it to a state of equilibrium?
A. The volcano stops erupting.
B. The lava cools to form rock.
C. Lichens grow on the rocks.
D. The rocks melt back into lava.

7. All of the following are likely areas for secondary succession EXCEPT _____.
A. flooded land
B. volcanic island
C. abandoned logging areas
D. the land after a forest fire

8. Which plant characteristics are common to pioneer species?
A. Plant with roots that act as wedges to slowly break apart rocks.
B. Plants with long, thick roots that tap into deep water supplies.
C. Trees with exposed surface roots that trap soil and vegetation.
D. Plants with a broad mat of surface roots that quickly soak up water.