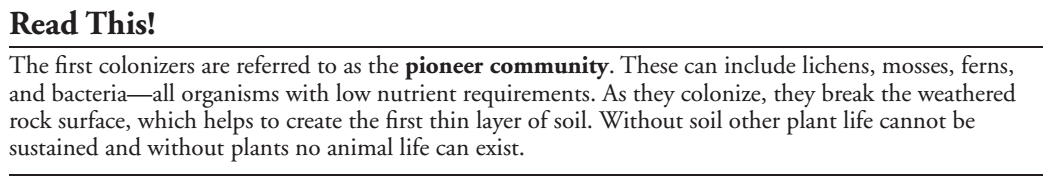
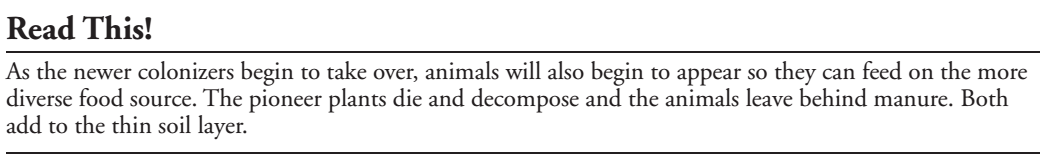


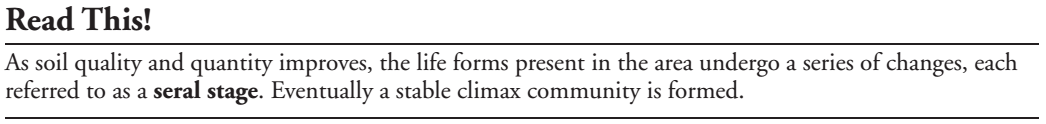
1. Refer to Model 1.
   1. On what type of land does primary succession first begin to occur?
   2. Does there appear to be any life on the land when primary succession begins?
   3. Why would most plants such as shrubs and trees find it difficult to grow here?
2. Refer to diagram B in Model 1.
   1. What are the first organisms (colonizers) on this land?
   2. Suggest the mechanisms by which the fist colonizers arrived on the land.



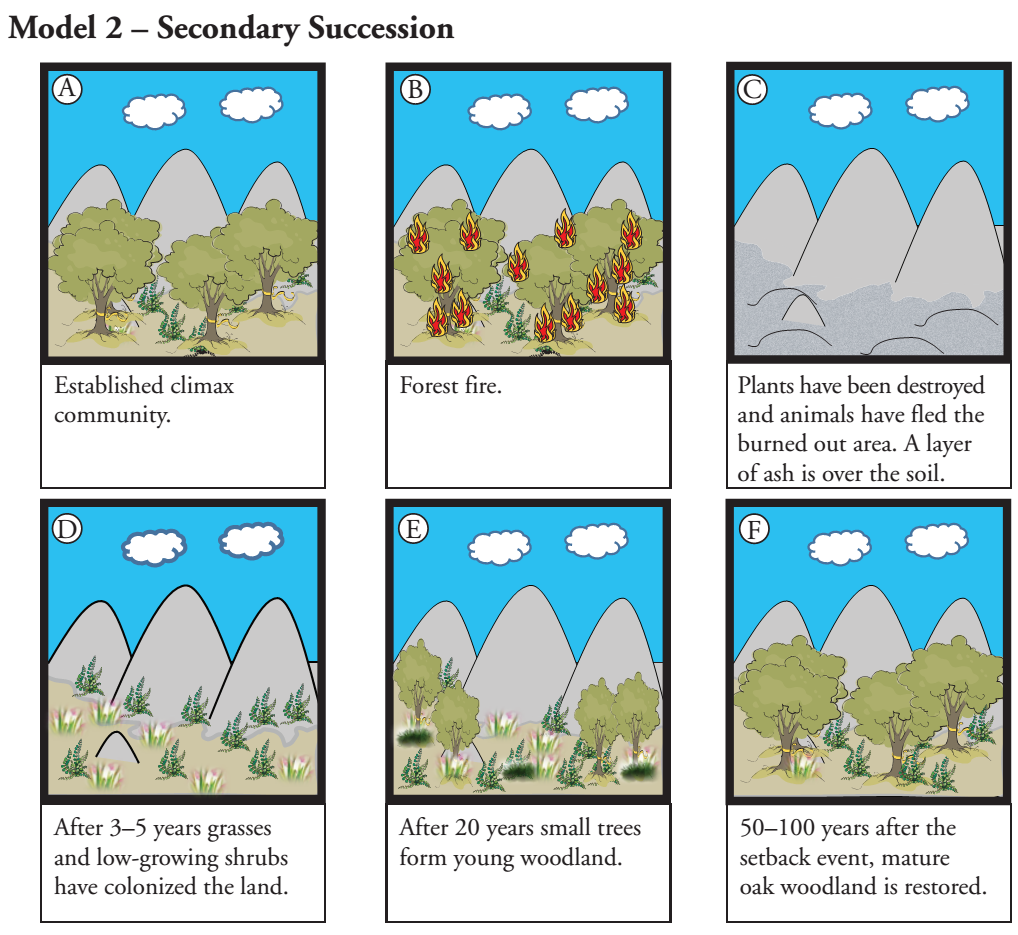
1. Refer to Model 1.
   1. Which diagram illustrates a pioneer community?
   2. What are some of the features of the pioneer community?
2. Notice the colonizers in diagrams C and D are taller and require more nutrients than those in the pioneer community. Considering what you already know about plants and photosynthesis, why might it be a competitive advantage for a plant to be taller?
3. What happens to the pioneer organisms once the new colonizers become established?



1. What effect will the addition of animal waste and decayed plant matter have on the soil and land?
2. How will grazing animals help plants to become established?
3. How will the grazing animals prevent or control further colonization by other plants?
4. Using the diagrams in Model 1 as a guide, develop a definition for the term **primary succession,** as it relates to the colonizing of barren land.



1. Label the pictures in Model 1 as pioneer community, seral stages, and climax community.
2. Most climax communities are mature forests. What features of mature forest species, such as oak trees, make them able to dominate and compete in the ecosystem?
3. What environmental factors may affect the type of climax community that develops in an ecosystem?



1. Refer to the diagrams in Model 2.
   1. What stage of development does diagram A represent?
   2. What appears to have happened in diagram B?
   3. What could be two causes of this event?
   4. What process will begin again after this event has occurred?
2. Can the ecosystem totally recover from this set-back? What evidence is given in Model 2?
3. Why is the title of Model 2 **Secondary Succession** rather than Primary Succession?
4. Consider each event below and determine if the recovery process for the environment will happen by primary succession or secondary succession.
   1. Melting, receding glaciers.
   2. Logging a wooded area.
   3. Major flooding of a creek bed.
   4. Volcanic eruption with lava flow.