After the Disruption

Track how ecosystems rebuild after different kinds of damage.

8.12.B "describe how primary and secondary ecological succession affect populations and species diversity after ecosystems are disrupted by natural events or human activity; and"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline clues that show whether each site has primary or secondary succession. Number 1, 2, and 3 beside three changes in populations or species diversity.

Two Paths to Recovery

1 After a powerful hurricane struck a coastal forest, many trees lay on the ground, but the soil remained. Seeds, roots, insects, fungi, and small animals also survived beneath the debris. Sunlight reached the forest floor, so grasses and flowering plants grew quickly. Their seeds and leaves fed insects and birds. Shrubs and young trees later crowded some open spaces. This recovery is secondary succession because an ecosystem was disturbed, yet soil and some living things were still present.

2 At an abandoned rock quarry nearby, blasting had removed bedrock and soil decades earlier. At first, bare rock had few places for organisms to live. Wind carried dust, and lichens grew on the rock. Lichens helped break rock into small particles. As dead lichens and windblown material collected, a thin soil formed. Mosses and small plants then established. Over a much longer time, deeper soil could support grasses, shrubs, and trees. This is primary succession because soil had to develop first.

3 In each site, the populations changed as conditions changed. Early species can survive bright, open, dry conditions and often reproduce quickly. As plants add shade, shelter, food, and soil organic matter, different populations become more successful. Species diversity usually increases from the earliest stage as more kinds of organisms find usable habitats. However, diversity can change again when a mature forest's heavy shade favors fewer plant species. A wildfire that leaves soil can begin secondary succession, while lava flows or severe mining that expose rock can begin primary succession.

2 ANSWER WITH EVIDENCE

Use the passage

1. What two conditions at the quarry made its recovery primary succession rather than secondary succession?

2. How did the early plants in the hurricane-damaged forest affect animal populations?

3. Why could grasses, shrubs, and trees become established much sooner in the hurricane-damaged forest than at the quarry?

4. How does species diversity usually change during succession, and what can cause it to change again in a mature forest?

3 YOUR TURN

Your own words

Invent a disrupted ecosystem that is not named in the reading. In exactly three sentences, identify primary or secondary succession using a clue about soil, predict two population changes, and state how species diversity will change.

ANSWER KEY

After the Disruption

GRADE 8 · TEKS 8.12.B

PART 1 · READ AND MARK

Underline clues that show whether each site has primary or secondary succession. Number 1, 2, and 3 beside three changes in populations or species diversity. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What two conditions at the quarry made its recovery primary succession rather than secondary succession?	**Blasting had removed the soil, and new soil had to form before many plants could establish.**
2	How did the early plants in the hurricane-damaged forest affect animal populations?	**Grasses and flowering plants provided seeds and leaves that fed insect and bird populations.**
3	Why could grasses, shrubs, and trees become established much sooner in the hurricane-damaged forest than at the quarry?	**Soil remained in the forest, while the quarry first needed lichens, particles, and dead material to form soil.**
4	How does species diversity usually change during succession, and what can cause it to change again in a mature forest?	**Species diversity usually increases as more organisms find usable habitats. In a mature forest, heavy shade can favor fewer plant species and change diversity again.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

After a flood carries away plants but leaves mud and soil in a riverbank meadow, secondary succession begins. Grasses and fast-growing flowers may return first, supporting insects and seed-eating birds. Later, shrubs may provide new shelter, and species diversity will likely increase as more habitats become available.

Accept equivalent evidence-based descriptions of soil presence or absence, population changes, and diversity changes. For the open response, accept varied realistic disruptions if the succession type, soil clue, two population predictions, and diversity prediction are scientifically consistent.