ANSWER KEY.

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Ecological Succession

Biology | ANSWER KEY

Answer in complete sentences where asked. Show your work for calculations and use the data as evidence.

1. Classify each situation as primary or secondary succession.

Situation	Primary or secondary?
(a) Mosses grow on rock newly exposed by a melting glacier	
(b) Grasses and shrubs return to a burned prairie with the soil intact	
(c) Plants colonize a new island formed by cooled lava	

(a) **Primary** (b) **Secondary** (c) **Primary**

2. Number the stages of succession in an abandoned field from 1 (earliest) to 4 (latest).

(a) ___ Shrubs and young trees (b) ___ Mature forest

(c) ___ Bare or disturbed ground (d) ___ Fast-growing weeds and grasses

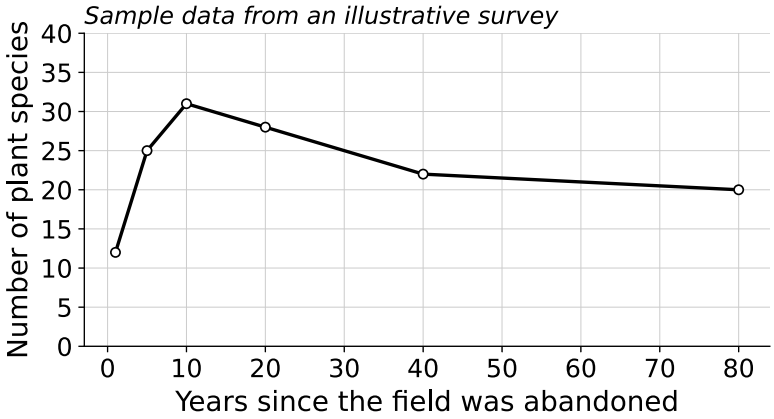
(e) What is a pioneer species?

(a) **3** (b) **4** (c) **1** (d) **2**

(e) **A pioneer species is one of the first species to colonize a disturbed or new area.**

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3. Plant species were counted in a field after it was abandoned (sample data).



(a) Calculate the percent decrease in the number of species from the peak to year 80. Show your setup and round to the nearest tenth.

(b) Write a claim, evidence, and reasoning to describe how the number of species changed over time.

(a) $(31 - 20) \div 31 \times 100 = 11 \div 31 \times 100 =$ **35.5%**

(b) **Model answer: The number of species rose and then fell. It increased from 12 species at year 1 to a peak of 31 at year 10, then decreased to 20 species by year 80. New species arrive early, which raises the count, and later taller plants can shade the ground, which may make it hard for some species to survive.**

A correct answer must include: a claim describing a rise and then a fall; values from the graph with units (species); a reasonable explanation for the change, such as arrival of new species early and shading later.

4. Think about how succession works.

(a) Explain why primary succession is usually slower than secondary succession.

(b) Some scientists say a community may not return to what it was before a disturbance. Give one reason this could happen.

(a) **Primary succession starts without soil, so soil has to form first from rock and decaying matter. Secondary succession starts with soil, seeds, and roots already in place.**

(b) **Possible reasons: the climate may have changed, different seeds may arrive first by chance, or another disturbance may happen before the community recovers.**

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