Name _____ Date _____

How Does Climate Change Affect Primary Producers?

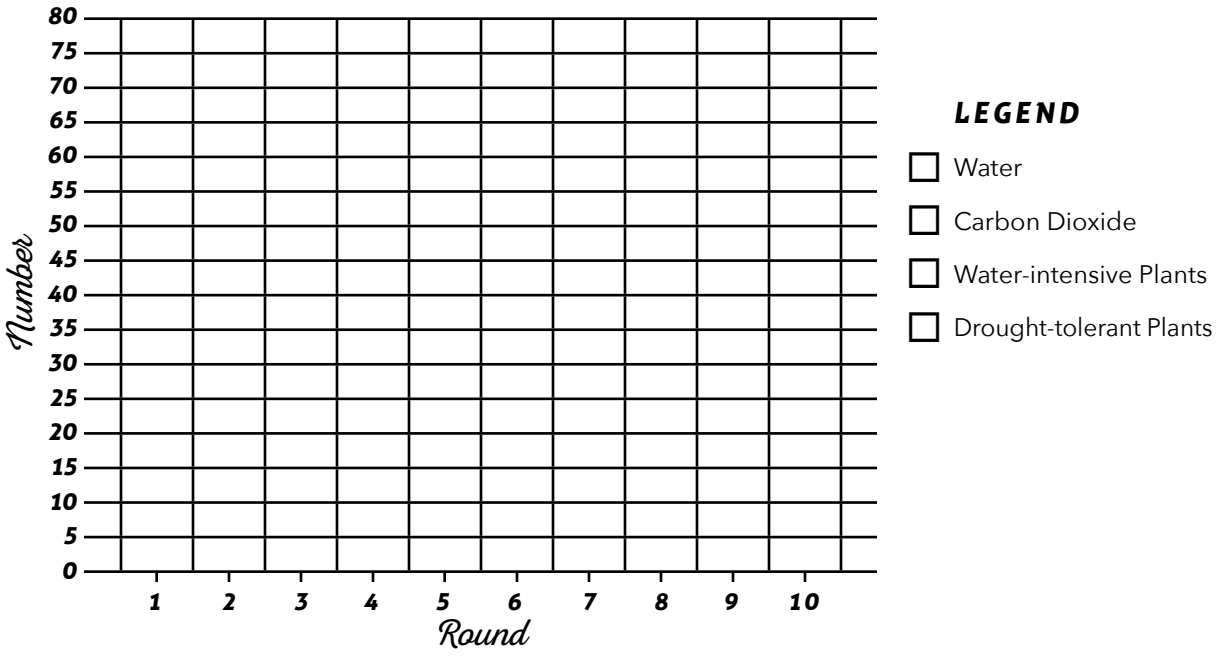
FOCUS QUESTION

1. What do plants need to live? Circle the limiting resource(s) in the ecosystem as climate change intensifies.

GAME GRAPH

In the legend, indicate four colors that you will use to display the number of each graphed item. Using the colors indicated in your legend, denote with a dot the number of water cards, carbon dioxide cards, water-intensive plants, and drought-tolerant plants at the beginning of each round. At the end of the game, connect the dots with a line of the corresponding color.

RESOURCES AND PLANT POPULATIONS OVER GAME ROUNDS



RESULTS

1. Which plant population tended to have more individuals during most of the game rounds?

   a. Water-Intensive Plants b. Drought-Tolerant Plants c. Neither

2. At the conclusion of the game, which plant population had more individuals?

   a. Water-Intensive Plants b. Drought-Tolerant Plants c. Neither

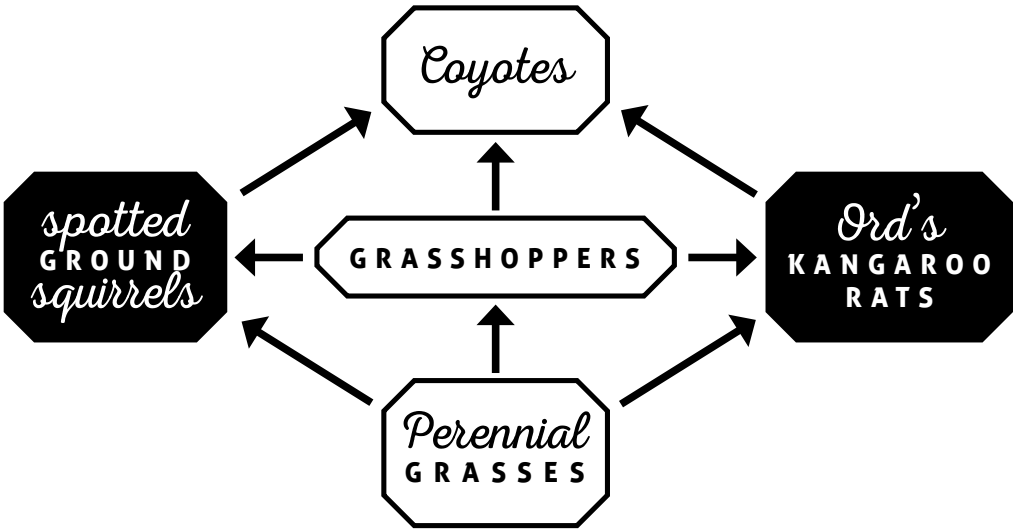
CONCLUSIONS

1. Based on the results of this game, are plant populations more likely or less likely to survive in areas with **limited water resources** due to intensifying climate change conditions?

   a. Plant populations are more likely to survive

   b. Plant populations are less likely to survive

2. Use the food web below to answer the following questions.



   a. What might happen to the grasshopper population if the perennial grass population declined sharply? Why?

   b. What might happen to the coyote population if the perennial grass population declined sharply? Why?

ANSWER KEY

How Does Climate Change *Affect Primary Producers?*

FOCUS QUESTION

1. What do plants need to live? Circle the limiting resource(s) in the ecosystem as climate change intensifies.

maybe → *Nutrients*
Water
Sun
Suitable temperature range
Space
maybe → *Carbon dioxide*

GAME GRAPH

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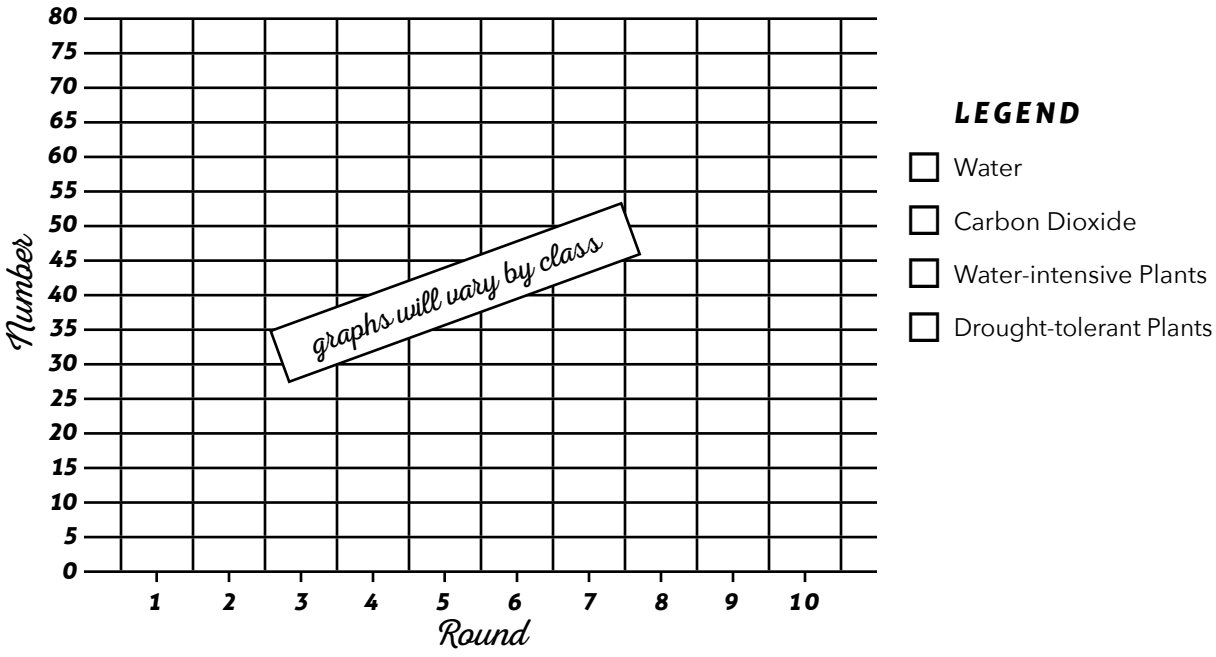

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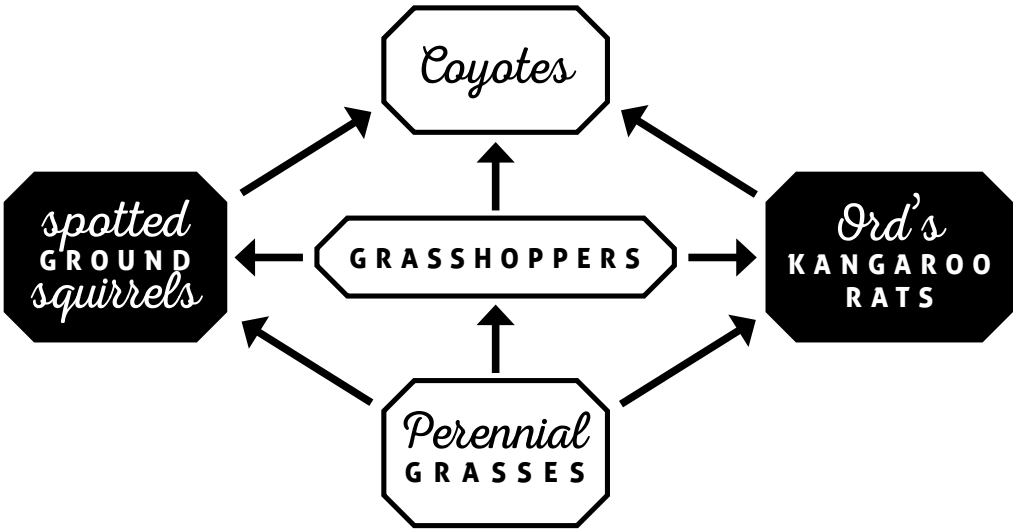

   a. What might happen to the grasshopper population if the perennial grass population declined sharply? Why?

   They would also likely decline sharply since there is no other food source for grasshoppers on this food web.

   b. What might happen to the coyote population if the perennial grass population declined sharply? Why?

   They would also likely decline because the primary and secondary consumers on this food web are the prey of coyotes, and they depend directly and/or indirectly on perennial grasses.