

Carbon's Round Trip

Track carbon as it moves through an ecosystem.

MS-LS2-3 "Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various..."

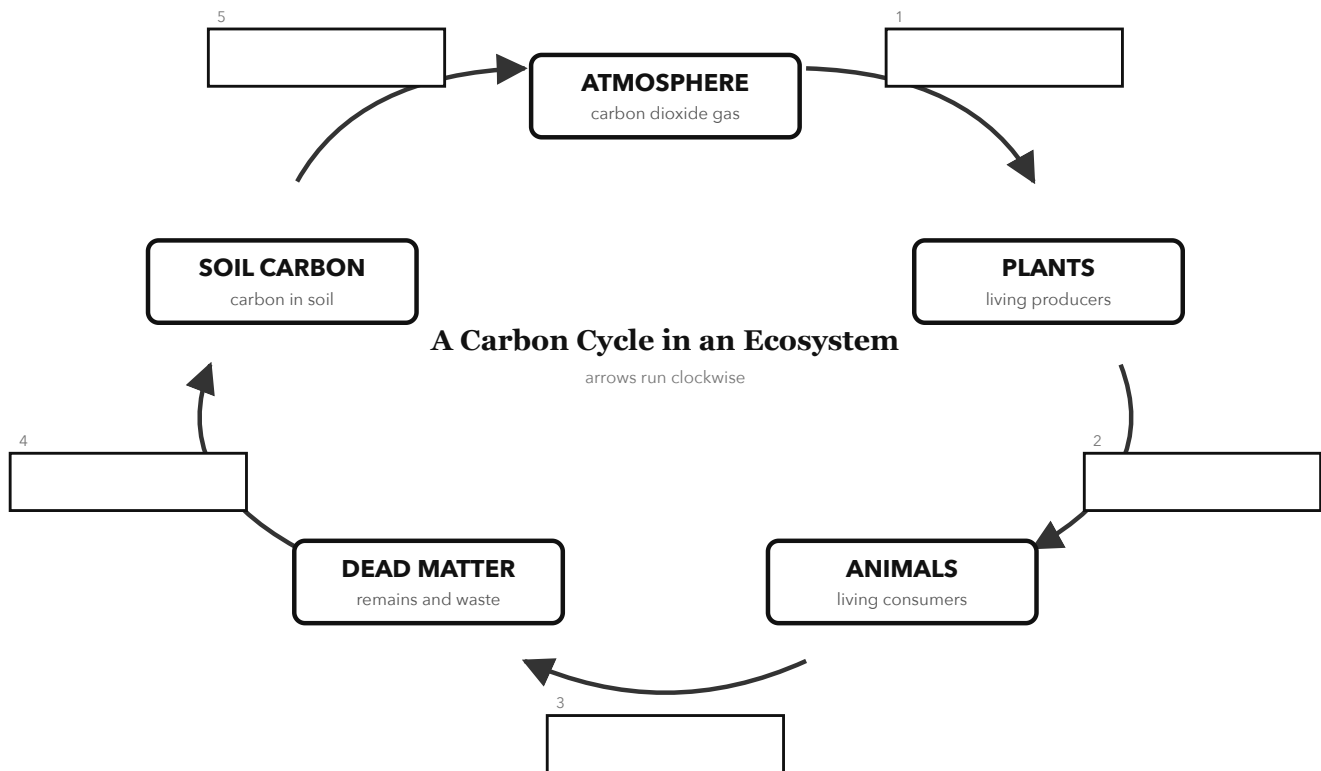
NAME _____

DATE _____

1 LABEL THE MODEL _____ Word bank below

Follow the arrows around the model. Write one process from the word bank in each numbered box.

WORD BANK	death and waste	decomposer respiration	decomposition	feeding
	photosynthesis			



2 RUN THE MODEL Use your finished diagram

1 Which process moves carbon from plants to animals?

2 Does energy cycle in the same way as carbon in this model? Explain.

3 If the system boundary surrounds all five stages, does carbon enter or leave this simplified loop? Explain.

3 CHECK IT Before you turn it in

☐ I filled every numbered box.

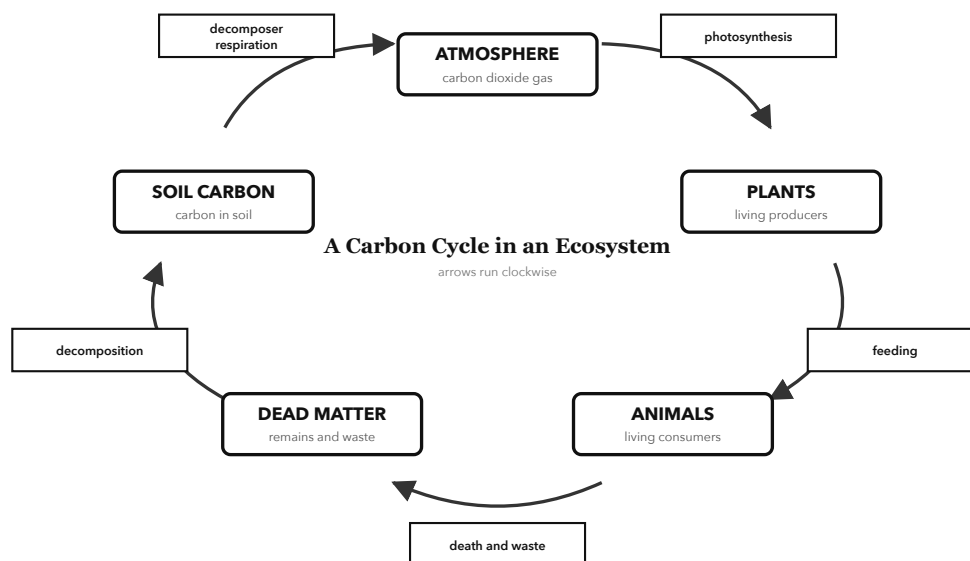
☐ I traced carbon around the loop.

☐ I can tell matter cycling from energy flow.

TEST THE MODEL

What important part of a real ecosystem is left out of this simplified model?

PART 1 • COMPLETED MODEL



PART 2 • RUN THE MODEL

1. **Feeding.** (Which process moves carbon from plants to animals?)
2. **No. Energy enters as sunlight, moves through organisms, and leaves as heat.** (Does energy cycle in the same way as carbon in this model? Explain.)
3. **No. Carbon stays within the modeled system and cycles among the stages.** (If the system boundary surrounds all five stages, does carbon enter or leave this simplified loop? Explain.)

TEST THE MODEL (SAMPLE ANSWERS)

- Plants and animals also release carbon dioxide when they respire.
- The model does not show sunlight entering or heat leaving as energy flows.

Place the processes clockwise from ATMOSPHERE: photosynthesis, feeding, death and waste, decomposition, decomposer respiration. Accept equivalent wording such as "respiration by decomposers"; emphasize that carbon cycles, while energy enters as sunlight and leaves as heat.