

WHAT SPECIES ARE NEEDED TO MAINTAIN A CHANGED FOREST?

Research Assistant Notebook

Student Name

Teacher Name

Class Period

PHASE 1: GATHER

Steps 1-2

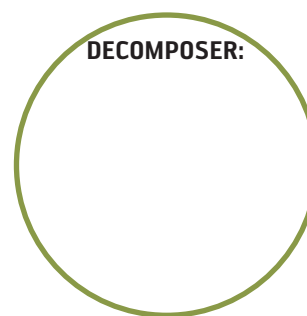
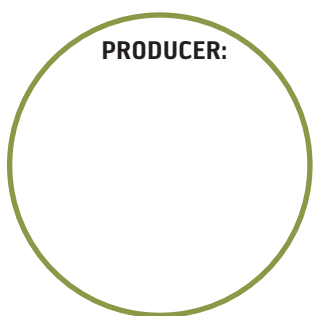
Your Task: Gather data about which organisms fill which roles in this maintain ecosystem. Use the field guide and previous knowledge to sort organisms into roles of producer, consumer, and decomposer.

STEPS

1 VIDEO REVIEW

Listen for the key questions that will help guide your investigation.

- 2 **GATHER:** Based on the lines and arrow directions in the *Food web from Uinta montane ecosystem* activity, what are each of these trophic levels? Write your definition in the circles and draw a arrows between them to describe their relationship with each other .

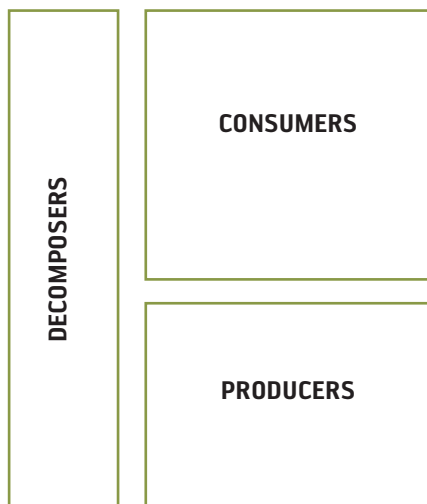


PHASE 2: ANALYZE

Steps 3-7

Your Task: Analyze how energy flows and matter cycles between categories of producer, consumer, and decomposers by drawing arrows, examining an expert's model, and then answering questions based on a simulation that shows energy and matter moving through a simple system.

- 5 **ANALYZE:** Check your arrows from STEP 2, do they match Dr. Mitch's Model?
Draw arrows in the chart below to show how energy and matter flow in a system.



REFLECT: Compare your model from Step 3 to Dr. Mitch's model and discuss with your partner:

a) How was your model the same or different than Dr. Mitch's model?

b) How did this model help you understand something new?

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- 7 **ANALYZE:** Once you have explored energy flow in nature, select 2 factors and draw a scene or diagram that tells your own story of how energy and matter cycle in an ecosystem.

PHASE 3: INTERPRET

Steps 8-10

Your Task: Use the food web and an energy pyramid to reason about which producers could best fill the gap left by the lodgepole pine based on which would best preserve the flow of energy and matter through the system.

- 9 **INTERPRET:** How might the decline of lodgepole pine trees impact the energy flow between the trophic levels?

DECOMPOSERS

The decline of lodgepole pines might affect decomposers because

CONSUMERS

The decline of lodgepole pines might affect consumers because

PRODUCERS

The decline of lodgepole pines might affect producers because

Summarize your conclusion:

PHASE 4: COMMUNICATE

Steps 11-12

Your Task: Communicate predictions about how organisms in this ecosystem will be affected by changes to the flow of energy when the lodgepole pine disappears and use this to answer the big question- is the ecosystem still stable?

- 11 REFLECT & COMMUNICATE:** Select an organism and draw a comic strip that shows a day in the life of your organism. In that day, you could show how they took in matter and energy and how they expended it. As part of this comic you could include who benefits from their matter or energy.

Title:

12 VIDEO REVIEW

Discuss: How does Dr. Mitch's prediction for what he thinks could happen in the Uinta mountains in the future if lodgepole pines continue to die at their current rate compare to your prediction?