SCIENCE FOUNDATIONS

Ecology and food webs

Difficulty level: Intermediate

Science Foundations

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Overview of the concept

This is how you see why taking one fish species out of a lake or one insect out of a garden can upset everything else that eats or is eaten there. A farmer who sprays to kill aphids can accidentally starve the birds that fed on them. A town that stocks a lake with a new fish can watch its native fish disappear as the food web shifts. Knowing food webs tells you why a change in one part of nature ripples through the rest.

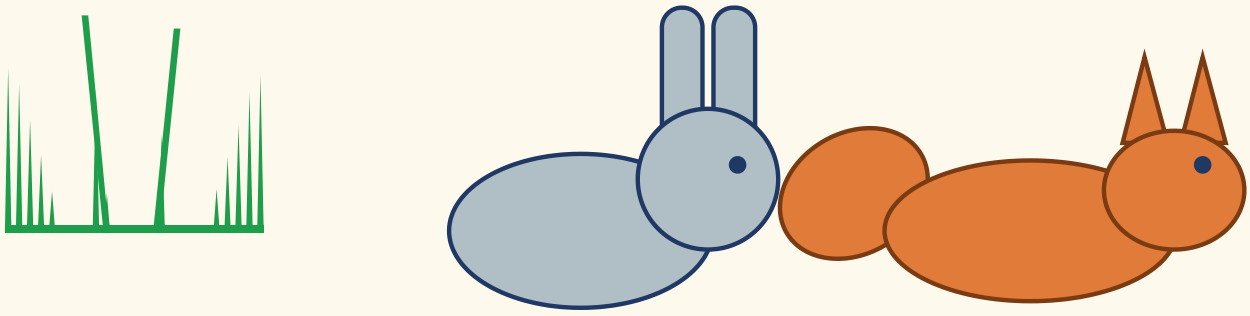


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Worked examples

EXAMPLE 1

Q Draw a food chain: grass, rabbit, fox.



grass rabbit fox

SOLUTION

Start with the producer: grass.

Add the herbivore that eats grass: rabbit.

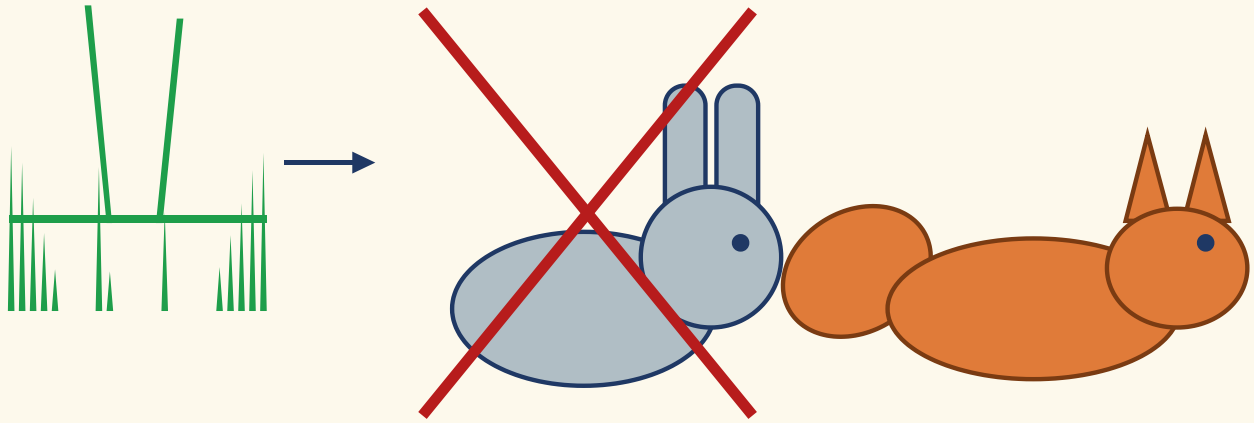
Add the carnivore that eats the rabbit: fox, with arrows grass to rabbit to fox.

The result is grass to rabbit to fox.

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EXAMPLE 2

Q What happens if rabbits are removed from that web?



grass rabbit fox

SOLUTION

Find what eats rabbits: foxes lose a food source.

Find what rabbits eat: grass is eaten less, so grass may increase.

Conclude: effects spread through the web.

The result is foxes decline, grass may increase.

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Practice questions

1 **Draw a food chain using grass, grasshopper and frog. Put the arrows in the right direction.**

- **A** Frog to grasshopper to grass, arrows pointing from food to eater
- **B** Grass to grasshopper to frog, arrows pointing from food to eater
- **C** Grasshopper to grass to frog, arrows pointing from food to eater
- **D** Grass to frog to grasshopper, arrows pointing from food to eater

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2

In the food chain grass, grasshopper, frog, which organism is the top predator?

- A Grass
- B Grasshopper
- C Frog
- D None of them

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3

In the food chain grass, grasshopper, frog, what happens to the frogs and the grass if the grasshoppers are removed?

- A Frogs decline and grass may increase
- B Frogs increase and grass declines
- C Frogs stay the same and grass disappears
- D Frogs decline and grass declines

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4 In the food chain grass, grasshopper, frog, what happens to the grasshoppers and the frogs if the grass increases?

- A Grasshoppers increase and frogs may increase
- B Grasshoppers decline and frogs increase
- C Grasshoppers stay the same and frogs disappear
- D Grasshoppers decline and frogs decline

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5 Producer definition?

- A Eats plants
- B Makes its own food
- C Eats animals
- D Breaks down dead matter

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6 Herbivore definition?

- A Makes its own food
- B Eats animals
- C Eats plants
- D Breaks down dead matter

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7 Carnivore definition?

- A Eats plants
- B Breaks down dead matter
- C Makes its own food
- D Eats animals

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8 Decomposer job?

A Breaks down dead matter

B Makes its own food

C Eats plants

D Eats animals

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9 Arrows point from what to what?

A Eater to food

B Food to eater

C Producer to sun

D Decomposer to producer

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10

Food web vs food chain?

A A web shows only predators

B A web shows many linked chains

C A web shows one straight chain

D A web shows only producers

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ANSWER KEY

1. Grass to grasshopper to frog, arrows pointing from food to eater
2. Frog
3. Frogs decline and grass may increase
4. Grasshoppers increase and frogs may increase
5. Makes its own food
6. Eats plants
7. Eats animals
8. Breaks down dead matter
9. Food to eater
10. A web shows many linked chains

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