Introducing Ecosystems
Key Word Cards

Royal Geographical Society with IBG
Advancing geography and geographical learning

Ecosystem	A network of biotic and abiotic elements interacting with each other and their physical environment
Biome	A large geographical area of distinctive vegetation and animal groups
Food Web	A system of interconnected food chains
Food Chain	A series of organisms that depend on each other for a source of food
Primary Producer	An organism that converts solar energy into mass
Primary Consumer	An organism that gains energy by eating a primary producer
Secondary Consumer	An organism that gains energy by eating a primary consumer

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Decomposer	An organism that breaks down other organisms into nutrient matter
Herbivore	An organism that only feeds on vegetation
Carnivore	An organism that only feeds on animals
Omnivore	An organism that eats both vegetation and animals
Tropic Level	The position an organism occupies in a food chain
Biotic	Living organisms within an ecosystem
Abiotic	Non-living components in an ecosystem

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Key Definitions

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Energy Flows

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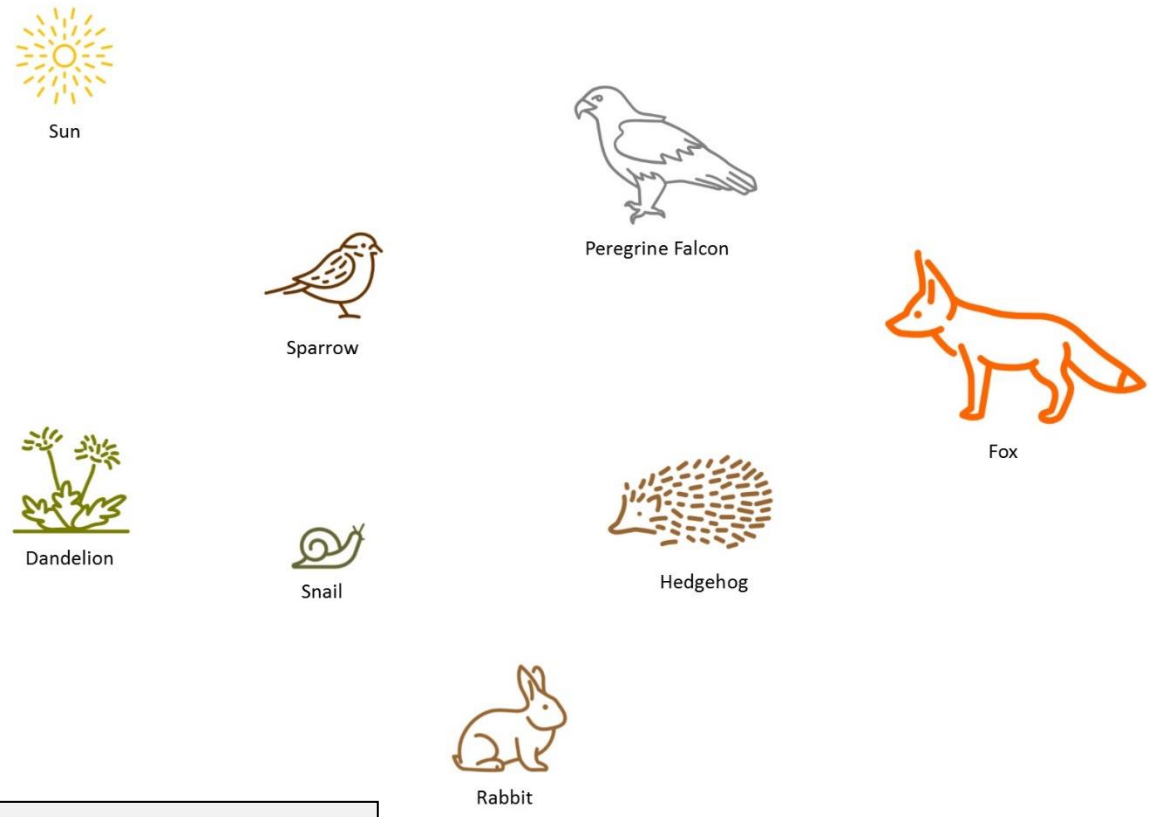
1. On the woodland food web below, draw arrows to show the direction of energy movement through the ecosystem.



Biomass is the mass of living organisms in a given area.

2. Assign the biomass values below to the organisms missing data in the table (right).
Remember: the relative biomass for any stage in a food chain is always less than the that for the stage before it.

12	250	2

3. What do these values tell you about the relative numbers of each organism we would expect to find in a woodland?

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Organism	Relative Biomass Value per unit area*
Dandelion	
Snail	40
Sparrow	
Rabbit	10
Hedgehog	6
Fox	
Peregrine Falcon	1

** Using Peregrine Falcon as a standard unit value of 1*

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Introducing Ecosystems
Gersmehl's Model

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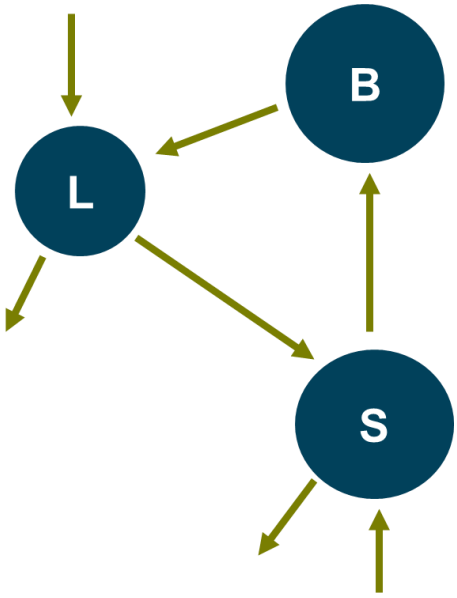
One way of representing ecosystems on paper is through **Gersmehl's Model**. This model uses the relative values of nutrients that are flowing around an ecosystem as well as the relative sizes of different stores.

The flows of nutrients are represented by arrows.

The stores of nutrients are represented by circles. Rather than name particular species, Gersmehl's Model refers to three types of store:

- The living biomass (B)
- Organic matter found in leaf litter (L)
- The soil (S)

The size of the arrow or circle is proportional to the amount of nutrients flowing or being stored.

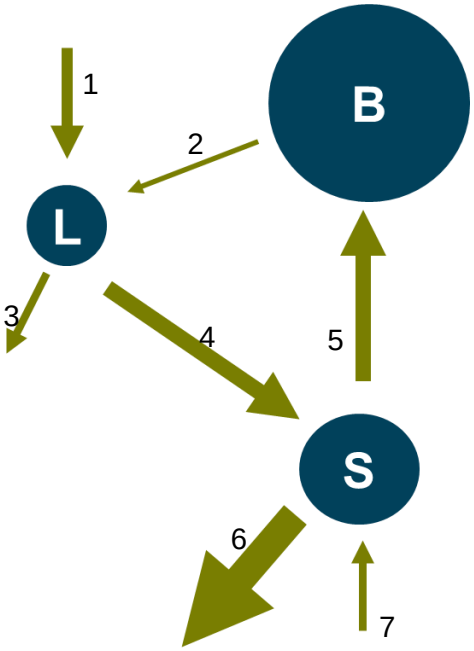


1. Examine the Gersmehl Model below. Which arrow represents…

a. Leaf fall or death? . . . . . .
b. Surface run off? . . . . . .
c. Weathering? . . . . . .
d. Leaching? . . . . . .
e. Take up by plants? . . . . . .
f. Decomposition? . . . . . .
g. Rainfall? . . . . . .

2. In this example of a Gersmehl Model, which is greater? Circle the right answer in each pair.

Nutrients gained by the soil through weathering	Nutrients gained by the soil through decomposition
Nutrients lost from the biomass through leaf loss	Nutrients gained by the biomass through take up from the soil
Nutrients stored in trees	Nutrients stored in the soil



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