

Keys and Webs

Define the following key words:

- *carnivore:* _____
 - *herbivore:* _____
 - *omnivore:* _____
 - *decomposer:* _____
 - *predator:* _____
 - *prey:* _____
 - *producer/autotroph:* _____

 - *heterotroph* _____

 - *consumer:* _____
 - *primary consumer:* _____

 - *secondary consumer:* _____

 - *tertiary consumer:* _____

 - *food web:* _____

 - *Law of Conservation of Energy:* _____
 - *Intraspecific competition:* _____

 - *Interspecific competition:* _____

 - *Commensalism:* _____
 - *Mutualism:* : _____
 - *Parasitism:* : _____
-

Learn about Dichotomous Keys:

Watch this video: <https://www.youtube.com/watch?v=M51AKJqx-7s>

Complete the Rocky Mountain Organisms Dichotomous Key:

The following is a list of a few organisms found in the Rocky Mountain Ecosystem. Using the dichotomous key on the page 5, identify the animals using correct species and genus names. Note that in this key, genus and species names are in italics. The genus name is capitalized and the species name is not. When you have identified the scientific name of each organism, use an underline to indicate italics (i.e. *Ursus arctos* may be written Ursus arctos).

COMMON NAME	PHOTO	SCIENTIFIC NAME
Mountain bluebird – These relatives of the robin are bright blue and can be found nesting in woodpecker cavities or nest boxes throughout the mountains. They may swoop to eat flying insects, or forage on the ground for beetles, ants and other terrestrial invertebrates.		
Hoary marmot – This marmot relies on sleeping to survive the harsh alpine environment – it hibernates for up to 9 months. This “whistler” feeds on grasses, sedges and herbs like yellow glacier-lily. These large, furry rodents run into their burrows to escape their predators, which include grizzly bears and golden eagles.		
Long-tailed salamander – These secretive amphibians feed on invertebrates under logs and rocks. As tadpoles, they are preyed upon by waterfowl; as adults, they are preyed upon by weasels and red-tailed hawks.		
Red-tailed hawk – The distinct “kieeeaaarr” call of this raptor can be heard throughout Alberta and on many movie soundtracks. Identified by their rusty-red tails, they dive to capture mice, voles, birds and amphibians.		
Yellow glacier-lily – One of the first flowers to bloom in early spring, the glacier lily’s bright yellow flowers have 6 petals and grow from a bulb in the ground. Bears and rodents eat the nutritious roots, while deer and sheep graze on the seed pods.		

COMMON NAME	PHOTO	SCIENTIFIC NAME
<p>Moose – The largest member of the deer family in North America, the moose is well adapted to its environment: long legs allow it walk over forest debris and through deep snows, and its big bulbous nose and lips hold willow twigs in place so the lower incisors can rip them off. Grizzly bears, cougar and wolverine prey upon calves. Only the bulls (males) grow antlers.</p>		
<p>Wolverine – Wolverines are extremely sensitive to human disturbance and their populations have declined across North America. These elusive weasels are highly predatory and hunt for birds, rodents and even large mammals like moose. These 5-toed carnivores look like a small bear with a long bushy tail.</p>		
<p>Mallard duck – Found across Alberta, these dabbling ducks feed on seeds, aquatic invertebrates and larval amphibians at the surface of the water, tipping only their head in, rather than diving to deeper depths. Mallards are frequently hunted by humans and other predators like coyotes.</p>		
<p>Willow shrubs – There are many types of willows that dot the Alberta landscape. Their woody vegetation is an important food source for ungulates (hoofed mammals) and rodents alike. Willows are also important for humans: willow bark contains a compound that is used in Aspirin. Seeds are hairy capsules (i.e. not fleshy).</p>		
<p>Lynx – One of three wild cats found in our mountains, the lynx is identified by the long black tufts of fur protruding from its ears. Its primary prey is the snowshoe hare. Wild cats have four toes with retractable claws.</p>		
<p>Snowshoe hare – These animals are found almost anywhere there is dense shrub in the Rockies. They feed primarily on grasses and brush, including the buds, twigs and bark of willows. These hares are often mistakenly called rabbits.</p>		
<p>Grizzly bear – an emblem of the wilderness, grizzlies require large home ranges for finding food and surviving. 80% of this bear’s diet comes from vegetation, including Canada buffaloberry or northern sweet-vetch. With their long 5-toed claws they will dig up ground squirrel burrows or pull apart decaying logs to eat ants. They will follow the smell of and eat rotting carrion up to 16 km away and occasionally hunt and kill young hoofed animals like moose or bighorn sheep. Their predators include other grizzlies, wolves, cougars and humans.</p>		

<p>Gray wolf – resembling a long-legged German shepherd with long large paws, the gray wolf can actually vary in colour (coal black to creamy white). Wolves are designed to eat large herbivores like bighorn sheep. Due to human hunting and habitat changes, wolf populations have declined across North America.</p>		
<p>Bighorn sheep – While both the females and males have horns throughout their lives, it is the ram’s curl that is most recognized. Bighorns feed on non-woody plants (glacier lily) and grasses on alpine meadows and rocky slopes. Newborn lambs become prey for grizzlies, cougar and eagles.</p>		
<p>Northern sweet-vetch – Found on moist open slopes, these pink-flowered plants are members of the pea family (5 unequal petals). Sweet-vetch roots were widely used by native people for food. Grizzly bears will dig up the roots of sweet-vetch for food.</p>		
<p>Canada buffaloberry – Also called soapberry, the fleshy berries from this woody shrub are an important food source for grizzly bears in the Rockies. Grizzlies will eat up to 200,000 red buffaloberries per day!</p>		
<p>Wood Ant – There are at least 21 species of wood ants in Alberta that live in ant hills. Wood ants can bite when provoked leaving a stinging sensation from the formic acid stored in their abdomens. These invertebrates play an important role in pollinating flowers, distributing seeds and assisting in decomposing plant matter.</p>		
<p>Water Vole – Hikers may spot the small water vole hanging out by streams and creeks. The mouse-like vole’s tail can be almost 10 cm long. These rodents feast on various plants and roots, including willows and glacier lilies.</p>		

Rocky Mountain Organisms – Dichotomous Key

1. a) autotroph (go to 2)
b) heterotroph (go to 5)
2. a) mainly woody stem or shrub-like (go to 3)
b) not woody, herbaceous stem (go to 4)
3. a) fruits are fleshy.....*Shepherdia canadensis*
b) fruits not fleshy.....*Salix spp.*
4. a) member of the pea family, 5 unequal petals*Hedysarum boreale*
b) member of the lily family, petals in 3's or 6's.....*Erythronium grandiflorum*
5. a) invertebrate (no backbone).....*Formica spp.*
b) vertebrate (backbone) (go to 6)
6. a) flying (go to 7)
b) not flying (go to 9)
7. a) web footed, water living.....*Anas platyrhynchos*
b) not web footed, not water living (go to 8)
8. a) carnivorous.....*Buteo jamaicensis*
b) insectivorous.....*Sialia currucoides*
9. a) hairy or furred (go to 10)
b) not hairy or furred.....*Ambystoma macrodactylum*
10. a) rodent (yellow upper and lower incisors) (go to 11)
b) not rodent (go to 12)
11. a) mouse-sized.....*Microtis richardsoni*
b) larger than mouse-sized.....*Marmota caligata*
12. a) hopping or jumping locomotion.....*Lepus americanus*
b) not hopping or jumping locomotion (go to 13)
13. a) carnivore (go to 14)
b) herbivore (go to 17)
14. a) four-toed mammal (go to 15)
b) five-toed mammal (go to 16)
15. a) retractable claws.....*Lynx canadensis*
b) non-retractable claws.....*Canis lupus*
16. a) tail small and inconspicuous...*Ursus arctos*
b) long, bushy tail.....*Gulo gulo*
17. a) both males and females have horns.....*Ovis canadensis*
b) only males have antlers.....*Alces alces*

Review what a food web is:

Watch this video: https://www.youtube.com/watch?v=2lqhJNgn_Wg

Draw a food web:

- Illustrate the linkages between the various species that you have just named above
- Label the following on your food web:
 - Species' common and scientific names
 - Role in the ecosystem (e.g. producer)
 - Interactions between species
- Be creative! Use drawing, pictures, colours as desired. Complete by hand or on the computer.
- Include these dead and abiotic factors:



Soil



Felled (Dead) Tree



**Mountainside Rocks/
Scree**



Stream