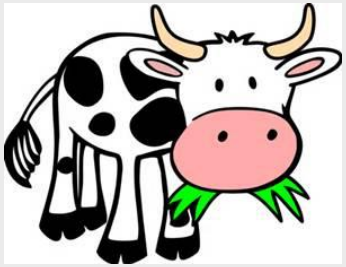
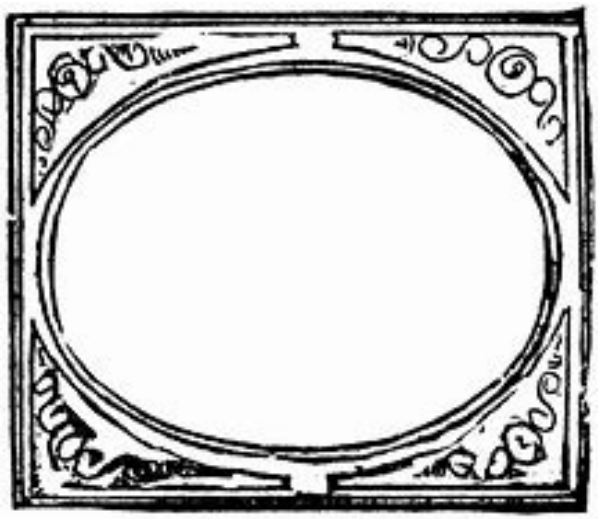


Natural Services of Grass

Green Grows the Grass

Did you eat grass today? If you ate cereal, or bread, or a cracker or a cookie, you were eating grass! All those foods are made of grains. Grains are the seeds of grasses. Wheat, rice corn, are all the seeds of grasses.



Grass is very important. Grass does many things. Grass provides food for animals. It provides shelter and hiding places. Grass keeps the soil in place. Grass makes the air healthy. Grass helps the Earth hold water. Grass gives us food too!

Draw a picture of a grass food you ate today:

Grasshoppers are insects that live in grass. Grasshoppers have two big eyes, three body parts, 6 legs and two antennae. Grasshoppers have a hard exoskeleton, so they must molt to grow. Grasshoppers have incomplete metamorphosis (3 stages)—eggs, nymphs, adults. Nymphs look like baby grasshoppers.

Grasshopper facts!

- Grasshoppers molt 4-6 times.
- They have suction pads on their feet, palpi to push food in, and tiny earholes on their sides above the back legs.
- They have pegs along their back legs. When they rub the pegs against their wings, the rubbing makes a clicking or chirping sound.
- Grasshoppers can jump 20 times their body length.
- Grasshoppers eat plants; they have chewing mouth parts.
- Grasshoppers have several ways to protect themselves from predators: camouflage, making stinky smells, and spitting brown goo.
- They can escape by flying or jumping.
- Grasshoppers breathe through holes in their abdomens.

Grasses have parts like other plants.

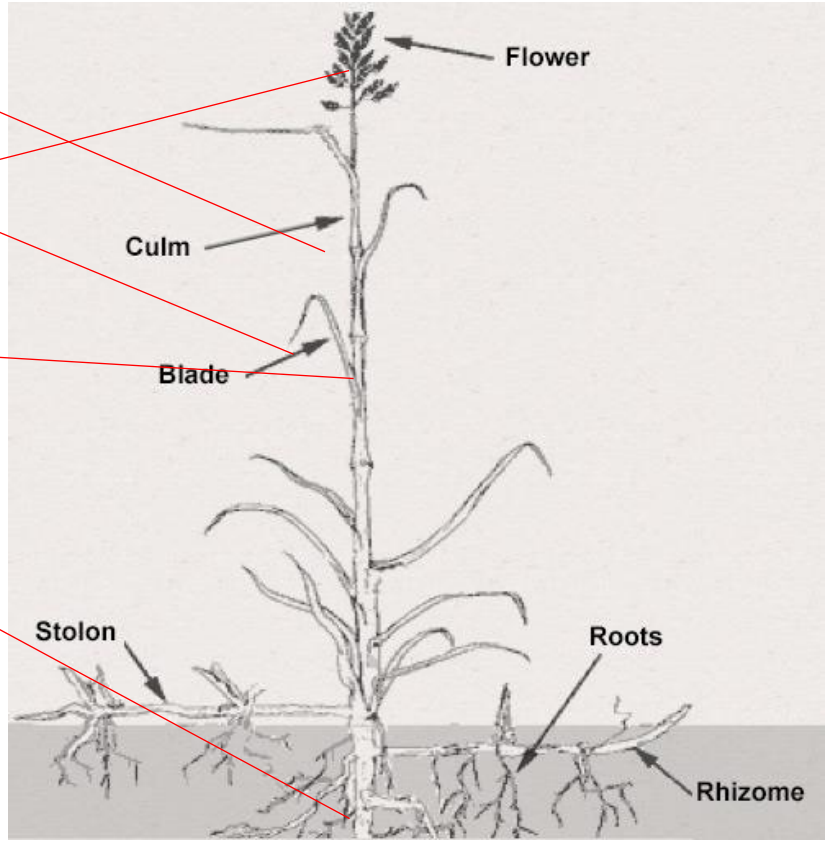
The culm is the stem.

The blade is the leaf.

The inflorescence is the flower.

The sheath is where the leaf attaches to the stem.

The roots are on, or in, the ground.



Grassology

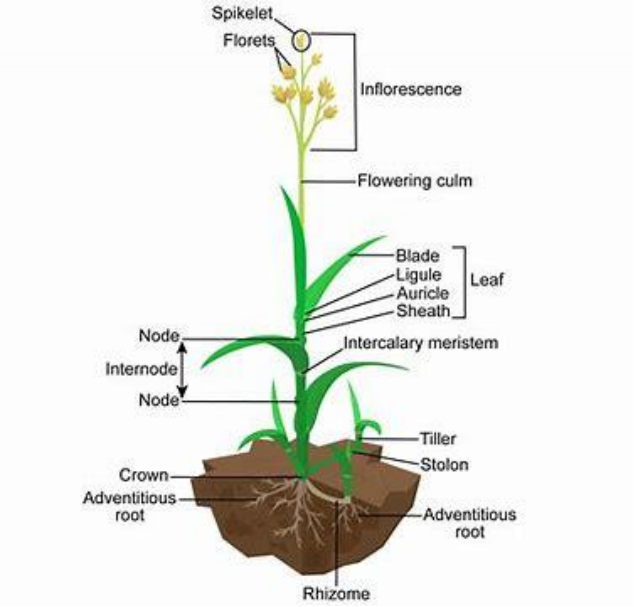
Things to know about grass:

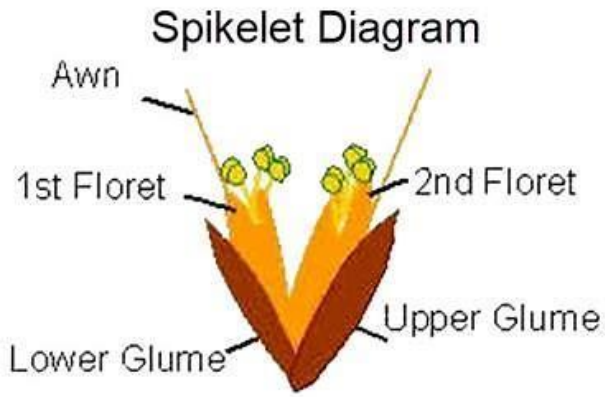
Grasses have hollow stems, alternate leaves, and parallel veins and are wind pollinated.

Parts of a grass plant include specialized stems--stolon or rhizome, stem parts--node, auricle, peduncle.

The inflorescence is composed of branches and spikelets. The pedicel is the small branch. The rachis is the central stem.

The spikelets contain flowers or florets, which include bracts 1st and 2nd glumes, lemma and palea.





C3 vs C4 grasses

C3 3 carbon atoms cool season

Photosynthesis

Stomata open

Less efficient

60-75 degrees F

Loses more water

High frost tolerance

C4 4 carbon atoms warm

Can fix carbon

Stomata closed

More efficient

80-95 degrees F

Thrives in drought

Lower frost tolerance

- You can be finger grasshoppers!
- Grasshoppers in the grass
- all day (fingers up to make grass)
- with strong legs
- to jump away! (fist long jump)

You can read a grass story or sing a grass song!

You can sing this song to *Down by the Station.*

Out in the savanna (hands out to sides)

Early in the morning

See the little grass blades (fingers pointing up)

Shining in the sun. (point to sky)

See the little grasshopper

Jumping in the grasses—

Up down up down— (fist up and down)

Now we're done! (clap)

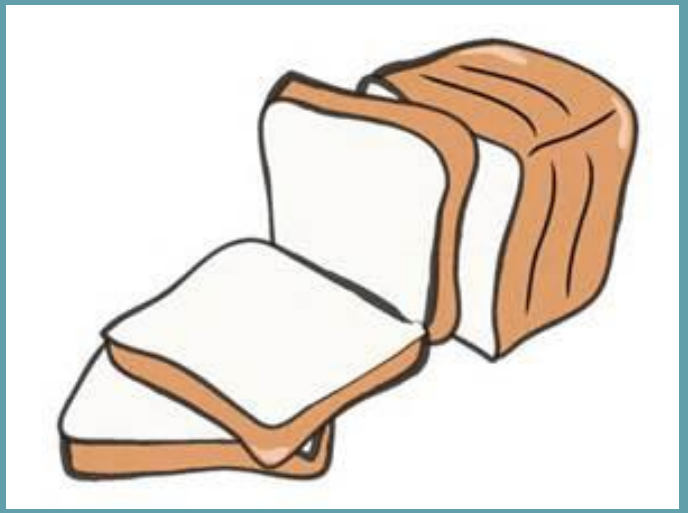
Green Grows the Grass

Natural services of grass

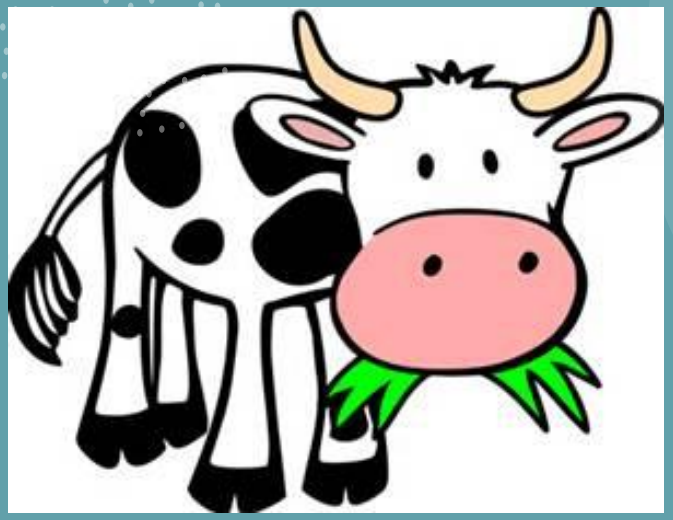
What are all the things the grass can do?

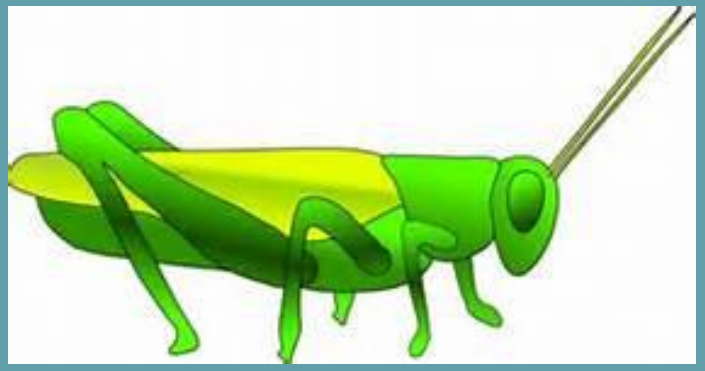
The Story of Grass

It makes food for me and you!

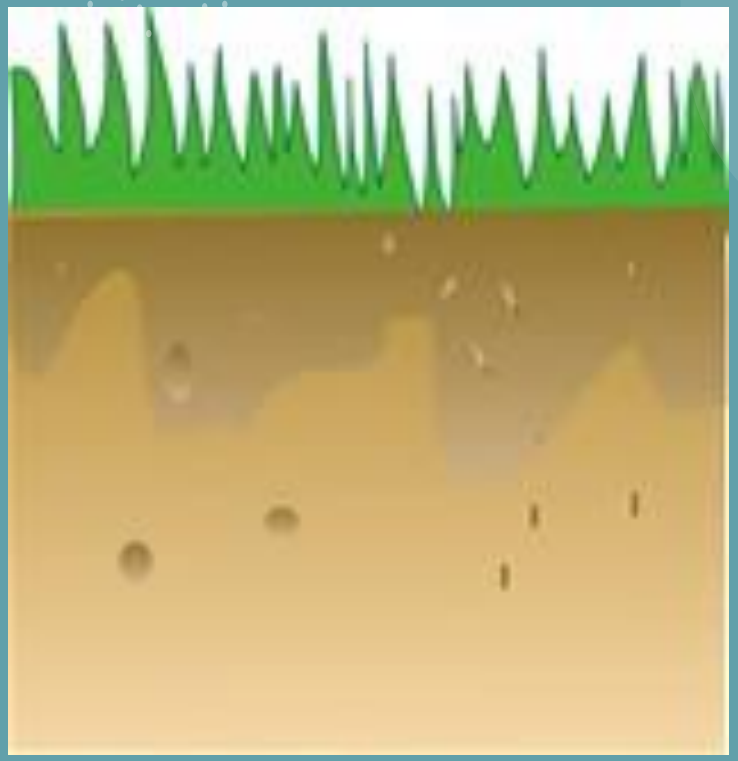


It gives animals shelter and things to eat.



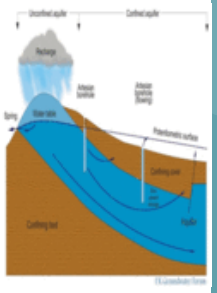


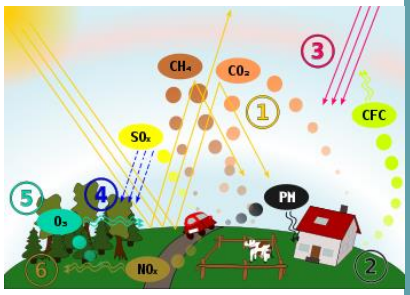
It holds the soil and water—I think that’s neat!

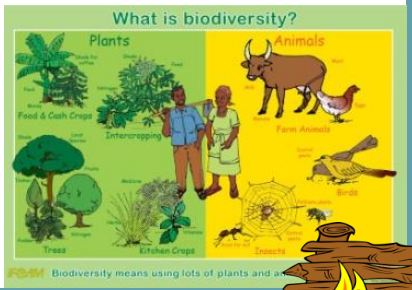


Grasses help us--

- Hold soil
- Keep water from running off
- Put away carbon
- Keep harmful substances out of water and air
- Increase the variety of living things
- Hold food in the soil
- Reduce plants which would take over
- Feed reptiles, insects, birds and animals
- Reduce dry wood that could catch on fire

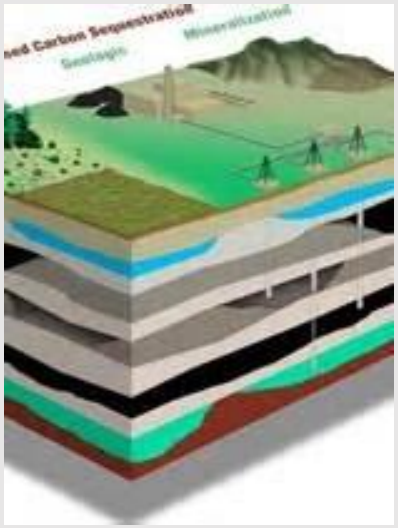




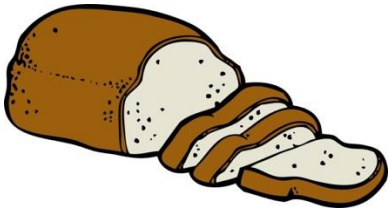


What grass does.....

- Keeps soil in place
- Stores carbon
- Reduces run-off
- Reduces fire damage
- Increases biodiversity
- Nourishes soil
- Captures water



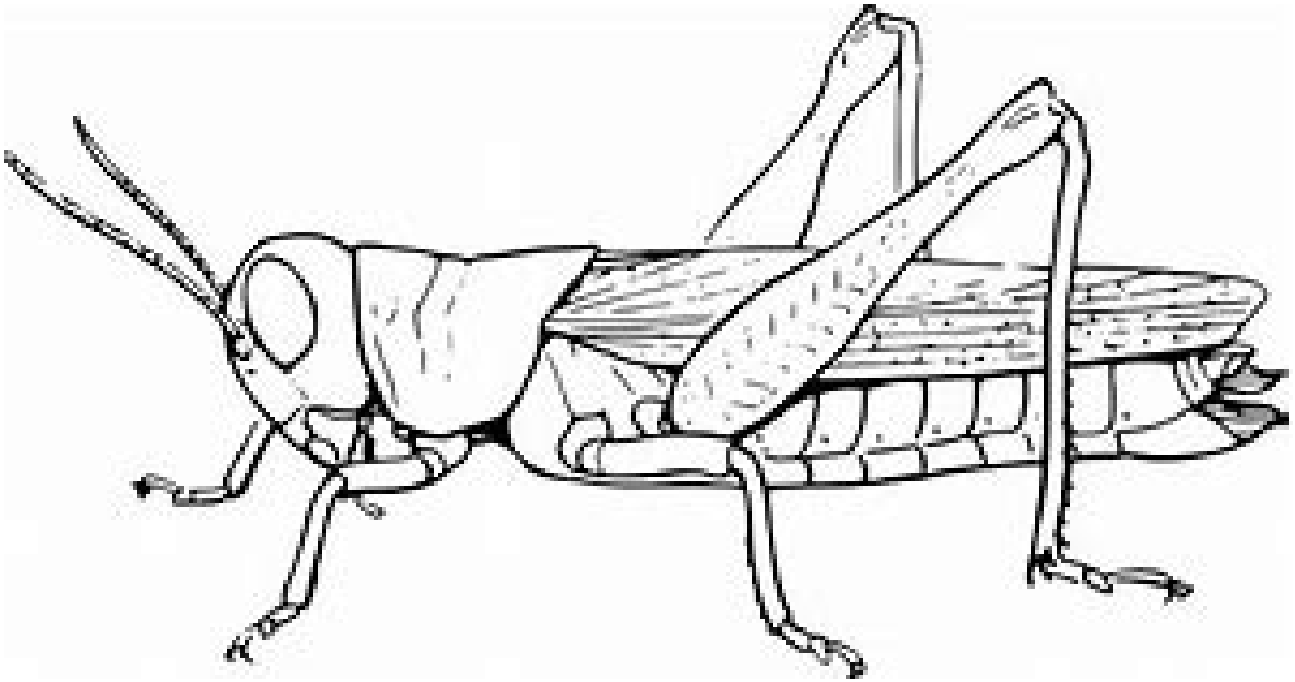
We eat grass!



Observing grass without inflorescence

- Nearby grass
- Colonies?
- Prominent midrib
- Cutting margin
- Crimped leaf
- Wrinkles on leaf edges
- Thickness and length of leaves
- No midrib
- Disappearing midrib
- Height, size, width
- Bunch vs sod
- Runners, stolons
- Soft hairs
- Pimple hairs
- Dark base
- Ligules and auricles
- Bald spots
- Flat base

You can design a grasshopper! Now find grass and leaves to hide your grasshopper!



Grass imagination!

Grass art

Grass hut for a gnome

Grass collage

What are your favorite grass foods? Let’s eat grass!

Edible grass—scallions for the culm and blade, rosemary for inflorescence, and chives for the bunch grass!

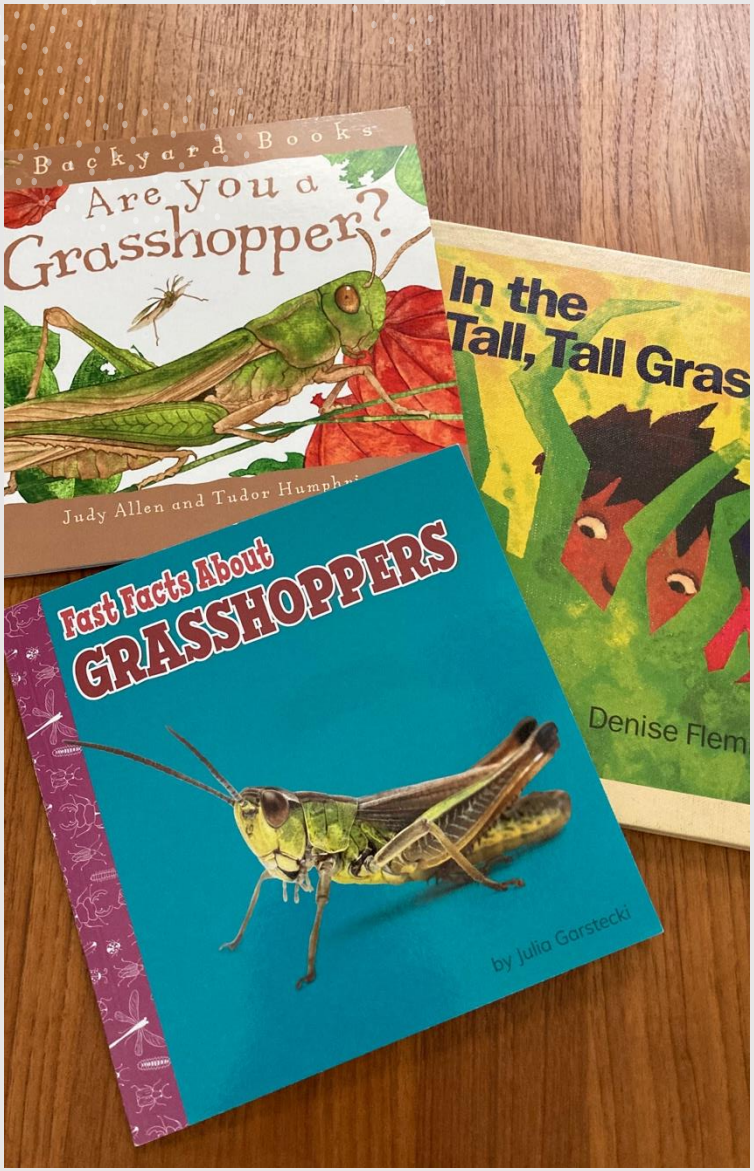
We eat grass foods!

Celery grass with carrot roots!

What kind of grass snack can you make?

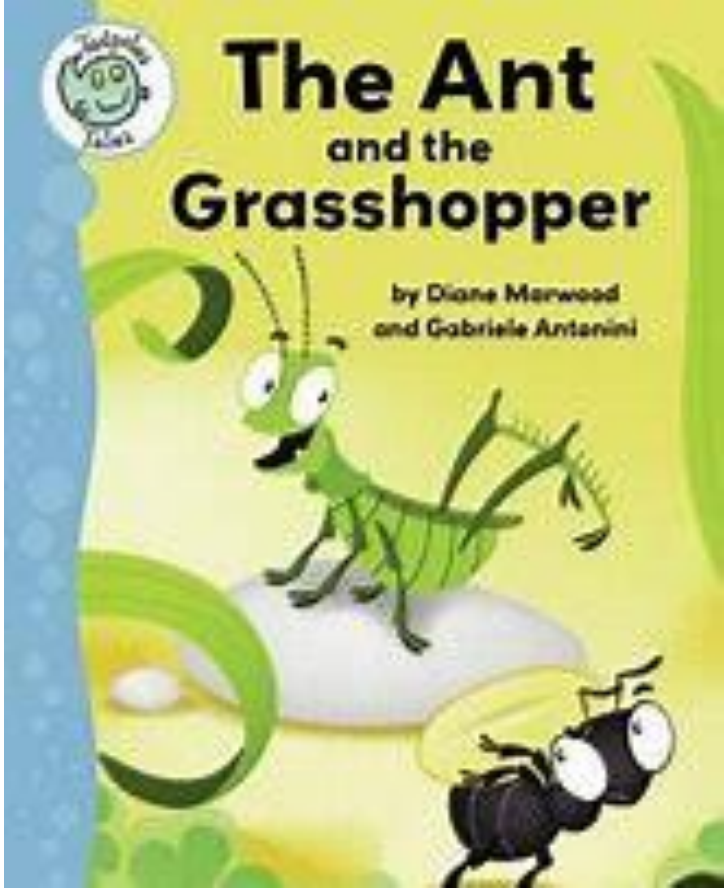
Books about grass and grasshoppers….

https://www.youtube.com/watch?v=Ka_zrJoRj2s



Bringing the Rain to the Kapiti Plain is a folktale about the grassland.

https://www.youtube.com/watch?v=0QN9npF9A3M



This story is an example of folklore. <u>The Ant and the Grasshopper</u> is a fable.

https://www.youtube.com/watch?v=QXMpdvFG5l8