Name: _____ Date: _____

Tomato Flowers Wait for a Buzz

Circle group

A tomato flower is tricky to pollinate. Its yellow petals hang down. The pollen is held inside a small cone in the middle. The pollen does not just fall out. It stays locked in tiny pockets until something shakes it loose.

Outdoors, wind can do some of the shaking. So can bumblebees. A bumblebee grabs the flower and shakes its flight muscles very fast. It does not flap its wings. The flower shakes, and a puff of pollen drops onto the bee. At the next flower, some of the pollen lands where it can start a new tomato. Scientists call this buzz pollination.

Honeybees are good at many flowers, but not this one. They do not shake it the same way. So growers who raise tomatoes in greenhouses often bring in boxes of bumblebees. A closed building has little wind. The bees do the job that the wind would do outdoors.

Before bees were used, workers went from plant to plant. They used handheld wands that shook the flowers. It took many hours. Bumblebees are faster. They get something too. They carry pollen home to feed their young.

Questions

1. Where is the pollen held in a tomato flower?

_____

_____

2. How does a bumblebee shake the pollen loose?

_____

_____

3. What do scientists call this kind of pollination?

_____

_____

4. Why are honeybees not good at tomato flowers?

_____

_____

5. Why do greenhouse growers bring in bumblebees?

_____

_____

6. What did workers use before bees were brought in?

_____

_____

Words to know

pollen: the fine yellow powder that flowers make
pollination: moving pollen so that a flower can make fruit
greenhouses: glass buildings where plants grow indoors
growers: people who raise plants for food

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Tomato Flowers Wait for a Buzz

Triangle group

A tomato flower is built in a way that makes pollination tricky. Its yellow petals hang downward, and the pollen is held inside a small cone in the middle. The pollen does not simply fall out. It stays locked in tiny pockets until something shakes it loose.

Outdoors, wind can do some of the shaking, and so can bumblebees. A bumblebee grabs the flower with its jaws and legs, then vibrates its flight muscles very fast without flapping its wings. The flower shakes, and a puff of pollen drops out onto the bee. When the bee visits the next flower, some of that pollen lands where it can start a new tomato. Scientists call this buzz pollination.

Honeybees are good at many flowers, but they are not good at this one, because they do not shake it the same way. For that reason, growers who raise tomatoes in greenhouses often bring in boxes of bumblebees. Inside the closed building there is little wind, so the bees do the job that the breeze would do outdoors.

Before bees were used, workers went from plant to plant with handheld wands that vibrated the flowers. It took many hours of work. Bumblebees do it faster, and they get something in return, because they carry pollen home to feed their young.

Questions

1. Where is the pollen held in a tomato flower?

_____

_____

2. How does a bumblebee shake the pollen loose?

_____

_____

3. What do scientists call this kind of pollination?

_____

_____

4. Why are honeybees not good at pollinating tomato flowers?

_____

_____

5. Why do greenhouse growers bring in bumblebees?

_____

_____

6. What did workers use before bees were brought in?

_____

_____

Words to know

pollen: the fine yellow powder that flowers make
pollination: moving pollen so that a flower can make fruit
vibrates: shakes back and forth very quickly
greenhouses: glass buildings where plants grow indoors
growers: people who raise plants for food

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Tomato Flowers Wait for a Buzz

Square group

A tomato flower is constructed in such a way that pollination becomes surprisingly difficult. Its yellow petals curve downward, and the pollen is enclosed within a small cone at the center. The pollen does not simply tumble out. It remains locked inside tiny pockets until something shakes it free.

Outdoors, the wind can accomplish some of this shaking, and bumblebees can accomplish more. A bumblebee clasps the flower with its jaws and legs and then vibrates its flight muscles extremely rapidly without flapping its wings. The flower trembles, and a small cloud of pollen drops onto the bee. When the bee visits the next blossom, some of that pollen lands where it can begin the development of a new tomato. Scientists refer to this as buzz pollination.

Honeybees are skillful at many kinds of flowers, but they are poor at this one, since they do not shake it in the same manner. Consequently, growers who raise tomatoes in greenhouses frequently bring in boxes of bumblebees. Inside the sealed building there is scarcely any wind, so the bees perform the task that a breeze would perform outdoors.

Before bees were put to work, laborers moved from plant to plant carrying handheld wands that vibrated the flowers, and the work consumed many hours. Bumblebees complete it much faster, and they receive something in return, because they carry the pollen back to their nest to feed their young.

Questions

1. Where is the pollen enclosed in a tomato flower?

_____

_____

2. How does a bumblebee shake the pollen free?

_____

_____

3. What do scientists call this kind of pollination?

_____

_____

4. Why are honeybees poor at pollinating tomato flowers?

_____

_____

5. Why do greenhouse growers bring in boxes of bumblebees?

_____

_____

6. What did laborers use before bees were put to work?

_____

_____

Words to know

pollen: the fine yellow powder that flowers make
pollination: moving pollen so that a flower can make fruit
vibrates: shakes back and forth very quickly
greenhouses: glass buildings where plants grow indoors
growers: people who raise plants for food

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Tomato Flowers Wait for a Buzz

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Tomato Flowers Wait for a Buzz

Easier · 188 words · Flesch-Kincaid grade 3.5

1. In tiny pockets inside a small cone in the middle.
2. It shakes its flight muscles very fast without flapping its wings.
3. Buzz pollination.
4. They do not shake the flower the way a bumblebee does.
5. A closed building has little wind, so the bees do the shaking.
6. Handheld wands that shook the flowers.

Triangle: Tomato Flowers Wait for a Buzz

This passage · 217 words · Flesch-Kincaid grade 6.2

1. In tiny pockets inside a small cone in the middle.
2. It vibrates its flight muscles very fast without flapping its wings.
3. Buzz pollination.
4. They do not shake the flower the same way a bumblebee does.
5. There is little wind inside a closed building, so the bees do the shaking.
6. Handheld wands that vibrated the flowers.

Square: Tomato Flowers Wait for a Buzz

Harder · 235 words · Flesch-Kincaid grade 8.6

1. In tiny pockets inside a small cone at the center.
2. It vibrates its flight muscles extremely rapidly without flapping its wings.
3. Buzz pollination.
4. They do not shake the flower in the same manner as a bumblebee.
5. There is scarcely any wind in a sealed building, so the bees do the shaking.
6. Handheld wands that vibrated the flowers.