

# POLLINATOR FRIENDLY HERBICIDE

## Ingredients:

- 1 cup water
- 1 cup vinegar
- 2 tbsp Epsom salt



## Directions:

- Pour 1 cup water and 1 cup vinegar into a 16-ounce spray bottle.
- Add 2 tablespoons of Epsom salt and swirl until dissolved.
- You may multiply the ingredients by 8 to make enough to fill a new/unused one gallon sprayer.

## How to Use this Natural Weed Killer

Mix the ingredients well and pour into a spray bottle or hand-held sprayer. Spray a light coat of your recipe on the weeds/grass you want to kill. It is best to do this on a warm, sunny day with no threat of immediate rain.



# DESERT POLLINATORS

Coloring and Activity Book

# Monarch Butterfly

Monarch butterfly markings include bright orange wings covered with black veins and rimmed with a black border and white dots. Females have thicker veins in their wings. A monarch's brilliant coloring tells predators: "Don't eat me. I'm poisonous." The butterflies get their toxins from a plant called milkweed, which is their only food source in the caterpillar stage.

Monarch butterflies smell and taste with their antennae and legs.



The female butterfly lays each of her eggs, up to 500, on the leaf of a milkweed plant.



Monarch butterflies migrate up to 3,000 miles from the northern U.S. and Canada to the mountains of central Mexico. This long migration gives monarchs the strongest wings of any butterfly species!

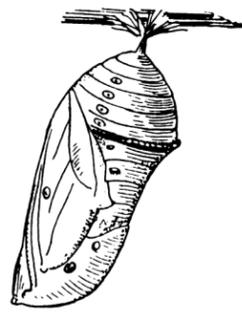


# Draw a Pollinator Garden

Now that you have learned about the different desert pollinators and the plants they depend on, you are ready to create your own pollinator garden!



# Advanced Word Search: Desert Pollinators



N V N H A B I T A T K P T Y F  
 P N H N O L M B A T Z O Z J J  
 V C A T E R P I L L A R D B M  
 S O N H A M L S J F X T R V J  
 C Z A U E Y I K S R E G U H O  
 B V T M T C Q G M O N A R C H  
 U E I M F N O M R T S G F J I  
 T M V I V Z E S I A Q T B K T  
 T K E N B F U C Y L T S E Y L  
 E B M G Z M X N T S K E E D V  
 R O S B T O W N H A T W K R U  
 F P X I Y T L I C C R E E H A  
 L I N R D H F I N Y M M M E S  
 Y D T D C X Z R B G O V F W D  
 M E T A M O R P H O S I S B M

- |             |               |
|-------------|---------------|
| native      | hummingbird   |
| monarch     | migrate       |
| caterpillar | metamorphosis |
| butterfly   | ecosystem     |
| milkweed    | moth          |
| nectar      | habitat       |
| bat         | wings         |
| bee         |               |

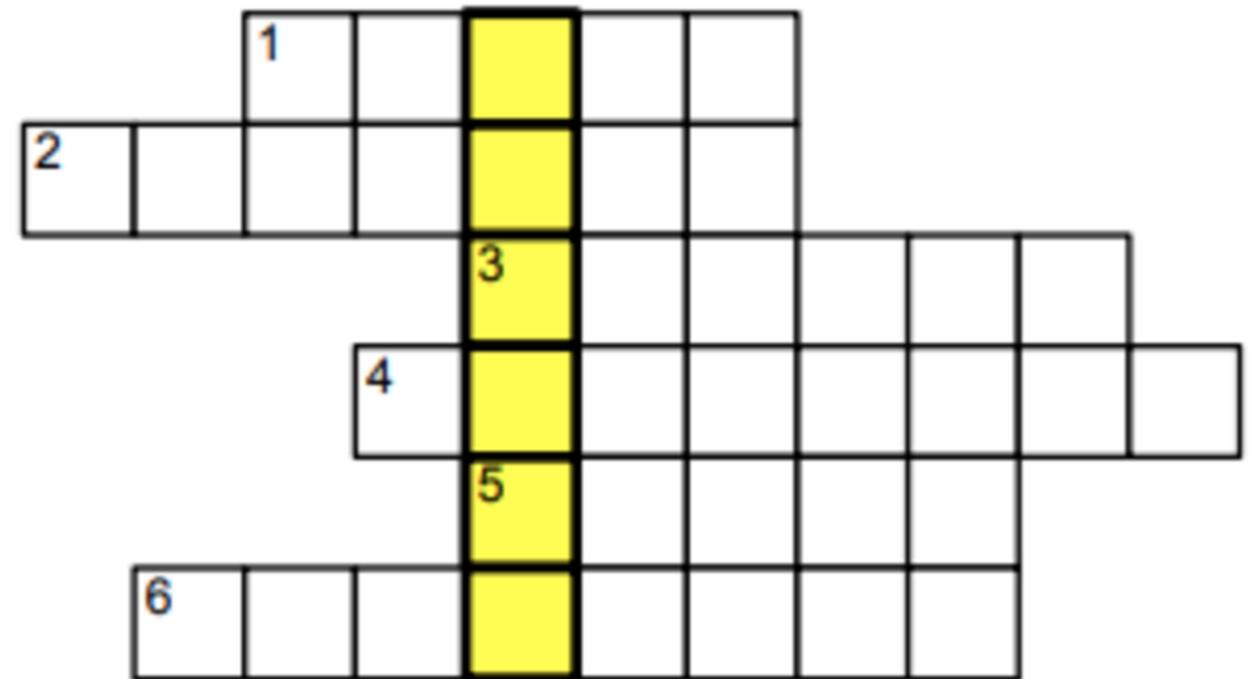


# Monarch butterflies: What did you learn?



Fill in the boxes with the missing words. What's the mystery word?

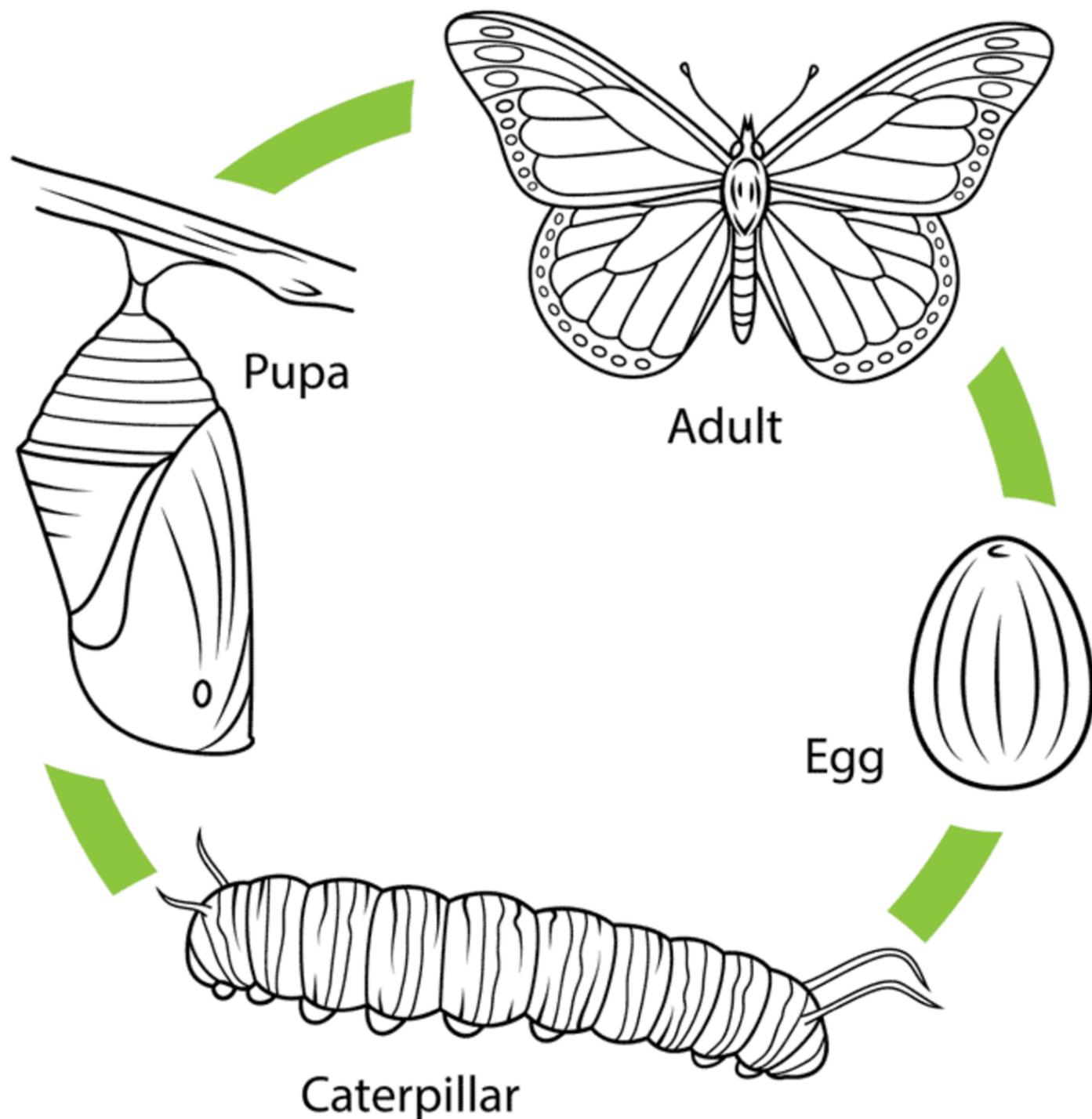
1. Because of their long migration, monarch butterflies have the strongest \_\_\_ of any butterfly species!
2. Every year, monarch butterflies \_\_\_ 3,000 miles!
3. The \_\_\_ from milkweed protects butterflies against predators.
4. Monarch butterflies lay their eggs on a plant called \_\_\_.
5. The monarch female has thicker \_\_\_ than the male.
6. Monarch butterflies smell and taste with their \_\_\_ and legs.



The mystery word is \_\_\_\_\_!



# Life Cycle of a Monarch Butterfly



## Threats to the Desert Tortoise

Unfortunately, desert tortoises face some major threats, including habitat loss through urbanization, raven predation, and habitat degradation caused by off-road vehicles. Label each picture, then draw a line to the way it impacts desert tortoises.

H\_bi\_at l\_ss through  
\_rba\_iz\_ti\_n

These pose a major threat to baby tortoises, whose soft shell makes them vulnerable to predation. Their numbers are increasing because all the uncovered trash attracts them to our desert.

Ra\_e\_ p\_e\_a\_ion

These cause habitat degradation because they destroy the habitat of desert tortoises. They run over their burrows and the plants they eat. They can even crush and kill tortoises.

\_ab\_ta\_ de\_ra\_at\_on  
caused by \_ff-roa\_  
v\_hi\_le\_

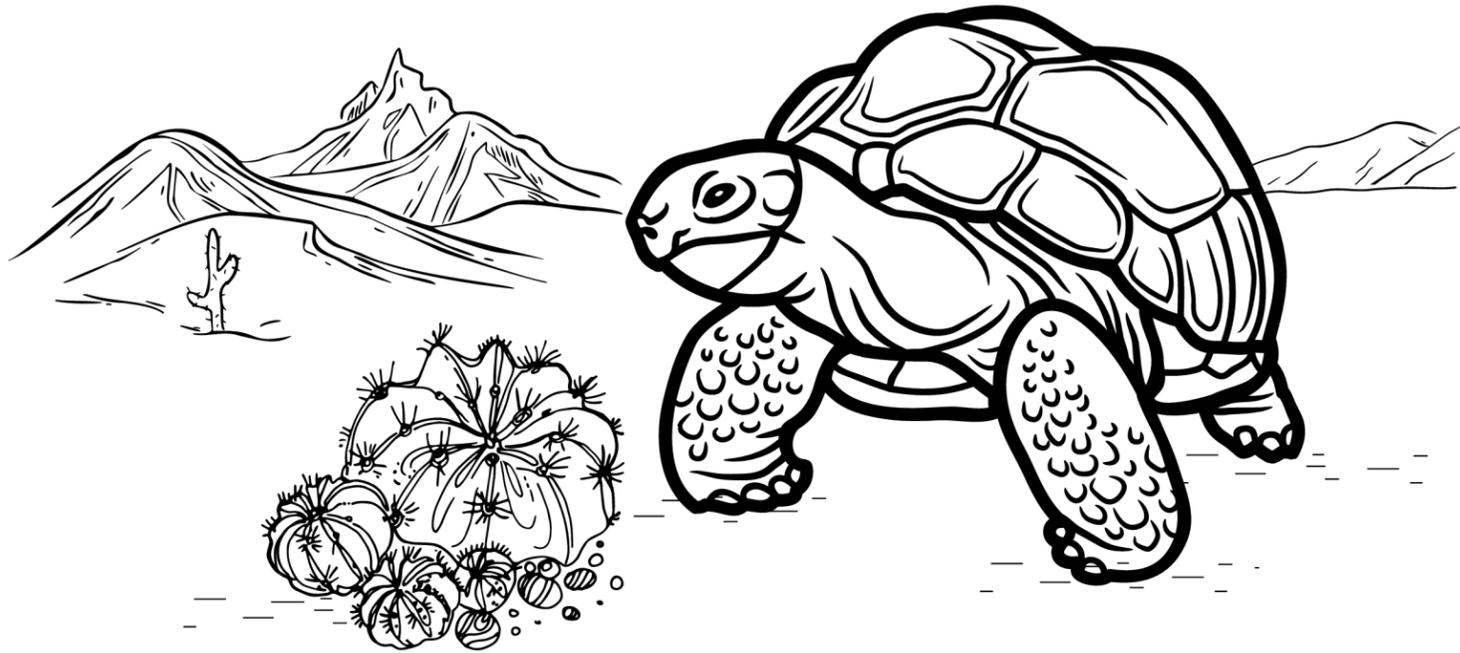
When humans construct more buildings (urbanization), we expand into areas where desert tortoises live. This causes habitat loss, because tortoises and many other animals lose their homes.



What can you do to help protect desert tortoises?

# Desert Tortoise

Desert tortoises spend most of their lives in burrows that they dig with their strong forearms and tough nails. They store water in their bladder and can survive a year without drinking. When threatened, desert tortoises retract their head and legs into their shell for protection. These fascinating reptiles can live for 80 years or more!



Desert tortoises are herbivores. They eat grass, flowers, and cactus. They use their sharp beaks to tear off parts of plants.

Desert tortoise diets include 201 different plant species. By moving from plant to plant, they carry pollen. This is called accidental pollination.

Habitat: Mojave and Sonoran Deserts of southwestern North America

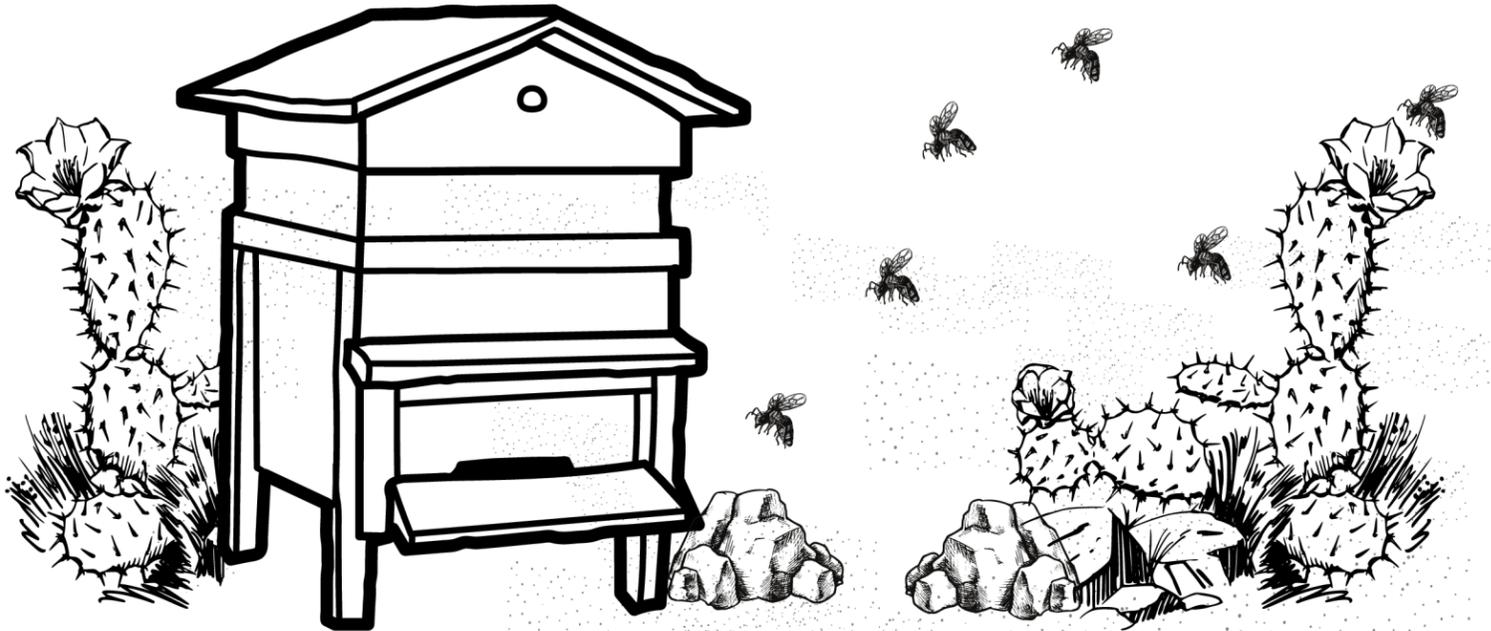


Milkweed is the sole host plant of the monarch butterfly. Monarchs lay eggs on milkweed, the eggs hatch into caterpillars, and the caterpillars eat the foliage of the plant. Help this Monarch butterfly find the milkweed!

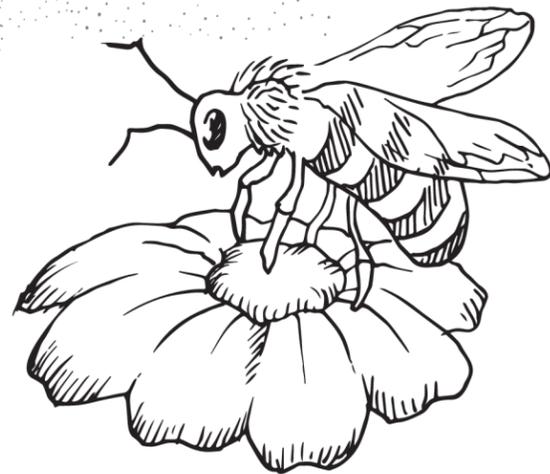


# Honeybee

Honeybees live in colonies with one queen running the whole hive. Worker honeybees are all females and are the only bees most people ever see flying around outside of the hive. They forage for food, build the honeycombs, and protect the hive.



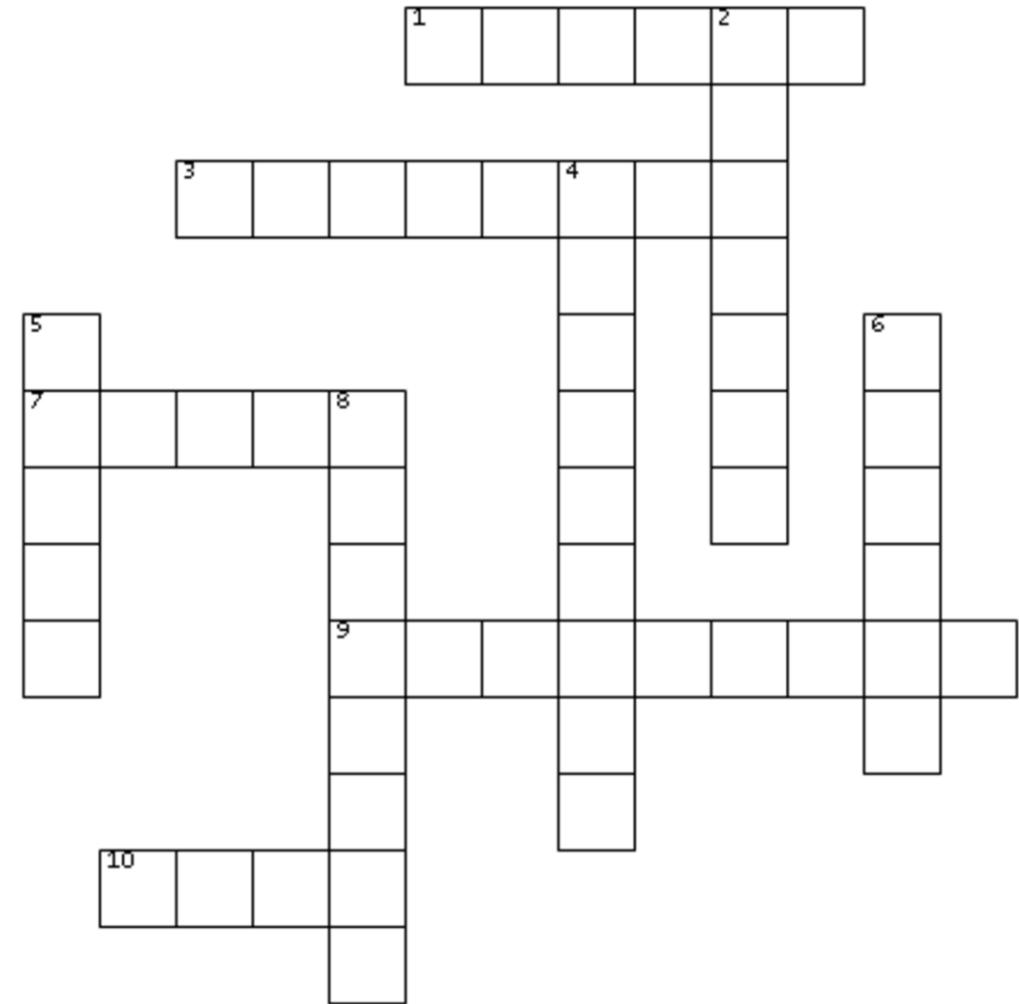
Honeybees are found all over the world. They are super important pollinators for flowers, fruits and vegetables. About one out of every three bites of food is from a pollinator. In the desert bees get most of their pollen from flowering shrubs, cactus and wildflowers.



Honeybees are incredible flyers. They fly at a speed of around 15 miles per hour and beat their wings 200 times per second!



# Lesser Long-Nosed Bats: What did you learn?



## ACROSS

1. They gather by the thousands in \_\_\_\_\_
3. They can fly up to \_\_\_\_\_ miles per hour.
7. Bats help pollinate \_\_\_\_\_ and agave
9. They are \_\_\_\_\_ to feed on night blooming flowers
10. They have a \_\_\_\_\_ shaped nose

## DOWN

2. Their \_\_\_\_\_ measure nearly three inches.
4. Bats help maintain the \_\_\_\_\_
5. Their nose help detects the \_\_\_\_\_ of blooming flowers
6. Bats feed on \_\_\_\_\_
8. Mother bats use smell and sound to \_\_\_\_\_ their babies

## Did you know?

- Lesser long-nosed bats are nocturnal so that they can feed on the flowers of night blooming cactus.
- Lesser long-nosed bats live approximately 20 years.
- This bat can reach flight speeds of up to 14 miles per hour.

# Lesser Long-Nosed Bat

Lesser long-nosed bats play an important role in maintaining the desert ecosystem. Feeding on nectar, these mammals are responsible for pollinating cacti and agave plants as they travel from flower to flower.

Lesser long-nosed bats have a leaf shaped nose that helps them detect the scent of blooming flowers, but it's their impressive tongues that make them such valuable pollinators. Their tongues measure nearly three inches long, about the same length as their bodies! This helps the bat reach the bottom of flowers where nectar is stored.



These bats gather by the thousands in roosts where they rest and birth their young. After a night of searching for nectar, mother bats return to the roost to feed their babies. The mothers rely on a combination of smells and sounds to identify which baby is their's.



# Honeybees: What did you learn?



1. Honeybees can fly at speeds around
  - a. 100 miles per hour
  - b. 15 miles per hour
  - c. 3 miles per hour
2. True or false? Honeybees are found all over the world.
  - a. True
  - b. False
3. Honeybees are important
  - a. pollinators
  - b. scavengers
  - c. excavators
4. About one out of every \_\_\_ bites of food come from a pollinator.
  - a. Two
  - b. Five
  - c. Three
5. True or false? Worker bees are all female.
  - a. True
  - b. False

Re-read the information about chuckwallas. Pay close attention to the underlined words in the text. Then, match the words below with their synonyms. Write the correct letter on the line.

- |                    |              |
|--------------------|--------------|
| 1. colonies ____   | A. amazing   |
| 2. forage ____     | B. defend    |
| 3. protect ____    | C. search    |
| 4. important ____  | D. flap      |
| 5. incredible ____ | E. necessary |
| 6. beat ____       | F. swarms    |
| 7. shrubs ____     | G. bushes    |



# Hummingbird

There are more than 340 species of hummingbirds, but they are only found in North and South America. Hummingbirds are one of the smallest kinds of birds in the world. The Bee Hummingbird is the smallest at just 2 inches. The largest is the Giant Hummingbird reaching over 8 inches.



Hummingbirds have a long thin bill to reach the nectar in a flower. While drinking, pollen collects on their head and bill. As they travel from flower to flower pollen is deposited. This makes the hummingbird an accidental pollinator.



They are called hummingbirds due to the sound of their rapidly beating wings. Hummingbirds can hover, fly forwards, backwards and even upside down!

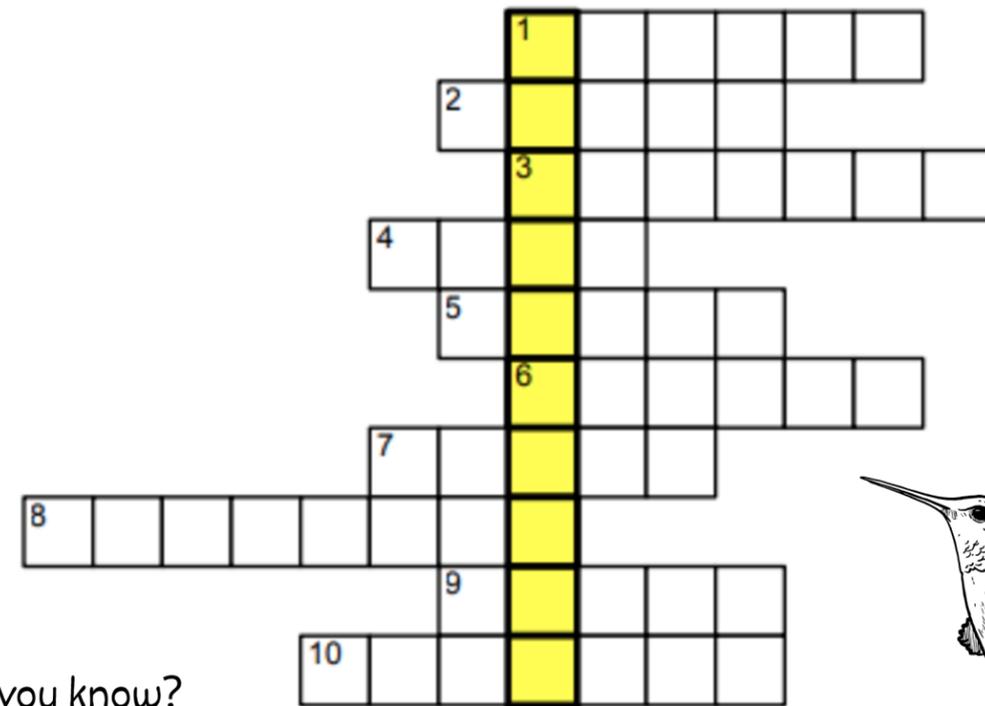


# Hummingbirds: What did you learn?



Fill in the boxes with the missing words. What's the mystery word?

1. \_\_\_\_\_ collects on their head and bill.
2. They can \_\_\_\_\_, fly forwards, backwards and upside down.
3. The Giant Hummingbird is the \_\_\_\_\_.
4. They have a long thin \_\_\_\_\_.
5. They \_\_\_\_\_ hundreds of flowers each day.
6. Hummingbirds drink \_\_\_\_\_.
7. A group of hummingbirds is called a \_\_\_\_\_.
8. They are one of the \_\_\_\_\_ kinds of birds in the world.
9. They get their name from the \_\_\_\_\_ of their beating wings.
10. Hummingbirds are only found in North and South \_\_\_\_\_.



Did you know?

- Hummingbird's wings can flap 50 times per second.
- Hummingbird's cannot walk. They can only hop, perch and fly.
- A group of hummingbirds is called a charm.
- A hummingbird visits hundreds of flowers each day, consuming more than its weight in nectar!

