

Day of Science and Service

May 8, 2014

On May 8, 2014, be a scientist for the day! Create a buzz. Get outside, record your observations, share your pictures and tell us what's happening in your community. Join the University of California in a one-day statewide science project and tell us what you see. Your answers will help build a healthier future for you and your community. Explore further at beascientist.ucanr.edu

How many pollinators do you see outside?

One-third of the world's food production depends on pollinators.

What's a pollinator? Bees, wasps, flies, butterflies, moths, beetles, birds and bats—they all help plants reproduce (and make fruit and seeds) by carrying pollen from one flower to another. When you look at a flower, how often do you consider the importance of these unsung heroes?

Honey bees and other pollinators are in a population decline because of diseases, mites, loss of habitat and food sources, and other factors. We need your help to protect them. The pollination process helps produce beautiful landscapes and the bounty of fruits, nuts and vegetables we all enjoy.

Bee our eyes and ears.

On May 8, 2014, we're asking you to let us know how many pollinators you see outside.

Do you see bees and other pollinators in your own neighborhood? Are there flowering plants in your garden, park, school or community? Is your neighborhood pollinator-friendly?

The Facts

- Three-fourths of the world's flowering plants depend on pollinators.
- 35% of the food we eat depends on pollination by bees.
- There are 25,000 different species of bees.
- 1.6 million colonies of honey bees are needed to pollinate California's 800,000 acres of almond trees.
- Honey bees will fly up to four miles from the hive to collect water, nectar and pollens.

Visit beascientist.ucanr.edu to learn more about this project and record your observations.



How many pollinators do you see outside?

On May 8, 2014, be a scientist for the day!

On May 8, go outside and count the number of pollinators you see in a 3-minute period. Then report your observations using our online California pollinator map. Your data will help us better understand what's happening to our pollinator populations across the state so we can build a more secure future for you and your community.

Just follow these six simple steps:

STEP 1

On May 8, 2014, pick a spot outdoors and make a note of how many pollinators you see in 3 minutes. If you like, you can also take a photo of the observation site or of a pollinator.

STEP 2

Go online and visit the map at beascientist.ucanr.edu/pollinators.

STEP 3

Enter your ZIP Code or zoom to your current location on the map.

STEP 4

Click the location of your observation site on the map.

STEP 5

Type in the number of pollinators you saw during your 3-minute period.

STEP 6

Attach a photo if you have one!

E-mail:

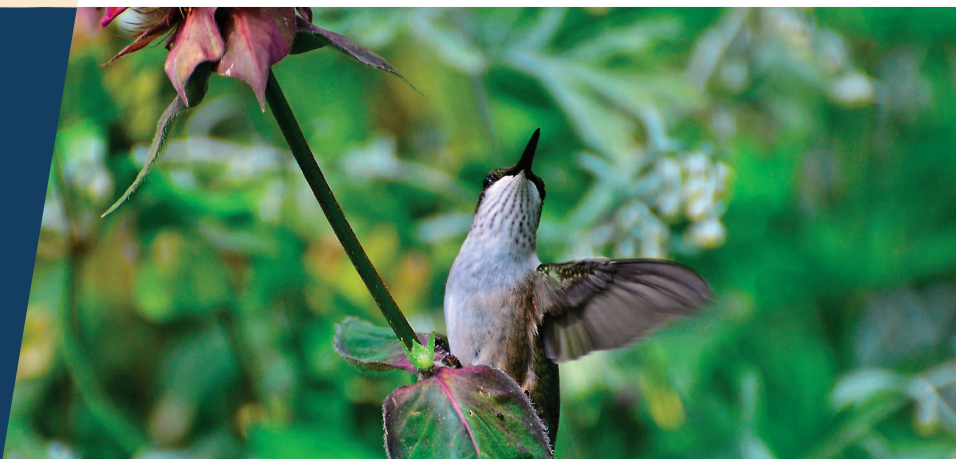
Your age:

- Under 13
- 13-17
- 18-29
- 30-59
- 60 or over
- Decline to state

Time of observation?

Pollinator/Number You Saw:

- ___ Bees
- ___ Birds
- ___ Bats
- ___ Beetles
- ___ Butterflies
- ___ Flies
- ___ Moths
- ___ Wasps





How many pollinators do you see outside?

Activity: A Day in the Life of a Pollinator

Learning Objective: Help youth understand the role of pollinators.

Service Objective: Invite youth to identify what they can do to create a more welcoming environment for pollinators at their home or school.

Activity Instructions

1. Opening prompts: Ask youth to think about flowers and pollinators. Pollinators include: bees, wasps, flies, butterflies, moths, beetles, birds and bats.
2. Either individually, in pairs, or small groups (of 3 to 4), have youth think about what it would be like to live a day in the life of one of the pollinators.
3. Invite youth to use their imagination and create a story about their pollinator. Storytelling comes in many forms and youth can select which they want to use! Some include: short story, poem, song, drawing, story board, poster, speech, film, or dance.
Imagine you are a pollinator, ask yourself:
 - Where do you live? Where do you grow? What do you do everyday?
 - What do you see, hear, and feel? Where do you want to go?
 - What do you want to be when you grow up?
4. Ask youth to share their story with the class.
5. As a class, have youth process and generalize what they've learned. For example, in small groups, have youth discuss which pollinators they typically see in their school or neighborhood. Then ask what they can do to attract more pollinators.

Taking it Further

- **For young youth:** Invite children to share their story with their families.
- **For older youth:** Ask each group to discuss how pollinators, flowers, and agriculture relate to California. For example, the economics and history of farming, social and political connections, biology and ecology, health and nutrition.
- Link this activity to the food and water activities. Invite small groups to discuss connections between water, pollinators, and food. Have groups present to the class.

Time: 20-30 minutes

Materials

- Paper
- Writing utensils
- Any other materials to aid in the creative process; for example:
 - Construction paper
 - Markers
 - Poster board or flip chart paper
 - Music
- Pictures of pollinators may be helpful (Bees, wasps, flies, butterflies, moths, beetles, birds and bats), available from http://100.ucanr.edu/Day_of_Science_and_Service/Pollinators/

Preparation

None

Connections to the Next Generation

Science Standards: LS2.A:
Interdependent relationships in ecosystems.

On May 8: Be a Scientist!

Ask youth to go outside and count the number of pollinators they see in 3-minutes. Record answers from youth and submit using the on-line map at beascientist.ucanr.edu. Share with youth what others are reporting from across the entire state!



"Day in the Life" idea adapted from *Serving Up MyPlate*, USDA 2012.

It is the policy of the University of California (UC) and the UC Division of Agriculture & Natural Resources not to engage in discrimination against or harassment of any person in any of its programs or activities (Complete nondiscrimination policy statement can be found at <http://ucanr.edu/sites/anrstaff/files/183099.pdf>). Inquiries regarding ANR's nondiscrimination policies may be directed to Linda Marie Manton, Affirmative Action Contact, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618, (530) 750-1318.



How many pollinators do you see outside?

Activity: Pollinator Simulation

Learning Objective: Help youth understand the role of pollinators.

Service Objective: Invite youth to identify what they can do to create a more welcoming environment for pollinators at their home or school.

Activity Instructions

1. Opening prompts: Ask youth to share what kinds of plants they see around them; and to identify which of these have flowers. What types of insects seem to pay attention to the flowers?
2. Explain to youth that they are going to construct a model of an insect and a model for a flower to investigate how flowers are pollinated.
3. Making insects:
 - i. Bend one pipe cleaner into an insect shape.
 - ii. Twist a second pipe cleaner around its center.The insect shape should be small enough to fit easily into the bottom of the cup.
4. Making flowers:
 - i. Poke a hole in the bottom of the cup using the nail.
 - ii. Wrap tape, sticky side out, around the top of the last pipe cleaner.
 - iii. Insert non-taped end of the pipe cleaner through hole in bottom of cup to form the flower **pistil**. Tape pipe cleaner in place on bottom of cup.
 - iv. Sprinkle a teaspoon of talcum and 1 color of powder (chalk or Jello representing **pollen**) in the bottom of the cup (do not get any on the tape or pipe cleaner)
5. Simulate! Invite youth to fly their insects in and out of their flower cup and cups of other youth. Allow insects to touch the powder and taped pipe cleaner.
6. Ask youth to share what happened to the pipe cleaner (pistil) and the powder (pollen).
7. As a class, have youth process and generalize what they've learned. For example, in small groups, have youth discuss which pollinators they typically see in their school or neighborhood. Then ask what they can do to attract more pollinators.

Time: 20-30 minutes

Materials

- For each person:
 - 3 pipe cleaners
 - 1, 8oz paper cup
- Talcum powder
- Colored chalk (crushed to powder)
OR several colors of Jello powder
- Clear tape (3-4 rolls)

Preparation

1. Punch holes in the bottom of each cup (big enough to fit a pipe cleaner)
2. Make a sample "insect" and "flower" to demonstrate
3. Setup supplies where youth can easily use them.

Connections to the Next Generation

Science Standards: LS2.A:

Interdependent relationships in ecosystems . 2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

On May 8: Be a Scientist!

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Adapted from *Nature's Partners: Pollinators, Plants, and You*, UCCE and The Pollinator Partnership, 2007.

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How many pollinators do you see outside?

Activity: Pollinator Simulation

Taking it Further

- **For young youth:** Invite children to share their “insect” and “flower” with their families.
- **For older youth:** Ask each group to discuss how pollinators, flowers, and agriculture relate to California. For example, the economics and history of farming, social and political connections, biology and ecology, health and nutrition.
- Link this activity to the food and water activities. Invite small groups to discuss connections between water, pollinators, and food. Have groups present to the class.

Pistil: The female part of a flower consisting of the stigma, style, and ovary.

Pollen: The tiny, powder-like material produced by the anthers (nutritious food for bees).

Process of Pollination

Pollinators help plants reproduce by carrying pollen from one flower to another so a plant can develop a seed. The types of pollinators might surprise you - bees, wasps, flies, butterflies, moths, beetles, birds, and bats. Nearly all ecosystems depend on pollinators – the unsung heroes of the natural world.

Successful pollination leads to healthy fruits, vegetables, and nuts. Without pollinators, many plants aren't able to produce food. Without pollinators in our gardens and farms, we wouldn't be able to enjoy the fruits and vegetables we love to eat. A third of the world's food production depend on pollinators.

For more information on the pollination process and descriptions of pollinators, see <http://anrcatalog.ucdavis.edu/pdf/8498.pdf>.



Make pipe cleaner insects.



Use tape to secure pipe cleaner and to cover hole.



Wrap tape sticky side out on one end of pipe cleaner and insert other end through bottom of cup.



Sprinkled colored powder in cup, taking care not to get it on tape.

Photos by Suzanne DeJohn/NGA