

# spark



photo: Paul Lei

## Happy Autumn!

Autumn in the San Francisco Bay Area is always a welcome time of year. The fog rolls away, and the sun comes out to shine. But what causes this pattern of weather that's unique to the Bay Area?

## Autumn in the Bay Area

Autumn in the San Francisco Bay Area is a fascinating time in our natural world. Unlike other places in the U.S., autumn tends to be the warmest time of year – particularly in San Francisco and along the coast in Half Moon Bay and Pescadero. But what's behind this surprising weather pattern?

### THE SCIENCE BEHIND AUTUMN IN THE BAY AREA

During the summer, heat from the Central Valley pulls air inland from the ocean. When the warm, moist air blows from the central Pacific Ocean across the cold waters of the California Current, a cool, moist wind – known as fog – is formed.

In autumn, the jet stream over the Pacific Ocean shifts south with the sun, and the strong winds and sea breeze dissipates. The Central Valley is no longer hot enough to suck drafts in through the

Golden Gate and other gaps in the Coast Range the way it could in mid-summer. The temperature difference between the land and sea decreases so much that the “push-pull” effect that creates the winds and fog no longer takes place.

As onshore winds die down, the upswelling of cold bottom waters that helps to create fog slows to a stop. The massive fog bank that was present in the summer shrinks to almost nothing.

### WHAT SIGNALS AUTUMN?

The weather warming trend is a telling signal of autumn in many parts of the Bay Area. At CuriOdyssey, one sign of fall is the winds that typically whip through Coyote Point Park tend to die down. They fall below their 15-25 mph averages in the summer, and temperatures increase slightly. So we want to know – **What are the signals for autumn in the Bay Area for you?**

Share your ideas on our blog, or take a picture of what autumn means to you and post it on our Facebook page. We'd love to hear and see your thoughts!

### WHAT SIGNALS AUTUMN FOR CURIODYSSEY STAFF

*“The leaves here don't change color very much in autumn, but the birds definitely do. Many birds transition from their fancy nuptial plumage to more sedate colors during this time. My favorites are the male mallards and their “eclipse plumage” – they don't actually disappear in the fall, they're just in disguise as females.”*

- Jeanne, Animal Keeper

*I've noticed that the staple sign of fall in the rest of the U.S., colorful leaves on the trees, really doesn't happen here until January.”*

- Abi, Director of Marketing

*“Most people don't know it, but the Marin Headlands is a hub of the fall migration for many species of raptors. This migration is the most significant of its kind in the western United States, and it takes place over Hawk Hill in the southern Headlands.”*

- Jen, Animal Keeper

Source: Gilliam, Harold. *Weather of the San Francisco Bay Region*: University of California Press, 2002. Print.

## EXPLORING THE AVIARY



photo: Michael Piña

The aviary at CuriOdyssey puts you within an arm's length of our non-releasable feathered friends. Our aviary serves as a laboratory for our classes and programs to investigate plants, insects, and birds.

This year, we've added many new birds to the aviary – a roadrunner and two mergansers, to name just a few – and we have plans to add more.



CuriOdyssey would like to extend a special thank you to the *Hillsborough Garden Club* for their truly generous contribution to provide essential upgrades to the bridges in our aviary.



photo: Graham Paterson

# Participate in Citizen Science with Bay Area FrogWatch!



photo: Justin Miel

**BECOME A PART OF BAY AREA FROGWATCH** Join CuriOdyssey and FrogWatch USA™ in an on-going citizen science project to monitor area frogs and toads. CuriOdyssey's Bay Area FrogWatch is the newest local chapter of a national program, FrogWatch USA™ that has been monitoring frogs and toads for more than 10 years. Bay Area FrogWatch depends on volunteers to collect and report information about local wetlands and frog and toad populations.

**WHY MONITOR FROGS AND TOADS?** Frogs and toads are both predators and prey in aquatic and terrestrial food webs, and they directly benefit humans by eating insects that can be pests and transmit diseases. Frogs and toads are sensitive to changes in their environment and are indicators of problems that can affect human health. Many previously abundant populations have experienced dramatic population declines. It is essential that we understand the scope, scale, and cause of these declines.

**ANYONE CAN VOLUNTEER; WE NEED YOU!** You do not have to be a frog or toad expert to make an important contribution. All you need is an interest in learning about frogs and toads, the commitment to learn and identify their distinct calls, and the ability to make evening visits to a local wetland.

**To get involved, email us at [CitizenScience@CuriOdyssey.org](mailto:CitizenScience@CuriOdyssey.org).**

## Members-only Hours + Event

**Sunday, October 7, 10am-12pm**

Join us Sunday, October 7 for a special event just for CuriOdyssey members!

From 10am-12pm we will open the museum and the Redwood Hall for this free, member-exclusive event. In the Redwood Hall, get an exclusive look at our mobile exhibits that can only be seen at one of our Mobile Museum experiences! Enjoy complimentary beverages and snacks, and explore how and why the earth shakes with our earthquake shake table!



## MEMBERSHIP BENEFIT SPOTLIGHT: AQUARIUM OF THE BAY

One of the many great benefits of membership to CuriOdyssey is the reciprocal admission program we maintain. With any level of membership, members receive free or discounted admission to 400 participating organizations through the Association of Science-Technology Centers (ASTC) and the Association of Zoos and Aquariums (AZA).



Photo: Josh Edelson for Aquarium of the Bay

Like CuriOdyssey, our friends at Aquarium of the Bay feature animals that are native to California and the San Francisco Bay. Visit to learn about the aquatic creatures that make their homes in the Bay. Meet fish, including orange Garibaldi and green Moray eels, and explore touch pools to find out what it's like to touch sea stars, bay rays, and more.

Learn more about our reciprocal program at <http://www.curiodyssey.org/membership>.

## ANIMAL AMBASSADOR UPDATE

Our young red fox, Zoë, who came to live at CuriOdyssey last autumn was recently transferred to the Alameda Park Zoo in Alamogordo, New Mexico where she can be on exhibit for the public to see. She has adjusted to her new environment well, and she is thriving. If you're ever in New Mexico, you can visit her at the zoo!

# Welcoming Our New Opossum!

## "LUNA" THE OPOSSUM FINDS A NEW HOME.

CuriOdyssey is now home to a new Animal Ambassador – a young, female opossum named "Luna." She was found with a severe bite wound in the driveway of a private residence and was taken to Stanislaus Wildlife Care Center for rehabilitation and care. Because she was so young, she had to be tube-fed during the rehabilitation process. This resulted in her imprinting on humans and being listed as non-releaseable. In June 2012, she was donated to CuriOdyssey from the rehabilitation center.

## DID YOU KNOW?

Opossums are solitary animals. They spend the daytime in hollow tree trunks, abandoned burrows, or under piles of dead brushwood. Because of their adaptability in diet and climate, they have become very common in cities and suburbs. When danger approaches, the opossum drops in a tight ball as if feigning death (it's where the phrase, "playing possum" originated) and even emit a foul-smelling odor. Many predators will leave an animal alone when this happens.



***Want to learn more about our new opossum? Find us on Facebook to see behind-the-scenes photos at [www.facebook.com/CuriOdyssey](http://www.facebook.com/CuriOdyssey).***

# Coastal Cleanup Day

September 15, 2012  
9am-12pm

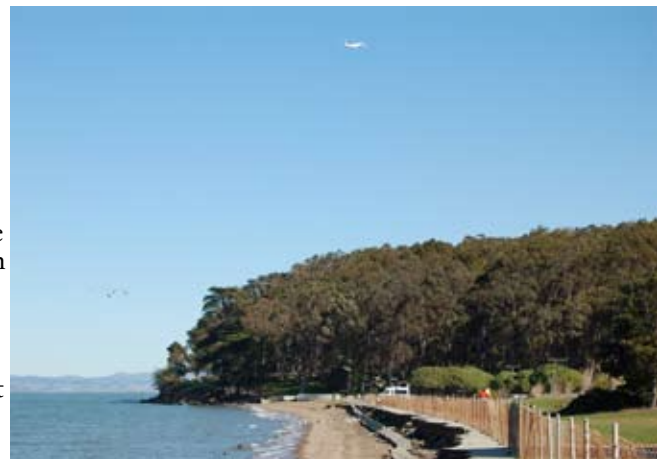
Join us for one of our favorite community events! Make a difference in your backyard and be part of a global endeavor to clean up our oceans. Join CuriOdyssey and Coyote Point Recreation Area rangers to clean the beach and make the Bay cleaner and safer for wildlife and people.

Check in at the beach at Coyote Point park at 9:00 am. Be sure to plan for the weather and wear sunscreen, comfortable shoes, a hat, and gloves.

Help reduce waste by bringing your own reusable water bottle and trash collection bucket.

Round up your family and friends for this great volunteer opportunity! You'll feel good knowing that you did your part to take care of your local beach.

***Want to learn more about California Coastal Cleanup Day? Visit our website at <http://www.curiodyssey.org/activities/family-events>***



# Experiment with Science at Home!

## ACTIVITY: LEAF SKELETON



It's the perfect autumn project! Explore and examine the leaves that litter the ground. This activity will teach you how to remove leaf tissue to see a beautiful "skeleton" of veins. This project can be done with a variety of fresh leaves in any season.

*Grade level:* all grades. However, parental supervision is required due to the use of sodium carbonate and a hot stove.

### You'll need:

- Leaves (choose large leaves that are colorful and not dried out)
- Sodium Carbonate. This is also known as "washing soda" and is well-known for its everyday use as a water softener. It can be purchased online.
- One metal pot
- Tweezers
- Paintbrush

### What to do:

1. Measure  $4\frac{1}{4}$  teaspoons of sodium carbonate into the metal pot.
2. Dissolve the sodium carbonate in a half liter (this is equivalent to a little more than 2 cups) of water.
3. Heat the mixture on the stove. Ask an adult before doing this, and always be careful around kitchen stoves.
4. When the mixture is almost to a boil and bubbles appear on the surface, take it off the heat and put the leaves you have selected into the pot.
5. Let the leaves soak for 30 minutes.
6. Remove each leaf carefully from the pot with the tweezers. Gently

wash the leaves with cool water. Use a paintbrush to carefully lift away the small bits of leaf cell remaining around the skeleton.

### What's happening here?

The part of the leaf you can see now is a complex pattern of hollow veins making up the leaf's skeleton. A leaf's veining system provides food and water to the rest of its cells. Because the leaf is no longer getting the nutrients it needs from the ground through the stem of the plant or tree trunk, its tissue will break down easily. All that remains is the delicate system of veins that make a lacy pattern



### Questions to consider:

1. Do leaves from different types of trees have different vein structures?
2. Does the thickness of the leaf affect how the sodium carbonate removes the leaf cell?
3. Is the skeleton brittle and fragile or is it strong and sturdy?
4. Is there a difference between using leaves from flowers and leaves from trees?

### What to do with your leaf:

After you're finished observing your leaf, try to think of different uses for it. You could preserve your leaf skeleton by framing it to hang it on your wall. You could also use it to decorate your own homemade card.

## CLOUD IN A BOTTLE

Make a little weather of your own! Clouds form when warm, particle-rich air meets cool, moist air, accelerated by pressure and temperature changes. This activity can help kids understand how weather happens.

### You'll need:

- One liter clear plastic bottle with a cap
- Warm water
- Matches

### What to do:

1. Fill a bottle with just enough warm water to cover the bottom.
2. Replace the cap and shake it so that water droplets are sticking to the inside of the bottle. Pour out excess water.
3. Get a match and let it burn for a few seconds. Blow the match out and immediately place the head of the match into the bottle.
4. Let the smoke from the match fill the bottle. After a few seconds the smoke will seem to disappear. Smoke adds one of the ingredients for cloud formation - dust.
5. Slowly screw the cap onto the bottle.
6. Squeeze the sides of the bottle hard three or four times. Wait a few seconds and squeeze the bottle again, but hold the squeeze for a few seconds and quickly release the squeeze. You are now simulating another ingredient - temperature and pressure changes.
7. Now look for the cloud!

### What's happening here?

Clouds require atmospheric ingredients to form - water, dust particles, and temperature or pressure changes.

Squeezing the sides of the bottle forces the particles to compress. Letting the pressure go lets the air expand. By doing this, the temperature of the air becomes colder. This cooling procedure lets the particles stick together more easily by making tiny droplets around the smoke molecules. Most water droplets are created when water vapor condenses around a condensation nucleus - a tiny particle of smoke, dust, ash, or salt. Clouds in the sky come together while the unseen water vapor in the air condenses into visible water droplets or possibly ice crystals.

# Innovators Circle Contributors

The Board of Trustees and staff of CuriOdyssey wish to express our sincere appreciation to the following individuals and organizations for their generous support between April 2, 2012 and June 30, 2012.

Every effort has been made to be accurate. If your name is not present or you are not recognized properly, please contact Sarah Clautero Soto, Development Manager, at 650.340.7571.

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# CuriOdyssey Gala 2012

September 28, 2012

Thank you to our lead sponsors for our third-annual Gala. We have SOLD OUT!

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Thank you to the following donors for gifts between January 1 and June 30, 2012.

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## In memory of:

**Ray N. Atkinson:** Mrs. Jean S. Atkinson, Judith W. Barton, Erin Callaghan, The Collins Family, Henry Dombroski,  
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# Remembering Ray Atkinson

On June 20, 2012, CuriOdyssey lost one of our oldest and most ardent supporters. There are few people who have been so instrumental to our existence as Ray Atkinson.

Ray joined the Board of Coyote Point Museum in 1974 and served until 1985 as a trustee, then continued to find other ways to serve. During his tenure as president, the main building was constructed and opened and the wildlife center capital campaign was launched. Ray was involved in almost every detail. He embodied the heart and soul of the museum, and we will miss him.

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## Events (September - November)

### *School and Group Programs*

Begins October 2012  
Early Bird Registration 8/28  
Open Registration 9/4

Looking for an exciting activity for your classroom or group? Our educational programs spark passion for science and allow children the opportunity to get up close with the natural world. For more information, visit [www.CuriOdyssey.org/school-groups](http://www.CuriOdyssey.org/school-groups).

### *Preschool Programs*

Begin in October 2012  
We offer engaging science programs for 3-4 year olds and their caregivers. For more information, please visit our website or contact us at [Scheduler@CuriOdyssey.org](mailto:Scheduler@CuriOdyssey.org).

### *Slither and Squeak*

October 28, 2012  
6pm-8pm  
SAVE THE DATE! This event was sold out last year!  
Wear your Halloween costume to a spooky science spectacular! Unmask the science behind Halloween and explore what makes haunted house tricks work. Meet our nocturnal animals who slither, squeak, creep and crawl, and go trick-or-treating in the name of science exploration!

### *Teachers' Open House*

Thursday, September 27, 2012  
3:30pm-5pm  
A FREE workshop just for pre-k, kindergarten and elementary school teachers! See demonstrations of science activities, receive an activity kit, and enjoy refreshments.  
Please RSVP by September 24 to

[Scheduler@CuriOdyssey.org](mailto:Scheduler@CuriOdyssey.org) or call (650)-340-7598.

### *Members-only Hours Event*

October 7, 2012  
10am-12pm  
Get a behind-the-scenes look at our mobile exhibits, enjoy complimentary beverages and snacks, and explore how and why the earth shakes with our shake table!

### *Coastal Clean Up Day*

September 15, 2012  
9am-12pm  
Join CuriOdyssey and Coyote Point park rangers to take part in a global endeavor to clean up our oceans.

### ON-GOING PUBLIC PROGRAMS

Animals In Action  
*Tues-Sat, 11:00am*

Otter Feeding  
*Tues-Sun, 12:00 noon*

Bobcat Feeding  
*Tues-Sun, 1:00pm*

Animal Connections  
Wildlife Show  
*Sat-Sun, 1:30pm and 2:30pm*