

The CALIFORNIA LIVING MUSEUM is *California's premier native zoo and garden*. During your visit, you will get a close look at many unreleasable (cannot survive in the wild) native California animals. The gardens are planted to represent natural life zones growing throughout California. The DiGiorgio Education Center houses various exhibits representing this area from 20 million years ago to 10,000 years ago to present and rotating displays. This guide is designed to enhance your visit. This larger type contains general information beyond the individual species signs and is suitable for all ages. This smaller type has more specific information for answering questions, upper grade students, and adults.

Please remember you are the visitor today; so, follow these basic rules.

1. Stay on the pathways: that will keep you safely behind all exhibits and garden areas. Our fences are not built to be benches or ladders. Keep everything out of the animal enclosures.
2. Teachers and chaperones are to stay with the students at all times.
3. Walk and be reasonably quiet. Sudden movements and noises may startle the animals causing them to move out of your view.
4. No feeding the animals. No throwing rocks (or anything else).
No feather collecting (it's the law).
5. Relax and enjoy. Take time to observe and admire. Nature is impressive and intriguing.

Headings correspond to the map. For your comfort, take a moment to note the location of the restrooms and water fountains before you leave the entrance area.

PORCUPINE EXHIBIT (southwest of Gift Store)

Porcupine is the second largest rodent in California. (Beaver is the largest.) He is known for his quills; they are long, sharp specialized hairs with a small root and barbs on the other end. He cannot shoot or throw his quills. He will turn and slap his tail into a predator releasing dozens of reasons to leave him alone! He has quills of various sizes all over the top (dorsal) side of his body; most of them are concealed by long guard hairs. Porcupine has the characteristic rodent incisors; he eats herbs, shrubs, and the tender underbark of trees. Porcupine is an excellent climber; he may rest in the dense foliage.

TREES OF CALIFORNIA WALK

This garden exhibit walks you through the trees west to east, from the coast to the valley and to the eastern slopes of the Sierra Nevada Mountains. Notice the difference in the trees; leaves or needles, each has adapted to live in its habitat with specific soils and rainfall.

The needles on evergreen trees are modified leaves. Each year older needles drop off as new ones grow in. The resin from fallen needles seeps into the ground around the tree to prevent seeds from germinating. In this way a tree is protecting its mineral and water resources.

As you pass the amphitheater, notice the restrooms located on your right.

DESERT COMMUNITY

Plants that must survive the harsh temperature and moisture extremes of the desert have special adaptations: i.e. light coloration, thick waxy leaves or spines. Many varieties of cactus are common here. Their plain drab appearance belies spring's vibrant colors. Jojoba, the two large (8') gray-green shrubs (right, back) grow in desert washes and oases. The thick leathery leaf edges follow the sun to reduce direct sun exposure and water loss. Palm and desert willow (west, back) also flourish in oasis areas. They have shallow and deep root systems (respectively) that can immediately soak up rain water or draw from water sources deep below the surface. The stems and pads of a cactus are green because that is where the plant produces chlorophyll as it goes through photosynthesis. There are many species of beavertail, barrel and cholla cactus. Check the plant labels to identify different species. The tall saguaro cactus is native to the south east desert area of California. Rings of white flowers encircle the arms in the spring. Only open for 1-2 days, pollinators must be quick for fruit to be produced. The ribs of the barrel cactus (between the 2 jojoba shrubs) swell and shrink according to the amount of stored moisture in the plant, as do the pads of the beavertail cactus. Spines on cactus are actually modified leaves; they provide shade to retard water loss and protection from hungry animals.

REPTILE HOUSE

The reptile house is climate controlled to 78 degrees for the comfort of the ectothermic residents.

Please keep the doors closed. Snake does not hear as we do. He feels vibrations through his entire body; so, **do not tap on the glass** or stomp along the step. *Thank You.* Species-specific information is available above each individual display. Please take a moment to read the signs about the reptiles of special interest to you.

A reptile has a skin made of scales that is shed as the animal grows. A reptile is ectothermic (cold-blooded is not an accurate term) and most hatch from eggs. There are many types of reptiles (turtle, tortoise, snake, and lizard); even though they have different appearances they share these basic characteristics. An ectotherm is an organism that controls his body temperature by behavior, not by internal mechanisms. He moves onto rocks or sunny locations to increase his temperature and down into burrows or under bushes to decrease his temperature.

There are three major types of snakes in California. 1. A venomous (venom is injected, a poison is ingested or absorbed) snake injects toxins into their prey. Most venomous snakes in California are rattlesnakes; which are identified by a triangular-shaped head and rattle on the end of the tail. 2. A constrictor wraps around his prey to suffocate it before swallowing it. 3. A non-constrictor swallows his food whole and alive. Look for the lyre snake, he is a rear-fanged venomous snake, but not really dangerous to people because of the small size of his mouth. The tall exhibit (on the left or southwest wall) is a multi-species exhibit. These animals use different parts of the vertical space, which minimizes competition and replicates the living areas of a natural rock outcrop. Look here to see California's largest non-venomous lizard.

The **large fish aquarium** houses two native species of fish: the Sacramento sucker and the hardhead. Read the signs to learn more about them. What are the characteristics of fish? Do they require oxygen like other animals? Yes, fish filter out oxygen from the water as it flows through their gills.

Look below to see some invertebrates (animals without backbones)!

Often confused as reptiles, amphibians have soft moist skin, not scaly skin. Can you see the difference?

A few small mammals live in the reptile house. Compare/ contrast them.

A **dry glass tank** houses San Joaquin pocket mouse and western fence lizard.

PELICAN AND BEAVER

The inland pond (in front of the reptile house) houses some very different animals. Each of them live in a fresh water habitat, but use it differently.

-An **American white pelican** lives around fresh water and along the coast where fresh waters flow into the ocean (brackish water marshes). Her bill and large pouch are for scooping up fish; she does not dive like brown pelican does. Notice how she twists and turns her head to use her bill to preen her feathers. White pelican lived in flocks numbering into the thousands right here in the San Joaquin Valley as recent as 150 years ago. Population decline is due to reduction of wetlands by dams and canals to claim the land for agriculture and urban uses.

-One of 25 species of gulls in North America, the **herring gull** winters along the west coast of North America, as well as, inland areas. He is an omnivore and a scavenger; he will clean up dead organisms brought in by the tides. He seldom dives, but will dip his head and neck below the water to reach for foods. He can drink either salt or fresh water.

-**Canada goose** is the middle sized bird with the distinctive black head and neck. Canada geese are known for their V-formation during migration flights from southern United States to northern Canada and the Arctic. Frequent rest and feeding stops include wetlands, grasslands or cultivated fields.

-**Beaver** is the mammal in this group. He has special skin between his toes to help him swim. He closes his ear flaps and nostrils when he dives underwater. Known for dam building, beavers living in the valley may make their burrows in stream banks and do not always construct dams and lodges. Dams are built if there is not sufficient deep water for a safe retreat.

RACCOON

Raccoon is easily recognized by his black mask and ringed tail. His feet are a very special adaptation. His front feet have long slender fingers with great dexterity and sensitivity; these long fingers aid him in climbing and digging. His distinctive track can be found along the riverbank or wet area where he was searching for food. Raccoon has an excellent sense of smell that guides him to possible food sources. Raccoon may look cute but he can easily become aggressive and very defensive. He will snarl, growl and bare his teeth to defend himself to send an intruder running away.

A bird is the only animal that has feathers; he comes in a great variety of sizes and colors. Most birds can fly. Bird's beak is a food eating tool that provides a clue as to his identity. Compare the differences among the different birds throughout the zoo, both those in exhibit and the wild birds living throughout the gardens at CALM.

SMALL BIRDS

American kestrel is the smallest member of the falcon family. Kestrel eats small mammals, small birds, large insects and lizards, much of his diet can be found in urban areas. Kestrel is common, but often goes unnoticed in cities because of his size. Male and female can be distinguished by color; this is unusual among raptors.

As a falcon, kestrel has long outer primary feathers that give the wings a pointed shape. This falcon characteristic allows him to maneuver quickly in pursuit of his prey. He is also one of the few birds that can hover.

RAPTOR EXHIBIT

It is illegal for you to take or keep any feathers.
Please help us by not picking them up.

There are windows with one-way glass inside the “eagle’s nest” display area which allow you to get a closer look at the bald eagles, red-shouldered hawk, barn owl, long-eared owl and others. Notice the display cases; one explains the process of casting, the other shows the skeletal structure of a wing. The painting on the floor is a life-sized representation of a bald eagle’s nest and eggs. Eagles mate for life. A pair will go back to the same nest site each year if they have successfully raised their young. The nest will be “remodeled” each year as the birds bring more branches and sticks to the nest. A nest will weigh several hundred pounds after a few years of use. Take some time to study the bird wing display and see how the structure of a wing is similar to your arm. As you go around this exhibit compare the beaks and talons; they are specific raptor tools. Look for the 2 birds that are not raptors.

This exhibit highlights 5 habitats and the raptors that live in them. Birds of prey have talons for catching prey and specialized beaks for tearing apart meat. Check the species-specific information about foods and habitat range provided on each enclosure. Move around the exhibit in a counter-clockwise direction to follow the text.

-As a fish-eating bird, **bald eagle** lives around lakes and rivers in forests with pine trees. In addition to his talons, the bottom of his toes is very rough to help hang on to wet slippery fish.

-**Golden eagle** lives throughout California in a variety of habitats. Golden eagle is more common in the foothills and mountains; more individuals come into the lower valley elevations during the winter where prey is more likely to be active.

-**Red-tailed hawk** lives in open country with mature trees. Red-tailed hawk is a buteo, a broad-winged hawk. This wing shape enables him to soar across open country while searching for prey. **Red-shouldered hawk** is a smaller hawk that hunts mice, shrews, voles, tree squirrels and chipmunks in woodland habitats, including right here, along the Kern River.

-The **raven** and **crow** live in valleys and woodlands. They are not birds of prey. They are omnivorous; notice the different structure of their beaks and feet. Their ability to eat almost anything helps them thrive in every habitat.

-Alder trees grow in a riparian habitat where **barn owl**, **long-eared owl**, **red-shouldered hawk**, and **Cooper's hawk** live. Hawks are diurnal. Owls are nocturnal. There is no competition for the prey. Look closely to find each bird. Notice how the camouflaged feather coloring of owl keeps him hidden, even during daylight hours.

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PINYON JUNIPER COMMUNITY

This drought resistant evergreen community is named for the dominant pinyon pine trees and the many varieties of juniper. It is a transition zone between the taller and higher ponderosa pines and the lower sagebrush communities. Growing no more than 50' high, the scale-like leaves of the junipers and the thick needles of the pines protect the trees from losing moisture in the harsh winds. Look for *Pinus monophylla*; singleleaf pinyon is a major tree species on dry, rocky slopes of the pinyon-juniper woodland. The seeds, pine nuts, provide an important food source for a great number of animals: i.e. scrub jay, Clark's nutcracker, mouse, chipmunk, deer, bear, porcupine and numerous insects.

Mammals are animals that are covered with fur or hair. Mammal moms give live birth and make milk to nurse their offspring. There are many species of mammals, many sizes, many colors and patterns of fur, each difference is important to the survival of each animal. Check the species-specific information on each enclosure.

BADGER

Badger's low, squatty body, short legs and long claws help him dig out his rodent food. He prefers to dig in softer loose soils, but will dig in hard-packed baked soils to get his meal. Although powerful, when threatened, he prefers to retreat. While facing his attacker, he backs toward a burrow entrance, displays his teeth and claws, and snarls or growls. He may also exude (not spray) musk. Once safely inside, he plugs the burrow opening.

DEER

Mule deer live in herds; there is a social order, each knows the other members of the herd. As browsers, deer only have front teeth on their lower jaw with molars on the upper and lower jaws. The front incisors help deer pull the leaves off the bushes and trees; the molars wear down during their life as they grind the leaves and chew the cud.

Browsers eat leaves; grazers eat grasses. If they stayed in one area they would eat all the vegetation (notice the protective fencing around the plants). This roaming behavior is as important to the habitat as it is to the deer himself. During harsh seasons (winter and summer droughts) he will eat the inner bark of trees.

MAMMAL ROUND

Enter this exhibit quietly, some of the residents are shy and will hide if you are noisy. Begin on your left and follow the animals and text around to the right. Read each sign for specific information.

-**Bobcat** is identified and named for his short "bobbed" tail. His spotted coat provides protective camouflage in a variety of habitats. Bobcat doesn't dig his own den, so will rest in a rocky crevice or hollow log for shelter.

Next is a multi-species exhibit. Look for all the following animals; note their location in relation to the weather and each other. -**Coati** is a communal animal; females will forage, play and sleep together as they travel around their home range. Mutual grooming is an important daily activity. Male coati (called coatimundi) is solitary. CALM houses every species of fox that lives within our state. -**San Joaquin kit fox** is valuable as a predator of our high rodent population when allowed to fulfill his place in the natural balance of nature. He is an endangered species; it is illegal to harass him; harassment includes feeding! Kit fox digs his den with several openings to allow for quick escapes. Kit fox populations

increase in areas where there are fewer coyotes. -**Island fox** looks like a little gray fox. Isolated from the mainland and other island populations, each of the Channel Islands has a subspecies named for the island. This fox is from San Clemente Island and is an endangered species.

-**Red fox** (housed at the far right) is also called the common fox in other parts of the world. The species ranges through Europe, Asia, southern India, north Africa, as well as, North America. He is an icon for cunning and mischief. He is native to elevations above 4,000' in California.

COYOTE EXHIBIT

Coyote has good senses of smell, hearing, and eyesight which give him the ability to adapt to ever changing environment. Coyote benefits humans by controlling rodent populations. Coyote is considered the best survivor of any species of wild dog despite decades of persecution. In late summer and early fall berries and fruits make up a large portion of a coyote's diet. He lives in every life zone in the state. He may enlarge a squirrel or badger hole or den in a natural crevice. Coyote is very protective of the pups. Mom coyote may change the den site if she thinks a threat or danger is in the area.

BEAR EXHIBIT

Although a carnivore by structure, 80% of black bear's diet is plants, fruits, and nuts. Males may grow to be 450 pounds; females may only grow to be 300 pounds. In the wild, bear spends most of his day foraging. He has poor eyesight, but excellent senses of smell and hearing. Cubs are born in late January or early February. Cubs are blind and helpless when born, so nurse and grow inside the safety of the den. When spring arrives, the cubs are big enough to follow mom as she leaves her winter den and searches for food. Bear moves around each day searching for food and does not return to the same den each night. He requires a large territory with plenty of food sources.

WATERFOWL PONDS

Our most common birds on the ponds are mallards; the males have the green heads while the females are in browns. Mallards are dabbling ducks, you may see them "bottoms-up" feeding on insects and tadpoles. A small but growing flock of wood ducks also lives here; they are usually seen on the far side of the ponds. They are smaller than the mallards. Male wood duck is very colorful; female is a drab brown, but has a bright white eye ring. Wood duck does not "quack", but makes a soft whistling sound. Look and listen to find the male and female wood ducks. The population of ducks changes because they are able to fly; so they come and go as they wish. CALM is located along the Pacific Flyway, a major migration route. Spring and fall migrations bring wild visitors (pintails, teals, shovelers and Canadian geese) that stop by, eat, and rest before continuing their journey. Do you see any visiting birds today?

CHILDREN'S PARK

Domestic and farm animals live here. Supervise children carefully. Children are encouraged to observe the domestic animals as they come up to the fence. Children may touch and feel the lamb's wool and the goat's hair, but please be careful not to get an arm caught between the animal and the

fence. Find the rooster, turkey, rabbits, burro and pony. How have these animals been used by people?

Do not share any of your foods with the animals. There is a feeding station that for \$.25 (a quarter) dispenses food for the Children's Park animals ONLY. If it is empty, they have eaten enough for the day. If you touch the animals, please clean your hands at the sanitizer station on your way out.

DESERT HABITAT

This exhibit was designed and landscaped to represent a desert wash, a favorite spot for tortoise and other desert animals. These plants have the same adaptations as the ones in the desert community. The burrow on the west side of the "wash" was dug by tortoise. Take a few moments to walk down the ramp and read the life cycle panels. Notice how each animal uses a different part of this exhibit; this is how they do it in the wild, too. You may also see a roadrunner that lives on our zoo grounds; he did not escape from the exhibit!

Think like a tortoise as you view this exhibit. What time of year and day is it? Are the tortoise: browsing for food? escaping the heat in a burrow or under a shrub? hibernating? Where are the other animals? Are they sunning themselves or escaping the temperature extremes? Animal behavior is an important adaptation for survival in a harsh life zone such as a desert.

Roadrunner is an unmistakable bird, both in appearance and behavior. He may raise and wiggle his long tail, raise his crest, bow and coo in greeting. He can run with quick bursts of speed to catch prey in his heavy bill. He has 4 toes like other birds, but notice their placement. How does this arrangement help him?

The small **burrowing owl** has distinctively long legs. An owl of open country, he will stand upright on the ground or post to search for large insects and small mammals. His is normally active during the day (diurnal), but will hunt day and night to feed the young.

Turkey vulture (sometimes incorrectly called buzzard) eats carrion (dead animals) and soars on warm air currents in loose groups. He may soar hundreds of miles a day in search of carrion, which he locates by smell.

Desert cottontail lives in grasslands and deserts with a home range of 15 -9 acres. He eats green plants, twigs and cactus. His long hind legs give him the ability to run at up to 15 mph. He will occasionally rest in the burrow of another animal.

RIPARIAN COMMUNITY

Enter this trail by going back to the path opposite the waterfowl ponds.

This trail takes you on a representative walk along the Kern River. As you walk along the path enjoy the sounds of the running water, look for signs of animal life. Remember, some animals are very small! Signs can include: tracks, food leftovers, scat, bits of fur or feathers, markings, scents, and homes. Look high and low!

SMALL BIRDS

This enclosure houses some unreleasable songbirds. CALM is permitted by California Fish & game to raise orphaned and injured songbirds. Not all of them can be released into the wild; a few of them live here. Current residents are scrub jay (not blue jay) and acorn woodpecker. Look at the size, color and shape of each beak to help you identify each species of bird. How does the beak help each bird survive? Compare their toe arrangements. Scrub jay has a typical perching bird foot: 3 toes forward, 1 toe back. Woodpecker has 2 toes forward and 2 toes back to help him grip onto the sides of trees. Also notice the difference in their tail feathers. The short stiff feathers of the woodpecker actually help brace it on the side of the tree!

STRIPED SKUNK and GRAY SQUIRREL

Look for the squirrel in the upper part of this exhibit and the skunks in the lower part. This is an example of how animals in the wild can live together; they use different parts of the same habitat. Skunk is an omnivore that locates his foods by smell. His bold black and white fur coat announces his presence to other animals in hopes he will not need to use his strong scent as protection! Gray squirrel lives in woodland areas and eats acorns and pine nuts. He will cache (store) nuts to be eaten later. Neither skunk nor squirrel hibernates. Each may den-up during the most severe weather. Spraying is skunk's last form of defense. Scent glands are encased in muscles that are voluntarily controlled. About 1 tablespoon of scented liquid is sprayed into the air through small ducts that release oil in fine yellow droplets. It can be neutralized by citric acid found in tomato juice or diluted vinegar.

SMALL ANIMALS

Unlike other herons, **green heron** is secretive and solitary. He is a small wading bird of woodland streams, ponds and marshes. His long slender beak allows him to grab wet slippery fish. He fishes from a covered branch along the water's edge in a crouched position, waiting for his meal to swim by.

Western pond turtle has webbed feet for swimming, needs to live in areas with water and is a carnivore. Compare him to desert tortoise. Tortoise has strong thick legs and toe nails for digging, lives in the dry desert and is an herbivore. Similar but different, both turtle and tortoise are endangered species. What has happened to their habitats?

OPOSSUM – off the main path next to the raccoons

You may not see opossum; he is nocturnal. Refer to the picture on his sign and look for a sleeping ball of black, grey and white fur. Opossum is the only North American marsupial; the female has a type of pouch. The very immature babies must "crawl" from the birth opening into the pouch and attach to a teat to have a chance at surviving. Opossum has a high reproductive rate (about a dozen babies are raised) this helps compensate for his short life expectancy (2-3 years). At 2 months of age, young opossum resembles a small rat, but is big enough to live on his own.

CHAPARRAL COMMUNITY

This is a drought tolerant community of shrubs. Shrubs grow an average of 3' – 6' in height and width. The shrubs have thick leathery leaves to help prevent evaporation. Sugar bush and toyon (back right), manzanita, red bud and scrub oak (left) and bush lupine, sage and buckwheat (across front) are typical species. Also called an Elfin Forest, this is a dense community deficient of trees and herbs. Most of the species are evergreen plants that keep their leaves throughout the year but drop old leaves as the new growth occurs. The fallen leaves are still important to the plants. Leaf "litter" provides a moisture barrier to help the ground retain moisture after it rains and prevents weed seeds from taking root close to the established plant. Then, the leaves slowly decompose to recycle nutrients back to the soil to be re-absorbed by the plant's roots.

You are now on your way back to where you started!

Stop by the patio area to see the:

BUTTERFLY AND HUMMINGBIRD GARDEN

This area is a native flower and perennial garden (not an enclosed exhibit) that is designed to attract butterflies and hummingbirds. Water is a necessary element for wildlife; the running brook adds a natural sound for a relaxing atmosphere. This garden is also an example of how you can incorporate native plants into your home landscaping and provide habitat for butterflies and hummingbirds. The placement of the plants is determined by their water and sun requirements. California native plants species survive from the dry hot desert to the highest snow covered mountains. A plant's natural growing conditions must be considered when planting into other areas.

OAK TREES (around Family Events Area)

There are 19 species of oak in California; valley oak is a well-known oak tree that was abundant in the hills around the valley. The balls on the oak trees are galls (not apples or acorns). Galls house insect larva. The shape of the gall is dependant upon the insect that laid the egg on the oak tree. Oaks share 4 characteristics: produce acorns, wind-pollinated flowers, a strong and complex wood, and are long lived. They provide food and shelter for many animals plus food, materials, tools, and fuel for people.

If time allows (another 30 minutes or so), take a walk on the Birder's Trail (across the bridge by the Bakersfield Cactus) and count the number of bird species you observe. What activities are the birds doing? Feeding? Escaping a predator or other disturbance? Preening? Territory or courting displays? Nesting?

And/ or, visit the DiGiorgio Education Center -additional information below.

If you need to leave now, we hope you gained some knowledge about native plants and wildlife while having a good time! *Thank you for visiting CALM and please come again.*

If going to the Gift Store, you need to supervise your students in groups of 10 at a time. Children in the bathrooms and on the play equipment need to be supervised as well.

EDUCATION CENTER

This former DiGiorgio guesthouse stood near the Arvin area. It now houses our gift store, administrative offices and indoor exhibits.

The Lindsey Auditorium houses rotating and traveling exhibits. The current displays feature information about rodents and a display about insects and spiders -a FEW of California's smaller wildlife species!

Our geology exhibit, in the Shell Oil Companies Foundation Room, shows a cross-section of California and the "rocks" that make it up, a mineral cave, plate tectonic maps and an earthquakes & faults map of California.

As you look at the map, notice the San Andreas Fault. This is where the North American and Pacific Plate collide. This process of subduction is explained on the other side of the panel. The west side of California has been built by this action over the course of MANY millions of years.

The paleontology exhibits include murals and fossils that show the variety of animals that lived here 20,000,000 years ago. The majority of our collection is from the Sharktooth Hill bonebed layer. The marine mural, in the Johnny Boyd Room, shows some of the animals in an ancient ocean scene. Fossils from the prehistoric animals shown in the terrestrial mural, although more rare, are found in the same geologic layer.

Match the silhouette to identify and read about each animal. Look at the map. It represents this area during the Miocene; note where Bakersfield is: in the ocean! The bay area, which is now part of the San Joaquin Valley, was a warm and sheltered area for sea lions, dolphins and whales to give birth. Sea turtles laid their eggs on the shore. All this young life provided an all-you-can-eat buffet for the sharks. *Carcharolese megalodon*, one of many shark species, was larger than a school bus!

The terrestrial animal fossils are in the cases in this room. Can you match the fossils to the animals in the mural? The marine fossils are located in the room to your right. The Pleistocene was 15,000 years ago.

You can work like a paleontologist as you uncover and discover what is buried in a simulated dig site.

The Soroptimist Club of Bakersfield Room is a place for discoveries. Take some time to examine items in a Discovery Box and look through "raptor eyes" to search for prey.

You have seen the zoo, the gardens, and the education exhibits. We hope you have added to your knowledge of native California wildlife and will share that knowledge with others.

We would like to receive and post letters telling us about what you learned while visiting CALM's zoo and garden today.

If you have any questions, please call 661- 872-2256.

Thank you for visiting CALM and please come again.

