

GPS Expedition-
LEVEL THREE

IRVINE REGIONAL PARK & SANTIAGO OAKS REGIONAL PARK ORANGE

This is a 2 park Quest. Both parks are relatively close to each other. You can even hike from one park to the other if you want to get a bigger hike in.

IRVINE REGIONAL PARK PORTION:

Notes:

- This trail is accessible by parking in Lot N. When you enter the park, make an immediate right and keep going till it starts to loop around the park again. There on your left, you will find lot N.
- Bring a sketchbook with you.
- The trail you are going on is called "Puma Ridge Trail". This is an uphill hike. Take your time and enjoy your climb. The best time of day is early morning or right before sunset. The hike starts after across lot N on the South Side of the park. Go up the fire road until you see a crossroads with a sign that says "Horseshoe loop" The trail you want is the one that goes uphill from right there.



Irvine Regional Park Address: 1 Irvine Park Rd, Orange, CA 92869

Level 3 QUEST FOCUS:

- Compare/ Contrast Ecosystems
- Insect Habitat Study
- Study Ravens and Crows
- Study Turkey Vultures
- Practice Plant ID Skills
- Geology Intro
- Ethnobotany (plant uses)
- Herpetology (The study of Reptiles and Amphibians)
- Bird Sound Recognition
- Art from Nature

1. Take a picture of yourself next to the trailhead sign holding this sheet of paper. You will need to upload this picture as part of the submission process to proceed to the next level. If you tag us on a Facebook or Instagram story with a small caption about one thing you learned while on your quest, it is worth 3 extra energy points. You must tag @artandwilderness_institute and hashtag #gpsadventures to earn your 3 energy points. You will upload this picture later.

2. Take a Picture of a Raven in flight. Look for a "Wedge Shaped Tail." Do not confuse it with a crow that has a "C" Shaped tail. As you hike up this hill, you will notice either a lot of Ravens or a lot of Crows. You will upload this picture later.

American crow <i>Corvus brachyrhynchos</i>		Common raven <i>Corvus corax</i>	
17 to 20 inches	Length	24 to 27 inches	
32 to 40 inches	Wingspan	46 to 54 inches	
About 20 ounces	Weight	About 40 ounces	
8 years	Lifespan	30 years	
High-pitched "caw-caw"	Vocalization	Deep, croaking voice	
Fan-shaped	Tail	Wedge-shaped	
			
Local populations soaring			

3. Look for evidence of GOPHER activity along your journey today.

Gophers dig up the ground. They are amazing because they take nutrients from deep in the ground and till the soil to bring it up to the surface. Gophers are the farmers that till the soil to prepare it for Seeds. Take a picture of Gopher Evidence. You will upload this picture.

4. GPS: PLANT ID SKILLS

Along your hike, MATCH THE GPS COORDINATE TO THE PLANT/location: Match the correct plant to the GPS Coordinate

GPS COORDINATE

PLANTS

4a) 33.792197, -117.746089

Laurel Sumac

4b) 33.791518, -117.747274

Coast Live Oak

4c) 33.790869, -117.748313

White Sage

4d) 33.791182, -117.749990

Castor Bean

(On your left hand side with reddish stems)

AFTER YOU GPS THE LAST ONE ON THIS PAGE, Complete any other activities but you are done looking for COORDINATES for a while. ENJOY YOUR HIKE BACK DOWN AND DON'T WORRY ABOUT doing any GPS. Your last location is right by the parking lot.

5. TRAINING YOUR EYE TO SEE COLOR.

KEEP WALKING PAST THE LAST GPS POINT AND HEAD DIRECTLY NORTH WEST UNTIL YOU ARE ABLE TO GET A CLEAR VIEW OF THE DAM AND THE POND BELOW.

While at the top of the hill, scan the valley below. Notice the different shades of green. See if you can spot the very first tree you identified in this hunt. Describe the different shades of green that you see down at the very bottom where you started your hike. You started your hike in a RIPARIAN ecosystem. That means it is an ecosystem located near water. As you can see, you are on top of a hill where there is not a lot of water and therefore it looks much drier than down below.

People who hike a lot are able to look at trees or plants from very far away and identify them based on their overall shape and the shade of green they have. If you look Northwest, you will notice a DAM. Leading up to the DAM is a different shade of green. That shade of green is Cottonwood. It loves water.

5a. What shade of green is closer to the DAM? _____

5b. Overall as you scan the whole valley from right to left, Do you notice more dark olive green or more apple green? _____

5c. What shade of green do you see closest to the pond? _____

5d. Look at your plant guide. The majority of the larger trees down at the bottom are either Sycamore or Oak trees. Which tree do you think is the majority? Why or Why not?

6. FIND IT: Capture a picture of a burned Laurel Sumac tree. You will upload this picture later.

INSECTS...

Insects have a Head, a Thorax, and an Abdomen.

7. FIND IT: Insects, Timing and Weather Correlation. Look up at where you are. You are in a different ecosystem called a grassland. Grassland ecosystems are really important for many types of insects. We are losing our insect population here on earth. Take a walk around and see if you can find an insect. Because grasslands are important habitats for insects, birds are frequently attracted to them. Sit in one spot for 15 minutes and see what birds come by. It is important as you do this to know that if you see a lot or you don't see any at all, there is a reason for it. Sit Quietly. Observe. Reflect. It takes about 15 minutes for you to settle in to a new place before your eyes start catching things.

7a. How many insects were you able to spot up on the top? _____

7b. What season are you in right now? _____

7c. What do a lot of insects eat? _____

7d. What type of birds did you see the most of up in the grassland? _____

7e. DRAW A Picture of an insect you found and label the body parts. You will upload this picture later on.

8. GPS: After descending back to lot N...

At GPS coordinate 33.7930246, -117.7459754, there is a tree (NON-Native). What is this tree and what is going on in the bark?

A) Ficus Tree

B) Eucalyptus Tree

C) Brazilian Pepper Tree

A. TREE NAME: _____

B. Explain what you notice happening in the bark:

C. Who is responsible for what has happened in the Bark?

A. Bark Beetle
Woodpecker)

B. Pileated Woodpecker

C. Acorn

(The best way to figure out this one is to walk around the grassy part of the park and look for more trees that have the same evidence. Eventually you will find who is responsible for this.)

D. Once you find the creature who did this to the tree, take a picture of it. You will upload it later.

E. AUDIO: Record the sound of this creature and upload it.

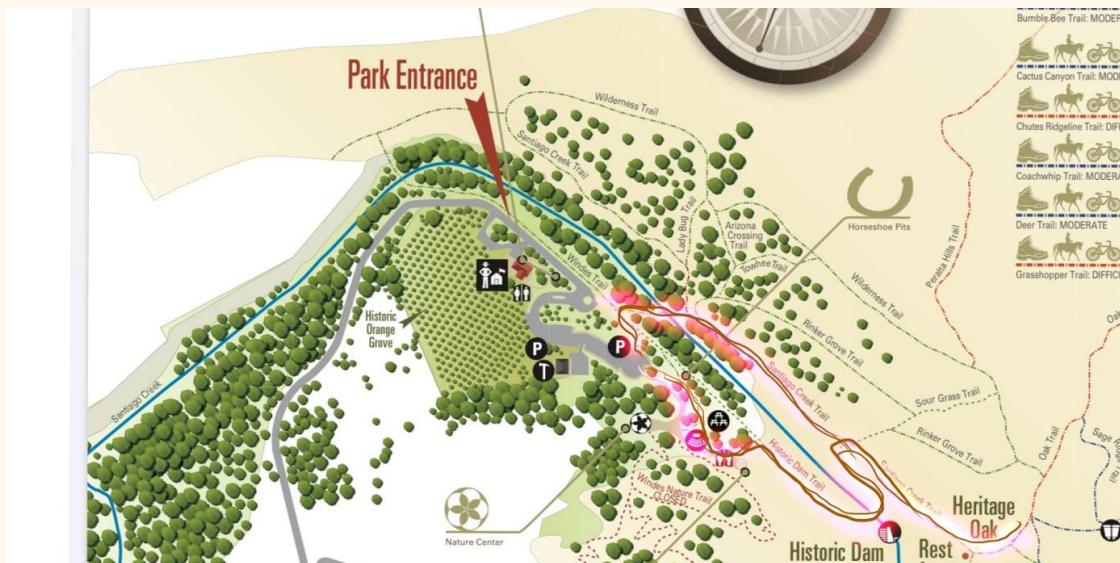
F. Find out where they have made other holes and then look for a tree that is plugged up with the objects that they made the holes for. Take a picture of the object they typically place inside of the hole.

9. TYING IT ALL TOGETHER... You studied insects up top and now you have studied a tree with holes in it. It is time to make a huge Connection. The creature that made the holes in that tree was looking to attract some insects. It is a specialized way that this creature hunts for insects. However, after a very short time, the creature abandoned hope of attracting insects to this tree and left. WHY do other trees work out for this creature but this specific one will never work. WHY? To answer this, you must first know the type of tree and then know what this tree does and then you will understand the whole story.

SANTIAGO OAKS PORTION

Notes:

- There is only one parking lot at Santiago Oaks Regional Park. After you park, head towards the sign that says picnic area.
- This park has A LOT of POISON OAK. Please be sure to watch the video on POISON OAK so you can easily avoid this plant.
- All of your activities will be approximately a 1 mile hike total. This one is a fun and easy one that includes some geology and some hands-on activities.
- The highlighted area is your trail. You will begin by walking towards the sign that says: Picnic area and Playground.



Santiago Oaks Regional Park: 2145 Windes Dr, Orange, CA 92869

10. PLANT ID: While standing in the parking lot at Santiago Oaks Regional Park, there is a "Attention Equestrians Sign". What plant and tree is directly behind this sign?

a. Sagebrush and Sycamore

b. Toyon and Oak

c. Buckwheat and Sycamore

11. ★★★ ENERGY POINT OPPORTUNITY: There is a sign in the parking lot that reads "Bus and Horse Trailer Parking ONLY" with a Laurel Sumac tree behind it. Behind the fence where the sign is there is a rock and under the rock is a hidden laminated Trading Card worth Energy Points. Find it, look at the Plant or Animal on the card and then put it back exactly in the same spot. Please be careful to make sure nobody is looking when you do this. As you

venture out onto the trail, try to find the species that is featured on the card, take a picture and upload it. **THIS IS WORTH 3 ENERGY POINTS.**

12. PLANT ID: Start making your way over towards the sign that says "playground and Picnic Area". On your way there, there is a roundabout. What tree is growing in the middle of that roundabout?

13. PLANT ID: At GPS Point 33.820526, -117.773793 is a plant. This plant is:

a. Lemonade Berry B. Laurel Sumac C. Toyon

14. Flora ID: Make an immediate left towards the picnic tables and head towards the large grove of Oak Trees. Walk past the picnic tables towards the stairs at GPS Point 33.820305, -117.7732.

14A. The low-to-the-ground plant behind the wooden fence is:

a. Lemonade Berry B. Poison Oak C. Sagebrush

14B. From where you are standing, look inside the hole in the bottom of the Oak Tree that is behind the fence. You should see a white round thing growing in there. What is that?

15. FIND IT: PLANT ID- Walk down the stairs towards the trail.

- a. Just as you start descending the old wooden stairs, you will notice a small tree in front of you before you curve to the right to continue going down the stairs. The horseshoe game should be on your left-hand side at this point. What Tree is that? _____
- b. What tree is directly behind the sign that says "Historic Dam"?

16. GPS: GEOLOGY: Make a RIGHT and continue along the tiny stream that at this point should be on your left-hand side. At some point, you will see an interesting Rock Formation on your right-hand side. It looks like Rocks that all got mixed and glued together again. This is at GPS coordinate 33.820104, -117.772778

This type of rock tells us a few things about the area:

- 1- That there is or was Water nearby
- 2- There must be clay in the area
3. There is Sedimentary Rock nearby!

What type of Rock is this?

- A. Metamorphic (formed by heat and pressure)
- B. Sedimentary (formed by pressure)
- C. Igneous (formed by heat)
- D. Conglomerate (A type of Sedimentary formed by fast water, clay and sedimentary rocks)

17. FIND IT: Find and upload a picture of Arroyo WILLOW on this trail. You will upload this picture later.

CONTINUE walking Northeast/Almost Southeast.

18. At the Historic DAM (Pond area)

- a. Find and take a picture of the Cattail that is growing there.
- b. Stand near the Cattails, look across the water. You will see a cave-like structure with the reflection of water beautifully skimming the surface. What type of rock is that structure made out of?

19. Question #19 items are hidden and there is a video you have to watch so you can find it!

Find the items that are buried underneath the rock, which is underneath the wild grape.

- A. Take a picture of the items and put them back in the exact same spot.
- B. What do you think A is?
- C. What do you think B is?
- D. Which could be found in the riverbed where you are standing? A or B ?
- E. Flip over the container. FLIP OVER THE CONTAINER. There is a magnet found on it. What is on the magnet? Look closely.
- F. ENERGY POINTS: THERE IS A SECRET ENERGY POINT MISSION HIDDEN IN question IF YOU FIND IT AND COMPLETE THE MISSION, IT IS WORTH 3 POINTS.

20.  ENERGY POINTS OPPORTUNITY AT

SANTIAGO OAKS: Herpetology Opportunity. Herpetology is the study of Reptiles and Amphibians. Santiago Oaks is known for its snake, turtles, lizards, and frogs!

Here is the Energy POINTS LINE-UP. If you find any of these, take a picture, Figure out what it is (ID it) and upload it later on, (You may only find one of each to turn in), here is what the points are worth:

- Lizard- 1 point
- Turtle- 2 points
- Frog or Toad- 3 points
- Snake- 5 Points

21. FIND IT: Wild Grape grows everywhere around here. Capture a picture of your team standing in front of Wild Grape. You will need to upload it later.

CONTINUE THROUGH THE TUNNEL OF WILD GRAPE. GO UP THE STAIRS.

TURN RIGHT.

22. PLANT ID: You will see some old Milky Oat Tops on your left. Capture a picture. You will upload it later.

MAKE A LEFT AT OAK TRAIL.

23. KEEP GOING FOR A BIT UNTIL YOU GET TO A SMALL CACTUS GROVE ON YOUR RIGHT. Look at the red ground and compare it to the trail you are standing on. Do you see how it looks much redder? That is because you are standing near clay. To activate the clay, you only add a bit of water and mush it up in your hands until it forms a playdough type consistency. It is best to sort the clay out from the rocks and sticks before trying to make something. Please only make something small so we don't take a lot of natural resources from the park. (SAFETY NOTE: Don't grab clay too close to the cactus as there could be needles embedded in it. The entire area has clay, walk around till you find a safer area to get your clay)

GPS LOCATION FOR CLAY: 33.819297, -117.770005

CREATE SOMETHING OUT OF CLAY. TAKE A PICTURE OF YOUR TEAM MAKING SOMETHING AND UPLOAD 2 PICTURES

A.1 OF YOU IN ACTION

B. THE OTHER OF YOUR FINISHED PIECE.

(The higher you climb uphill on the more difficult trails, the richer and redder the clay gets!)

24. LISTEN: As you are making clay in that spot keep your ears open. You need to capture the Sound of the Scrub jay. Scrub Jays love Laurel Sumac and Oak trees. Try looking around those if you cannot find a Scrub Jay near you. Listen for a loud and intrusive sound. This is not the "melodic" songbird type.

YOU ARE DONE finding COORDINATES.

Enjoy your hike back..

Try spotting plants you are familiar with and listen for animal sounds you already know.

Soak it all in.

When you walk back now, say hi to the new plant friends you have made and are now familiar with.

Keep your eyes out for animal tracks and animal scat.

Santiago OAKS has a lot of snakes. Keep your eyes out for snake TRACKS that are freshly made across the trail.

HAVE FUN.

If you want more of an exercise, climb up some of the trails that continue up the ridge. There you will find some rich clay. You will also find some turkey vultures and a great view of the DAM, (You saw the other side of this DAM at Irvine park, remember?)

Yep. You are thinking “Wow, after sending us to 2 different sites and making us do all that, she thinks we want to hike up a hill too?!”