

# EarthCaching

## Elephant Rocks



## Elephant Rocks State Park (Missouri) Virtual Trip

### Objectives

1. Explain how the observed shapes, textures, and patterns of rock indicate the age of the earth and the large scale of geologic time.
2. Describe the composition of igneous rocks, how they form, and why they look the way they do.
3. Compare and contrast the different types of weathering and distinguish between weathering and erosion.

### Background About the Field Site

Read the Missouri Department of Natural Resource Elephant Rocks Fact Sheet (linked at [siuestemcenter.org/earthcaching](http://siuestemcenter.org/earthcaching)). Answer the following questions.

**Question A: What type of rock is the Elephant Rocks made of and how does this type of rock form?**

**Question B: What is the age of the rocks?**

**Question C: What are the major minerals in the Elephant Rocks?**

**Question D: What gives the rocks a pink-red color?**

**Question E: What external forces have made the rocks rounded in shape?**

## Virtual Field Trip

**Step 1.** Go to **Google Earth** at [earth.google.com/web](http://earth.google.com/web)

**Step 2.** Choose **Projects** on the left side  and choose "New Project" from the top.

**Step 3.** From the New Projects options, choose "Import KLM from computer" and import the KMZ file from [siuystemcenter.org/earthcaching](http://siuystemcenter.org/earthcaching)

**Step 4. Let's explore the park.** Zoom further into the satellite image ("+" in lower right corner) until you can see the bare rocks filling most of the screen.

**Question F.** What observations can you make about the rock from this aerial "bird's eye" view?

**Question G.** What is the geologic term for the linear "cuts" into the rocks?

**Question H:** What clues from the image can you use to get a sense of the size of the large, rounded rocks?

**Elephant Rocks State Park Point A:** 37.65472222° N, 90.68866667° W

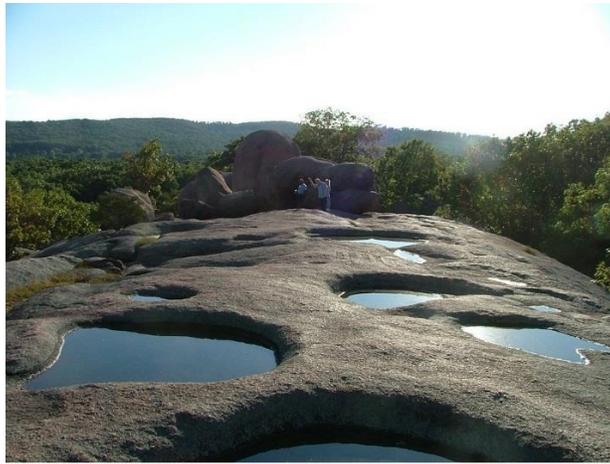
**Step 5.** Select the "Street View" figure on the bottom right of the screen.  When you do this, small blue circles will appear on the map showing panorama photo "bubbles." Click one near **Point A** and your view will "zoom" so that you can pan around in.

**Step 6.** Watch this **Fly Over** video to get an aerial view of the site:

<https://www.youtube.com/watch?v=xAv-uUs6A90>

**Step 7.** Go to the Elephant Rocks State Park's official web site (<https://mostateparks.com/park/elephant-rocks-state-park>) where you can read the nature history of the park, look at the photo gallery and watch a virtual tour of the park.

**Question J:** What kinds of weathering and erosion cause the formation of the water pools?



Water\_pools.jpg (photo credit: Dr. Shunfu Hu)

**Elephant Rocks State Park Point B:  $37.65444722^{\circ}$  N,  $90.68849444^{\circ}$  W**

**Step 8.** Repeat the directions from Step 5 above but this time for a blue circle by **Point B**. This will give you a panoramic view of the ground near Point B in a different part of the park.

**Question K:** What kinds of weathering and erosion cause the formation of the rounded boulders?



Rounded\_Rocks.jpg (photo credit: Dr. Shunfu Hu)

**Elephant Rocks State Park Point C:**  $37.65576944^{\circ}$  N,  $90.68874444^{\circ}$  W

**Step 9.** Repeat the directions from Step 5 above but this time for a blue circle by **Point C**. This will give you a panoramic view of the ground near Point C in a different part of the park.

**Question L.** This photo shows an old quarry site due to the excavation of granite rocks. What are the potential uses of the granite rocks?



OLD\_Quarry.jpg (photo credit: Dr. Shunfu Hu)