Phoenix College
Physical Science Department

SUNSET CRATER / WUPATKI FIELD TRIP

I T I N E R A R Y			
START	FINISH	MILES	HOURS
Phoenix College	Flagstaff	143 miles	2hrs 30 mins
• Sunset Point Rest Stop			15 mins
Flagstaff	Sunset Crater Volcano National Monument	22 miles	30 mins
• Gasoline stop			15 mins
• Sunset Crater Visitor Center (Fee required)			30 mins
• Lunch			30 mins
• Bonito Lava Flow overlook			10 mins
• Lava Flow Trail			1 hr
Sunset Crater Volcano National Monument	Wupatki National Monument	19 miles	30 mins
• Painted Desert overlook			15 mins
• Wupatki Visitor Center (Fee required)			30 mins
• Wupatki Pueblo			30 mins
Wupatki National Monument	Phoenix College	185 miles	3 hrs
• Rest Stop just north of Verde Valley			15 mins
	TOTAL:	369 miles	10 hrs 40 mins

T R A V E L D I R E C T I O N S		
FROM	TO	DIRECTIONS
Phoenix College	Flagstaff	Head west on Thomas Road
		Merge onto I-17 N
		Travel north on I-17
		Take Exit 252 for Sunset Point Rest Area **(STOP)**
		Continue north on I-17
Flagstaff	Sunset Crater	Take Exit 340A to merge onto I-40 E heading towards Albuquerque, New Mexico.
		Take Exit 201 toward US-89 N/Page
		Turn left onto Country Club Dr
		Take the 2nd right onto US-89 N
		Turn right onto Sunset Crater entrance road (Fire Rd 545/ Loop Rd)
		Continue to Visitor Station **(STOP)**
		Turn right onto Loop Road
		Pull into Bonito Lava Flow overlook **(STOP)**
		Turn right into parking lot for Lava Flow Trail (STOP)
Sunset Crater	Wupatki Visitor Center & Pueblo	Head back to Loop Road, turn right
		Turn left into Painted Desert overlook **(STOP)**
		Turn left onto Loop Road
		Turn left into Wupatki Visitor center **(STOP)**

T R A V E L D I R E C T I O N S		
FROM	TO	DIRECTIONS
Wupatki Visitor Center & Pueblo	Phoenix College	Turn left onto Loop Road
		Head back to US-89
		Turn left onto US-89 S
		Turn left on Country Club Dr
		Turn right onto I-40 W
		Merge onto I-17 S
		Continue south on I-17
		Turn off at Rest Area just north of Verde Valley **(STOP)**
		Continue south on I-17
		Take Thomas Road Exit
		Turn left onto Thomas Road
		Continue east on Thomas Rd to Phoenix College

G E O L O G I C F E A T U R E S		
LOCATION	FEATURE	DESCRIPTION
BASIN & RANGE		Tensional tectonic forces ~ 30 million years ago, created normal faults which resulted in mountain ranges separated by wide valleys.
Milepost 231, I-17	New River terraces	Uplift causing rise in base level causing the river to erode downwards forming terraces.
Milepost 236, I-17	Lake deposits	Light fine-grained layers in road cuts
Milepost 243, I-17, looking north as you pass Table Mesa Road exit	Black Canyon City landslide	Occurred ~late 1970's – early 1980's.
Milepost 245, I-17, looking to the right	Black Canyon City landslide, cross-section view	
CENTRAL HIGHLANDS		Also referred to as the Transition Zone, mountains separated by narrow valleys.
Along highway north of Black Canyon City as you climb highway incline	Mass wasting prevention techniques	Fences, and metal mesh
Milepost 249, I-17	Lava flows	Several lava flows can be seen, reddish coloring in between two lava flows
East of Sunset Point rest stop	Joe Green's Hill	Vent area for the basalt flows that make-up this mesa ("example" of what a shield volcano looks like)
Milepost 259, I-17	Spheroidal weathering	Weathering of granitic rocks
Milepost 262, I-17, left road cut, just south of Cordes Junction	Dike	Igneous intrusion into country rock.
Just north of Cordes Junction	Arcosanti	Started in 1970, Arcosanti is an experimental town being created and designed according to the concept of arcology

G E O L O G I C F E A T U R E S		
LOCATION	FEATURE	DESCRIPTION
		(architecture + ecology), developed by Italian architect Paolo Soleri.
	Black Hills	
Milepost 285, I-17	Verde Valley	Valley caused by uplift of the Black Hills along the Verde Fault to the south and the Colorado Plateau to the north. Blockage of the valley created a lake that deposited layers of sediment that can be seen on the floor of the valley
	Lake sediments	Light fine-grained layers in road cuts
Milepost 292, I-17, left road cut	Sinkhole	Karst topography
COLORADO PLATEAU		This part of Arizona was uplifted 20 million years ago, approximately 3 miles forming the Colorado Plateau. This uplift is what enabled the Colorado River to erode the Grand Canyon.
	Mogollon Rim	Edge of the Colorado Plateau
North side of the Verde Valley / southern edge of Colorado Plateau	Ramp Basalts	Highway 17 travels north from the Verde Valley up the edge of the Colorado Plateau. Unlike the edge of the plateau north of Payson (i.e. Mogollon Rim) this is a gentle rise. The rise was created when basalt flows on the Colorado Plateau flowed over the edge creating a ramp of basalt.
North of Flagstaff	San Francisco Peaks	Composite volcano (alternating layers of pyroclastic materials and lava flows) that erupted ~ 1 million years ago. A collapse of the volcano into the magma chamber below or an eruption that went laterally eliminated over 3,000 feet of the original volcano creating the San Francisco Peaks.
	Mount Elden	Dome (very viscous granitic lava with no gas) that erupted 550,000 years ago
	Sugarloaf Mountain	Dome (very viscous granitic lava with no gas) that erupted 212,000 years ago that is surrounded by a tuff ring cause by phreatic explosion (magma coming into contact with groundwater)
NE of Flagstaff	Sunset Crater	Cinder Cone (basaltic lava with gas) that last erupted sometime between 1040 and 1100 A.D.
	Bonito lava flow	Lava flow (aa lava flow) that erupted from based of Sunset Crater in 1180 A.D.
	O'Leary Peak	Dome (very viscous granitic lava with no gas) that erupted ~230,000 years ago.
	Painted Desert	Composed of the Chinle Formation (200 – 251 million years old) which are siltstones and mudstone which also contain volcanic ash.
	Monument Valley	Erosion of flat laying sedimentary rocks creating plateaus, mesa, buttes and spires
	Wupatki Pueblo	Wupatki was first inhabited around 500 AD. Wupatki, which means "Tall House" in the Hopi language, is a multistory Sinagua pueblo dwelling having more than 100 rooms. Secondary structures, including two large, apparently

G E O L O G I C F E A T U R E S		
LOCATION	FEATURE	DESCRIPTION
		uncovered kivalike structures, stand nearby. A major population influx began soon after the eruption of Sunset Crater in the 11th century (between 1040–1100), which blanketed the area with volcanic ash; this improved agricultural productivity and the soil's ability to retain water. By 1182, about 85 to 100 people lived at Wupatki Pueblo and by 1225, the site was permanently abandoned.