

Animal and Botanical Marvels– Teacher Resources

Summary: This program focuses on the wildlife and plants of the Preserve, including rare and endangered species. Students will learn about the importance of plant communities, habitats, conservation, and biodiversity on a guided hike to Westcave’s Grotto. Students will also discover the four basic requirements a habitat must provide for an animal (food, water, cover, and a place to raise their young) by playing an interactive game. On the guided hike, students will stop in two different habitats (Live Oak -Ashe Juniper Savanna and the Riparian Woodland), to conduct a 5-minute biological survey of both the flora and fauna to compare the biodiversity at Westcave Preserve.

Age Range Recommended: 4th Grade and Up

Program Length: 3 hours

Learning Objectives: (work in progress)

- Learn about the 4 basic requirements an animal needs to survive in a habitat (food, water, cover, and a place to raise their young).
- Learn how to conduct an environmental survey and increase identification skills by noticing different leaf shapes (introduction to plant species identification) and animal evidence.
- Analyze data collected at Westcave back on campus by drawing a bar chart and comparing the # of leaf shapes observed and number of animal evidence signs in Westcave’s two habitats (Riparian Woodland (RW) and Live Oak Ashe Juniper Savanna(S)).
- Learn how environmental conditions such as weather, climate, and seasons can affect local flora and fauna in the area overall and from day to day.
- Observe Westcave’s lush plant life and understand the importance of water on different habitats and ecological diversity (Canyon and Savanna).
- Gain a better understanding of the interaction of water and geology on plant and animal communities. (Canyon Tour).
- Experience the sounds of nature without urban background noises (Canyon Tour)
- Understand the importance of conservation at Westcave and their own communities, especially water conservation (Canyon Tour).
- Gain an awareness of the historical use of Westcave Preserve and the surrounding area by people (Canyon Tour).



Animal and Botanical Marvels Key Terms:

Preserve	Nests	Endangered Species
Conservation	Observation	Invasive Species
Habitat	Hypothesis	Aquifer
Animal Evidence	Riparian Woodland	Symbiosis
Tracks	Ashe Juniper / Live	
Burrow	Oak Savannah	
Scat	Camouflage	
Galls	Diversity	
Fossil	Native Species	

Preserve: An area of land managed to protect its flora, fauna, natural resources, and landscape.

Conservation: The protection and management of earth's biodiversity, including our cultural resources, species, their habitats, and ecosystems.

Habitat: A place where a plant or animal can find the three necessary items for survival: food, water, and shelter (space).

Animal Evidence: A clue or sign that an animal has been in the area.

Tracks: Footprints or other marks left by an animal, person, or vehicle.

Burrow: A hole or tunnel in the ground made by an animal. The animal uses it as a place to live and hide.

Scat: The scientific name for an animal poop.

Galls: A large round growth found on trees that serve as a home to the larva of a tiny wasp. The wasp previously stung the tree to insert its larva.

Fossil: Any evidence of past life preserved in a petrified form.

Nests: A resting place to raise young, typically made by birds to raise their chicks.

Observation: The action of watching or monitoring one's surroundings to gain information for scientific purposes.

Hypothesis: A possible explanation of an observation, phenomenon, or problem that can be tested by further investigation.

Ashe Juniper / Live Oak Savannah: The first habitat we walked through at Westcave Preserve that was a grassland with two main trees.

Riparian Woodland: The second type of habitat inside the canyon with a higher diversity of plants, cooler temperatures, and higher moisture content.

Camouflage: Markings or a disguise that helps an animal hide from others.

Diversity: A measure of the amount of variety in the types of plants and animals present in a given area.

Native Species: An organism that has adaptations for and is naturally found in a particular area.

Endangered Species: An organism that is very rare and in danger of becoming extinct.

Invasive Species: A living organism that is not native to an ecosystem, causing harm to the environment and its inhabitants.

Aquifer: An underground layer of permeable, porous, or fractured rock that holds and moves water.

Symbiosis: An interaction between two different organisms who live in a close physical association with one another.

Animal & Botanical Marvels

Word Search

T M P W R D G L L I V E O A K M M Z N R
Y J G Y R P W Z S Y M B I O S I S E P W
Z S C A T L T Z Q Y B M E P X D C R Y D
S E I C E P S D E R E G N A D N E R M R
R I N C W I N L J L A X N N E S R W I L
P C J R O R C W N L Q M N D E E R P Y T
O E R L Y N T E F Y J N I R P T A C S D
B P V V N R S U P J W V V I P R J B Y Q
S S Y R T R O E D S E E N J I G G L T W
E E S K D M Y L R L E U M A D M M A Q G
R V D I A J Q R A V J V N L V R T N A L
V I I C S Q R M Z E A W I H I I J L M Q
A T V R J E I B H V O T A S B S L M B J
T A E E B N H S D O D N I A A S Q U N L
I N R F A X A T D N N Y H O T V R O X Q
O T S I J B D L O A E Y R N N R N B F L
N D I U N Q A T V P X S R R O T A I T M
Z N T Q N N K A Z J Y M T W G D T C V D
Q B Y A D L S Y N L W H L S T M J G K Y
T N Y Y Q B T B M J Y D G T X K D L L S

Word Bank

Animal Evidence
Aquifer
Ashe Juniper
Burrow
Camouflage
Conservation
Diversity
Endangered Species

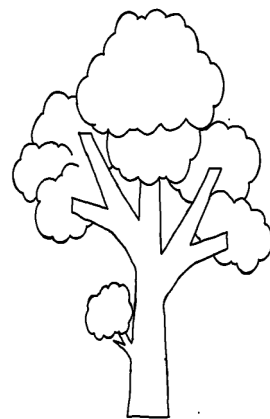
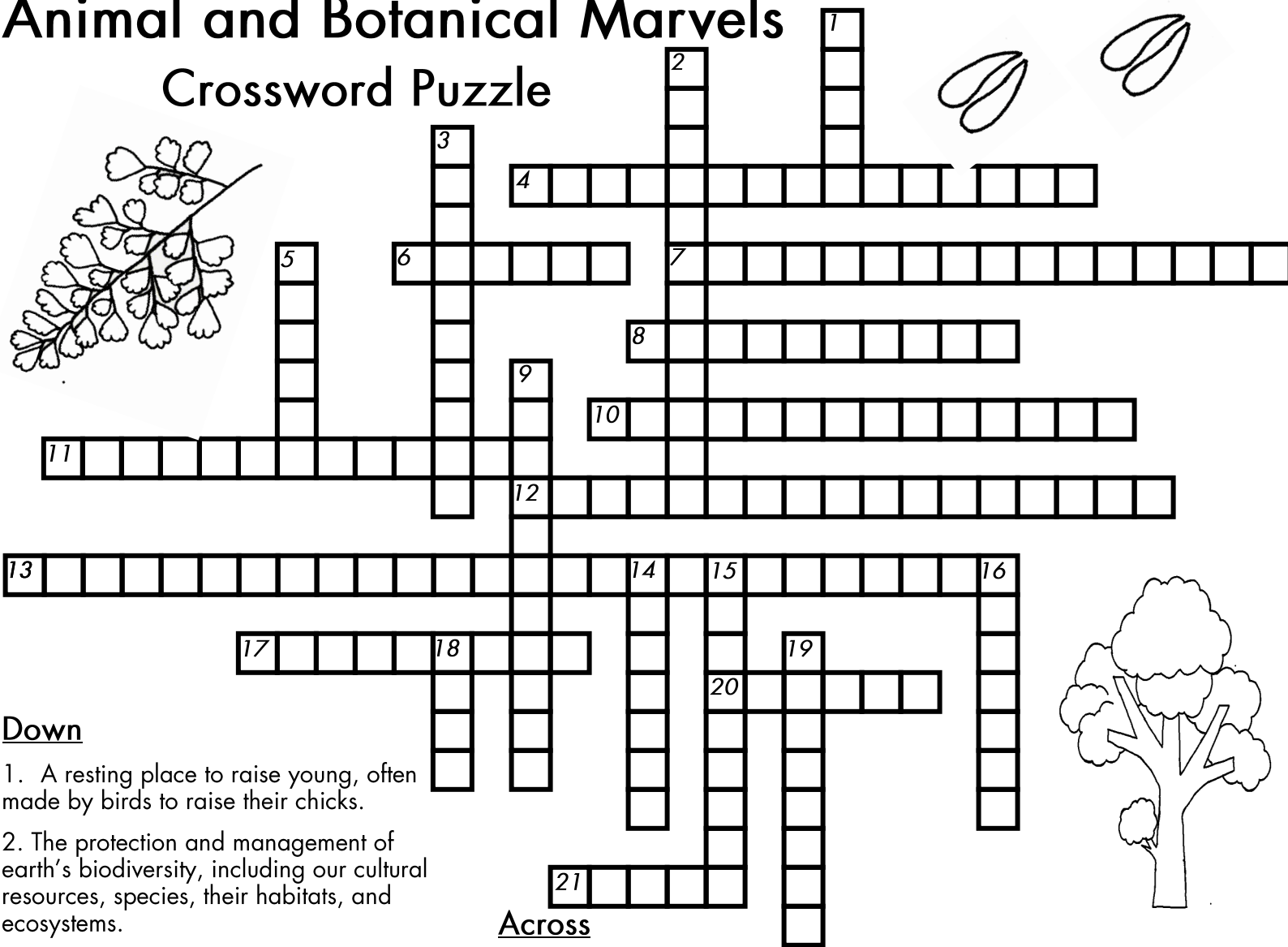
Fossil
Galls
Habitat
Hypothesis
Invasive Species
Live Oak
Native Species
Nests

Observation
Preserve
Riparian Woodland
Savannah
Scat
Symbiosis
Tracks



Animal and Botanical Marvels

Crossword Puzzle



Down

1. A resting place to raise young, often made by birds to raise their chicks.
2. The protection and management of earth's biodiversity, including our cultural resources, species, their habitats, and ecosystems.
3. A possible explanation of an observation, phenomenon, or problem that can be tested by further investigation.
5. Footprints or other marks left by an animal, person, or vehicle.
9. The action of watching or monitoring one's surroundings to gain information for scientific purposes.
14. An underground layer of permeable, porous, or fractured rock that holds and moves water.
15. An interaction between two different organisms who live in a close physical association with one another.
16. A place where a plant or animal can find the three necessary items for survival: food, water, and shelter (space).
18. The scientific name for an animal poop.
19. An area of land managed to protect its flora, fauna, natural resources, and landscape.

Across

4. A living organism that is not native to an ecosystem, causing harm to the environment and its inhabitants.
6. Any evidence of past life preserved in a petrified form.
7. The second type of habitat inside the canyon with a higher diversity of plants, cooler temperatures, and higher moisture content.
8. Markings or a disguise that helps an animal hide from others.
10. A clue or sign that an animal has been in the area.
11. An organism that has adaptations for and is naturally found in a particular area.
12. An organism that is very rare and in danger of becoming extinct.
13. The first habitat we walked through at Westcave Preserve that was a grassland with two main trees.
17. A measure of the amount of variety in the types of plants and animals present in a given area.
20. A hole or tunnel in the ground made by an animal. The animal uses it as a place to live and hide.
21. A large round growth found on trees that serve as a home to the larva of a tiny wasp. The wasp previously stung the tree to insert its larva.

Animal & Botanical Marvels

Word Search Answer Key

T	M	P	W	R	D	G	L	L	I	V	E	O	A	K	M	M	Z	N	R
Y	J	G	Y	R	P	W	Z	S	Y	M	B	I	O	S	I	S	E	P	W
Z	S	C	A	T	L	T	Z	Q	Y	B	M	E	P	X	D	C	R	Y	D
S	E	I	C	E	P	S	D	E	R	E	G	N	A	D	N	E	R	M	R
R	I	N	C	W	I	N	L	J	L	A	X	N	N	E	S	R	W	I	L
P	C	J	R	O	R	C	W	N	L	Q	M	N	D	E	E	R	P	Y	T
O	E	R	L	Y	N	T	E	F	Y	J	N	I	R	P	T	A	C	S	D
B	P	V	V	N	R	S	U	P	J	W	V	V	I	P	R	J	B	Y	Q
S	S	Y	R	T	R	O	E	D	S	E	E	N	J	I	G	G	L	T	W
E	E	S	K	D	M	Y	L	R	L	E	U	M	A	D	M	M	A	Q	G
R	V	D	I	A	J	Q	R	A	V	J	V	N	L	V	R	T	N	A	L
V	I	I	C	S	Q	R	M	Z	E	A	W	I	H	I	I	J	L	M	Q
A	T	V	R	J	E	I	B	H	V	O	T	A	S	B	S	L	M	B	J
T	A	E	E	B	N	H	S	D	O	D	N	I	A	A	S	Q	U	N	L
I	N	R	F	A	X	A	T	D	N	N	Y	H	O	T	V	R	O	X	Q
O	T	S	I	J	B	D	L	O	A	E	Y	R	N	N	R	N	B	F	L
N	D	I	U	N	Q	A	T	V	P	X	S	R	R	O	T	A	I	T	M
Z	N	T	Q	N	N	K	A	Z	J	Y	M	T	W	G	D	T	C	V	D
Q	B	Y	A	D	L	S	Y	N	L	W	H	L	S	T	M	J	G	K	Y
T	N	Y	Y	Q	B	T	B	M	J	Y	D	G	T	X	K	D	L	L	S

Word Bank

Animal Evidence
 Aquifer
 Ashe Juniper
 Burrow
 Camouflage
 Conservation
 Diversity
 Endangered Species

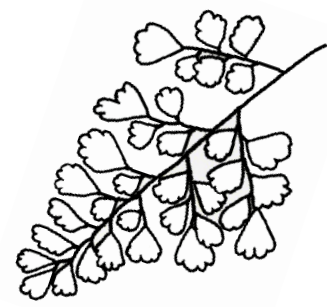
Fossil
 Galls
 Habitat
 Hypothesis
 Invasive Species
 Live Oak
 Native Species
 Nests

Observation
 Preserve
 Riparian Woodland
 Savannah
 Scat
 Symbiosis
 Tracks



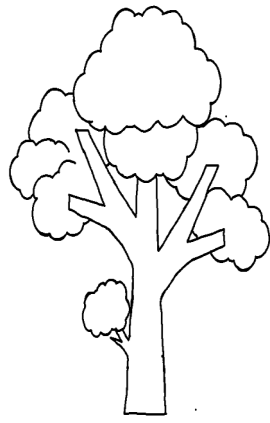
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ANSWER KEY



A crossword puzzle grid with the following words filled in:

- Across:**
 - 4: INVASIVE SPECIES
 - 6: FOSSIL
 - 7: RIPARIAN WOODLAND
 - 8: CAMOUFLAGE
 - 10: ANIMAL EVIDENCE
 - 12: ENDANGERED SPECIES
 - 14: ASHE JUNIPER LIVE OAK
 - 15: SAVANNAH
 - 17: DIVERSITY
 - 20: BURROW
 - 21: GALLS
- Down:**
 - 3: HYPACK
 - 5: TRACK
 - 9: OBSERVE
 - 11: HABITAT
 - 13: CANYON
 - 16: QUARRY
 - 18: SIGN
 - 19: NEST



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