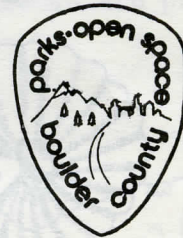


**SUMMER  
1986**



# Nature Detectives

"Who's been here?" "What were they doing and why were they doing it?" "When did it happen?" Nature Detectives try to answer questions like these by looking for clues and evidence of the activities of creatures in the outdoors.

Have you ever wondered about teeth marks on the trunk of a tree, or strange footprints in the snow or mud? If you have, then you are already a nature detective.

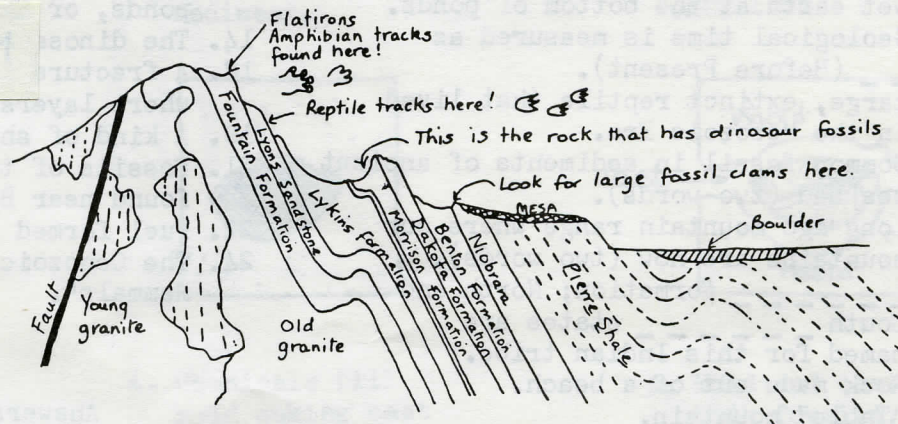
## THEME:



## Fossils

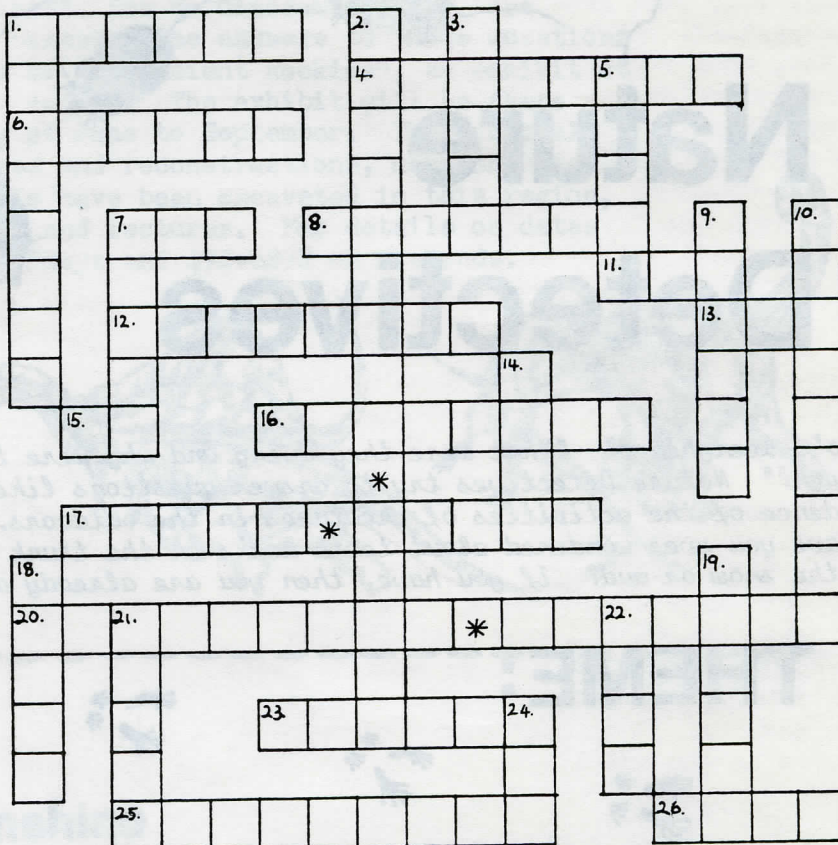
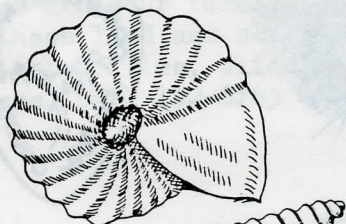
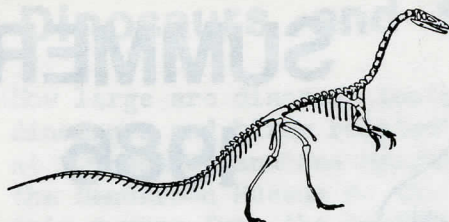
The rocks around Boulder County are stacked up against each other like a giant sideways sandwich. Different layers of rock tell stories about different times in our geological past. The mountains were not always the shape they are now. They have been lifted up and eroded away and lifted up again. The plains were once covered by a huge, shallow sea. Animals that lived here in those long ago times left their stories, too. Some left tracks in the beach sand which became preserved as fossil tracks across sandstone. Others died and sank to the bottom of the shallow sea. Their bodies became preserved as fossils that showed every detail of body form. Teeth and bones of other animals give clues in fossils of what the animals may have looked like. Even the climate has changed many times over the millions of years. Deserts have given way to swamps with large fern-like trees growing in a humid atmosphere. Later, the forests died again becoming layers of coal, as desert conditions returned. These are some of the stories the rocks can tell!

Boulder Valley  
rock sandwich!





# Petrified Puzzle



## ACROSS

1. Impression of animal or plant preserved in rock.
4. Geological formation, named for town west of Denver, with dinosaur fossils.
6. A force that creates mountain ranges.
8. Chemical found in the rocks.
11. A long span of geological time.
12. Fossil of extinct shellfish.
13. Wet earth at the bottom of ponds.
15. Geological time is measured as \_\_\_\_ (Before Present).
16. Large, extinct reptile that lived in the Mesozoic Era.
17. Common fossil in sediments of ancient sea bed (two words).
20. Long ago mountain range where our mountains are now (two words).
23. \_\_\_\_ formation; North and South \_\_\_\_ states are named for this Indian tribe.
25. Rock made out of a beach.
26. "Table" mountain.

## DOWN

1. \_\_\_\_ formation; the rock of the Flatirons.
2. Made by an ancient frog or salamander (two words)?
3. Wear away.
5. LEASH (anagram); a flaky rock.
7. Like a marsh.
9. The Cenozoic is the Age of \_\_\_\_ S.
10. Bits sinking to the bottom of lakes, ponds, or the sea.
14. The dinosaurs lived in the \_\_\_\_.
18. A fracture in the earth's crust where layers of rock are displaced.
19. A kind of shale.
21. Fossils of this large shellfish are found near Boulder.
22. Fuel formed from ancient forests.
24. The Cenozoic Era is the " \_\_\_\_ of Mammals".

Answers on last page



# Let's Go to the Beach!

It's a hot summer day in Boulder, and you wish you could go to the beach to cool off. Well. . ., just grab your surfboard, close your eyes, and take an imaginary trip into the past—to about 70 million years ago.

Now, open your eyes. Surprised? You're right! It's an ocean and a beach, right here in Boulder. Instead of mountains to the west it's all flat. You can see a dinosaur over there, and here are his tracks in the soft sand (his tracks are preserved in the Dakota Hogback west of Memorial Hospital).

Surf's up—time to head for the waves.

But watch out for the sharks and rays (their teeth and bones are preserved in the Benton shale behind NCAR). If you look in the tidepools, you'll find snails and crabs crawling around. Over there, in the marshes are some oyster beds. Did you see the giant clams on the sea bed? Some are more than a foot across! Look—there's a huge pterosaur (TEAR-uh-soar) flying way out over the ocean, diving for fish.

Now it's time to dry off, sit under a palm and have a cool drink. It's really hot and humid here, more like Florida than Colorado. Ready to go back to 1986? Don't worry, on those hot summer days, you can just close your eyes and pretend you're at the beach.



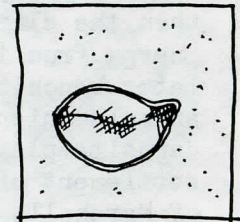
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## Shell to Stone

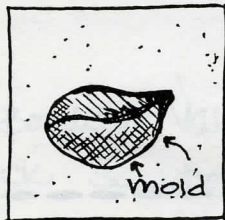
Fossils are evidence of organisms which lived long ago. Shell, bone, teeth, and wood may become fossils when quickly covered by sediments such as sand, mud, and ash. Soft parts of animals and plants are preserved less often. Tracks and burrows also give clues about past life. The pictures show one way a shell may become a fossil.



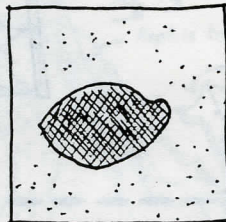
1. Animal dies; shell quickly buried by sediment.



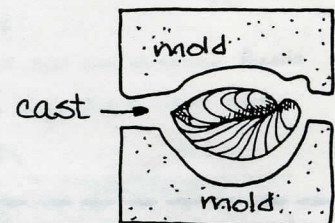
2. Pressure turns sand to stone; shell unfilled.



3. Shell dissolves leaving mold in sandstone.



4. Chemicals fill mold making cast of shell.

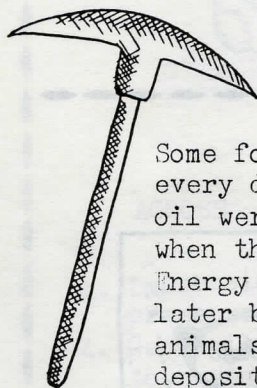
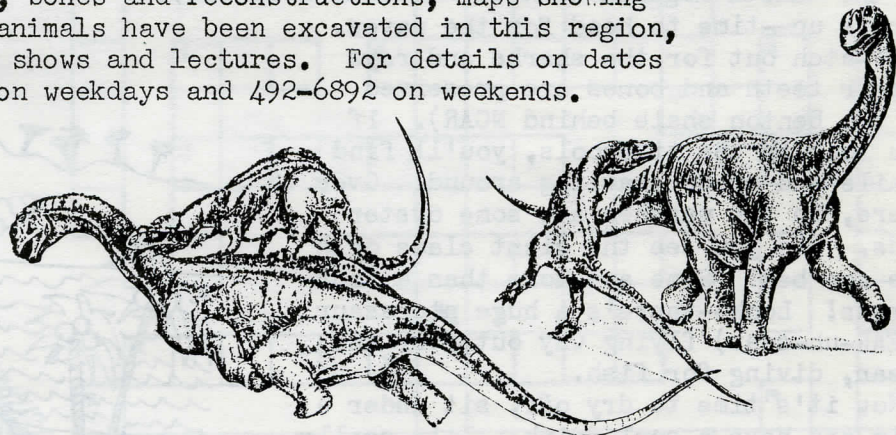


5. Mold and cast are both fossils.



## Dinosaurs and Sea Monsters

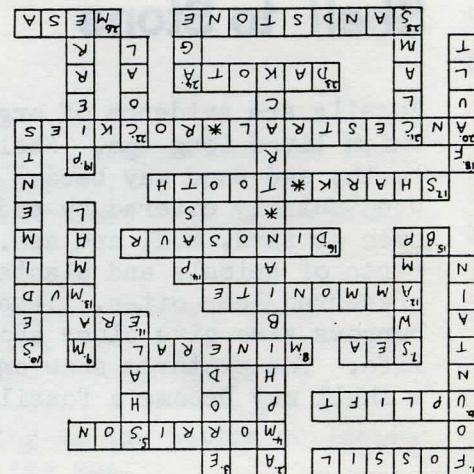
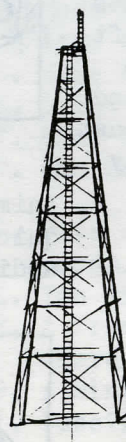
How large are dinosaur footprints? How do dinosaurs move? Are dinosaurs and birds related? Discover the answers to these questions at "Dinosaurs and Sea Monsters of the Ancient Rockies", an exhibit at the Henderson Museum on the CU campus. The exhibit will be there this summer from the beginning of June to September. There are all kinds of dinosaur fossils, bones and reconstructions, maps showing where these land and sea animals have been excavated in this region, and animated films, slide shows and lectures. For details on dates and hours, call 492-6165 on weekdays and 492-6892 on weekends.



## Fossil Sunshine

Some fossils are important to our lives every day. Fossil fuels such as coal and oil were formed millions of years ago when the climate was very different. Energy from the sun was stored in lush plants later becoming coal and in one-celled animals which became oil. Coal and oil deposits played an important part in the settlement of Boulder Valley. The towns of Marshall, Lafayette, Louisville, Erie, and Superior grew with coal mining. Oil could be smelled on the surface near Hygiene and the Gunbarrel hill.

From coal-generated electricity to rocket fuel--a fossil gift from the sun!



## Fossil Hunt!

Nature Detectives look for clues of ancient life in sandstone, shale, and limestone. Meet at Six-Mile Fold north of Boulder on Foothills Highway on Saturday, September 6 from 9:30 to 11:00 AM. See Images for details.

