SI Geology - Full Discipline Demo

Fossils

Final Report - Answer Guide

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Instructor Sales SI Demo

Test Your Knowledge



Classify the following statements into two categories as Fossilization Processes or Common Fossilization Environments.

Foss	ilization Processes	Common Fossilization Environments
		2
	:: Sedimentary rock layer	rs can preserve fossils over time.
# Petri	fication involves the replac	ement of organic material with minerals.
	# Fossilization can occur	in marine and terrestrial settings.
# Foss	ils may form through the a	ccumulation of minerals in bone cavities.
	# Permineralization is a	a form of mineral preservation.
S wamps	and bogs create conditions	s that promote the preservation of organisms
		:
	otions create favorable cor re, and a lack of oxygen.	nditions for fossilization, such as rapid burial,

Correct answers:

1 Petrification involves the replacement of organic material with minerals.

Fossils may form through the accumulation of minerals in bone cavities.

Permineralization is a form of mineral preservation.

2 Sedimentary rock layers can preserve fossils over time.

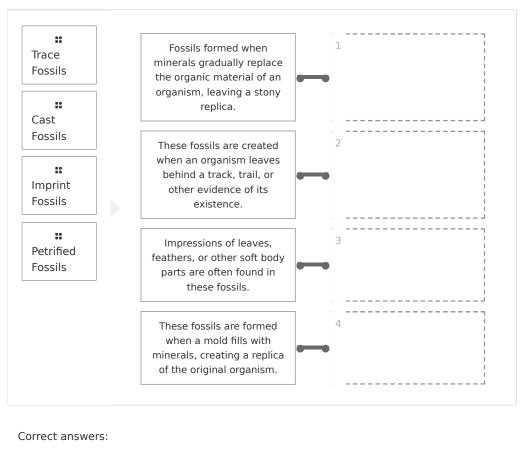
Fossilization can occur in marine and terrestrial settings.

Swamps and bogs create conditions that promote the preservation of organisms.

Volcanic eruptions create favorable conditions for fossilization, such as rapid burial, heat, pressure, and a lack of oxygen.



Match each type of fossil with its corresponding description.



1 Petrified Fossils 2 Trace Fossils 3 Imprint Fossils 4 Cast Fossils

Exploration

Environments with high levels of deposition are less likely to preserve fossils.

True			
False			

	The petrification process of occurs when the hard parts of a are reinforced by precipitated minerals.	n organism
	carbonization	
	replacement	
	 permineralization 	~
	oxidation	
	An external mold of a thin organism is called an imprint.	
	○ True	~
	□ False	
	Which phyla includes starfish and sea urchins?	
	Brachiopoda	
	 Cnidaria 	
	 Echinodermata 	~
	O Porifera	
	TCISE $f 1$ fy which objects are the molds and which are the casts in your exer	cise.
Which	cast provides the most information about the shell? Why?	



How was the formation of your mold and cast different from how molds and casts form in nature?
What type of environment would you expect to best preserve body fossils? Use evidence from this exercise to support your answer.

Data Table 1: Shell Measurements (SAMPLE ANSWER BELOW)

Measurement	Original Shell (cm)	Plaster of Paris Shell Sand (cm)	Plaster of Paris Shell Soil (cm)	Pla
Length	5.5	6.0	3.5	5.0
Width	4.5	5.0	2.0	4.:
Depth	1.5	1.0	0.5	1.0

Data Table 2: Plaster Shell Observations (SAMPLE ANSWER BELOW)

(SAMPLE ANSWE	Sand	Potting Soil	Play-Doh®
Observations	Somewhat retains shape, but hard to obtain precise dimensions. No external features preserved.	Retains shape and somewhat retains dimensions. No external features are preserved.	Retains shape, dimensions, and external features (ridges very clear).

Photo 1: Dried Fossils (SAMPLE ANSWER BELOW)





he oldest fossil? Explain your r	reasoning.
	0 / 10000 Word Limit
fossils are used to date and co c distribution, a short tempora	a that is characteristic of a particular orrelate rock strata. All index fossils al range (i.e., amount of time they ssils could be an index fossil? Why?
	0 / 10000 Word Limit
	0 / 10000 Word Limit
entification	
Identity	
Ammonite	
Crinoid	
Brachiopoda	
Ammonite Crinoid Brachiopoda	about the soft parts of an
ough reveal information	about the soft parts of an
	•
	•
ı	
	t fossils are used to date and coic distribution, a short temporalich (if any) of the unknown fostile. The dentification are used to date and coic distribution, a short temporalich (if any) of the unknown fostile. Identify Ammonite Crinoid



Environments that have exceptional fossil preservation due to deposition are called Lagerstätten.	1
○ True	~
• False	
Fossils that are created when sediment is packed around organic matter are called	
casts	
molds	~
imprints	
The phyla Porifera includes snails, clams, and squid.	
True	
○ False	~
Trilobites are a commonly fossilized member of the phyla	
 Cnidaria 	
 Brachiopoda 	
○ Bryozoa	
Arthropoda	~
In Exercise 1, the Play-Doh was used to create a cast.	
O True	
○ False	~



V۱	which fossii is characterized by two symmetric val	ves with a ninge?	
	Rugose Coral		
	Ammonite		
	Brachiopod		✓
	Crinoid		

Extension Questions

Why are marine fossils common? Explain this using your knowledge of the location of early life, its evolution, and the process of fossilization.

(SAMPLE ANSWER BELOW)

Most fossils are from marine environments because because most of the evidence of early life is from shallow seas. When diversification and increased fossilization occurred during the Cambrian Explosions, most organisms still lived in the sea. In addition, marine environments have high deposition rates that contribute to the likelihood of preservation, and some organisms in marine environments have shells that help enable their preservation.

