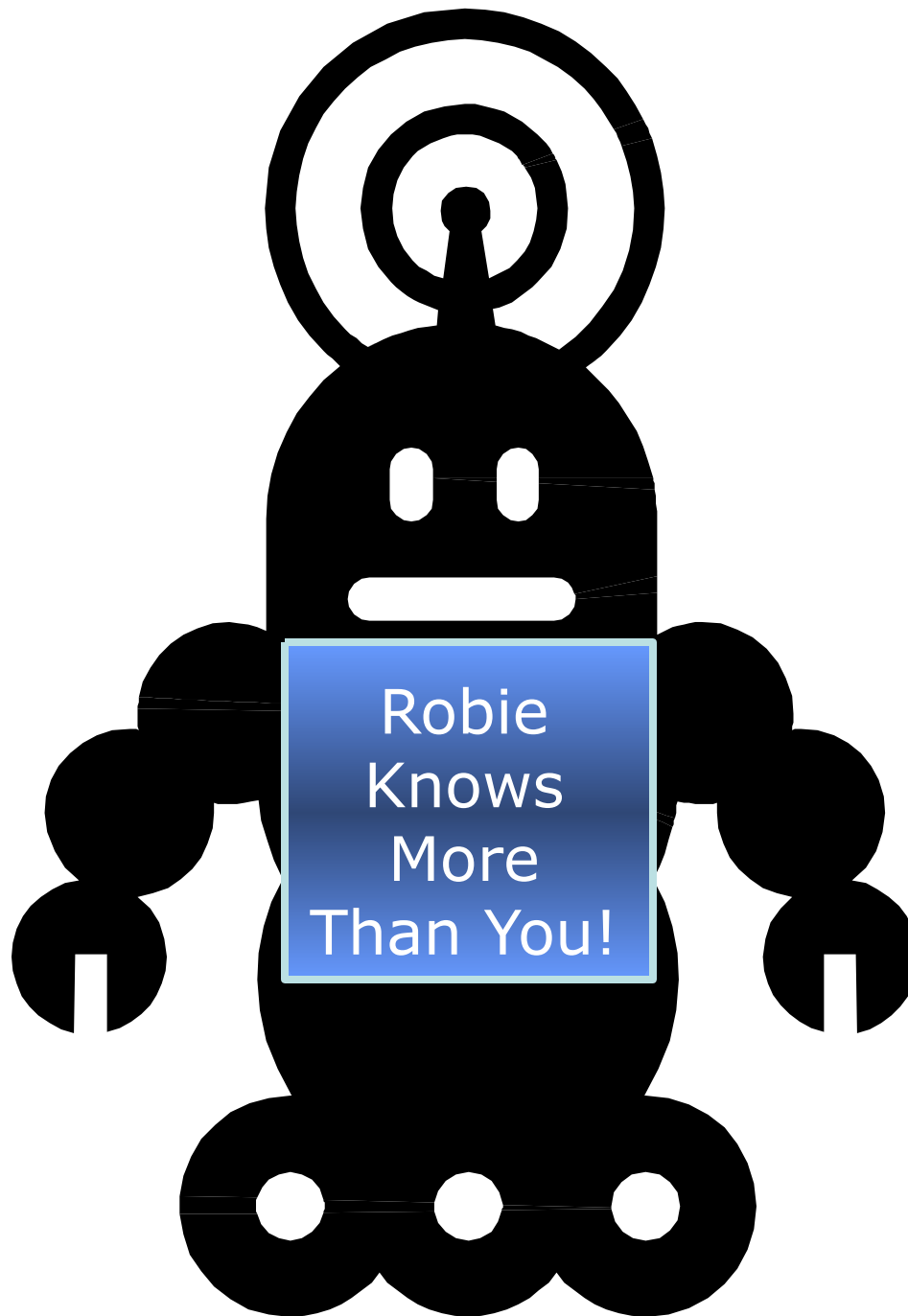


**Do you Dare Challenge  
The Great, All Knowing  
Robot**

**Robie!**



Robie  
Knows  
More  
Than You!

**S6E5. Students will investigate the scientific view of how the earth's surface is formed.**

**Elements:**

b. Investigate the contribution of minerals to rock composition.

c. Classify rocks by their process of formation.

d. Describe processes that change rocks and the surface of the earth.

# **Rock Cycle Song**

**(Sing to the tune of "Row, Row, Row Your Boat")**

**SEDIMENTARY rock**

**Has been formed in layers**

**Often found near water sources**

**With fossils from decayers**

**Then there's IGNEOUS rock**

**Here since Earth was born**

**Molten Lava, cooled and hardened**

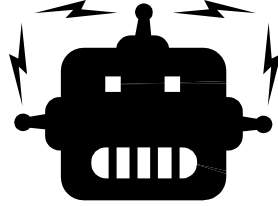
**That's how it is formed**

**These two types of rocks**

**Can also be transformed**

**With pressure, heat and chemicals**

**METAMORPHIC they'll become.**



**Which of the four rock samples is most likely a sedimentary rock?**

*Which Answer Below is Correct? - Robie Knows!*

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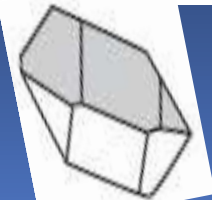
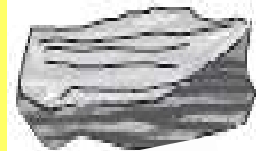
Next

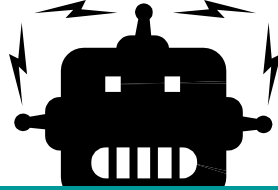
many very small grains of sand in different layers

large crystal shape that is almost clear, has smooth sides

solid black color, looks like smooth glass with sharp edges

rough surface full of holes, lightweight



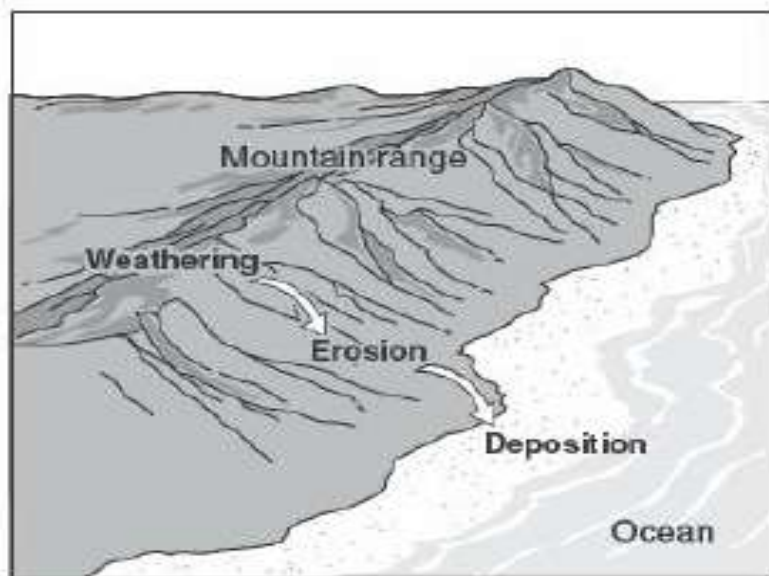


Which kind of rock is formed by the processes shown?



Which

Back



Answers!

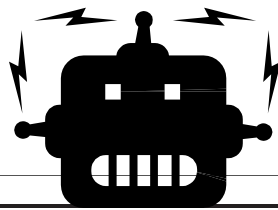
Next

Basaltic

Sedimentary

Igneous

Metamorphic



softest

→ hardest

1	2	3	4	5	6	7	8	9	10
talc	gypsum	calcite	fluorite	apatite	feldspar	quartz	topaz	corundum	diamond

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Next

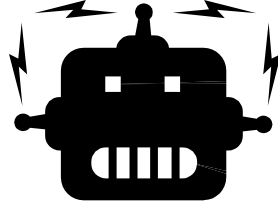
less than 5

more than 8

less than 8, but more than 6

more than 4, but less than 6

**An unknown mineral can be scratched by topaz, but not by feldspar. According to the scale, which of the above best describes the hardness of the unknown mineral?**



**When a volcano erupts, lava flows out from the top. What type of rock is formed as the lava cools?**

*Which Answer Below is Correct? - Robie Knows!*

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Next

**igneous**

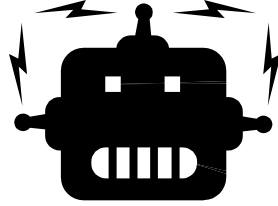
**magma**

**sedimentary**

**metamorphic**







The picture below shows a mineral sample being tested with a metal file. Which property of a mineral is most likely tested in this way?

*Which Answer Below is Correct? - Robie Knows!*

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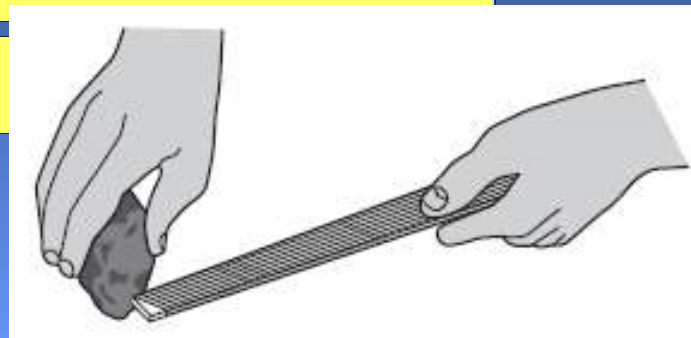
Next

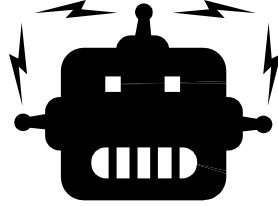
color

hardness

luster

streak





**Which of the following areas is most likely to form metamorphic rocks such as gneiss and schist?**

*Which Answer Below is Correct? - Robie Knows!*

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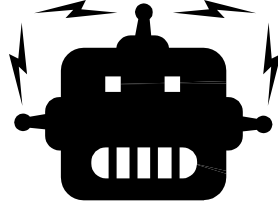
Next

**a sea floor**

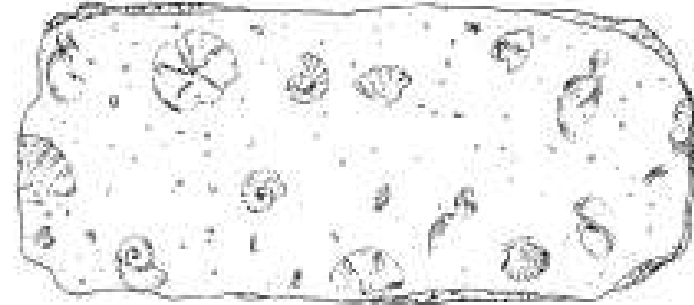
**a windblown desert**

**a site deep underground**

**a site covered by a glacier**



**The picture shows a limestone building block. Which of these best shows that the limestone was formed from ocean sediments?**



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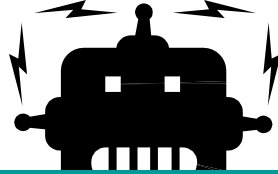
Next

**The position of the fossils**

**The number of fossils**

**The type of fossils**

**The size of the fossils**



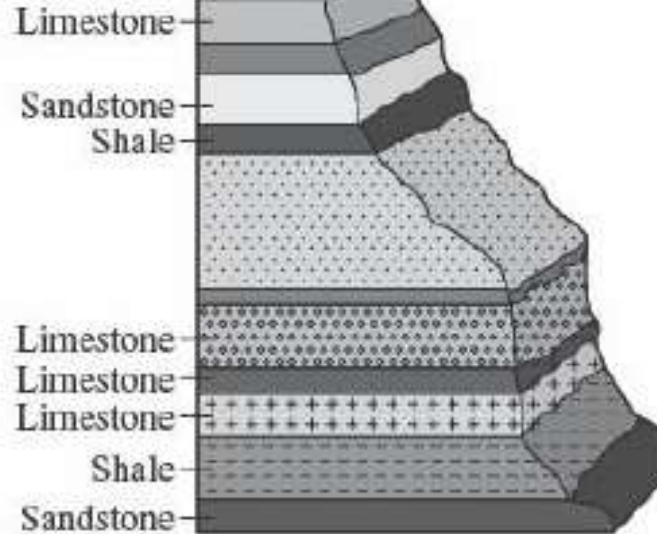
The picture shows what kind of rock layers in the Grand Canyon?

Which A

nows!

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Next

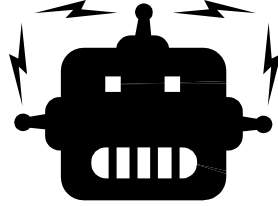


extrusive

igneous

metamorphic

sedimentary



**The streak test that is used to identify minerals involves studying the –**

*Which Answer Below is Correct? - Robie Knows!*

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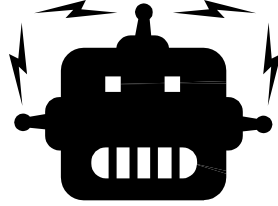
Next

**mineral's crystals with a microscope**

**heated mineral's color as it cools**

**Appearance of the mineral under  
fluorescent light**

**color of the powdered form of the  
mineral**



**Lava cools to form –**

*Which Answer Below is Correct? - Robie Knows!*

**Back**



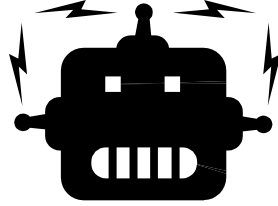
**Next**

**Igneous rock**

**Sedimentary rock**

**Metamorphic rock**

**Sandstone**



**What do all these mineral samples have in common?**

*Which Answer Below is Correct? - Robie Knows!*

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**Mineral Sample Descriptions**

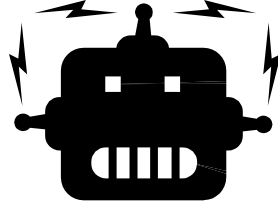
M Sample	Luster	Color	Hardness	Streak
1	metallic	black	6.0	black
2	submetallic	black	5.5	brown
3	vitreous	black	5.0	reddish-brown
4	metallic	black	6.5	black

**luster**

**color**

**hardness**

**streak**



**Why are *most* fossils found in sedimentary rocks?**

*Which Answer Below is Correct? - Robie Knows!*

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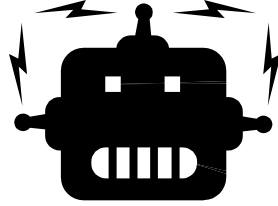
**Sedimentary rocks are not very old.**

**Organisms live only in areas with sedimentary rock.**

**Organisms can be preserved in sedimentary rock.**

**Sedimentary rocks are found only at the surface of the ground.**





**A group of students found metamorphic rocks near a campsite. The presence of metamorphic rocks is most likely evidence of**

*Which Answer Below is Correct? - Robie Knows!*

**Back**



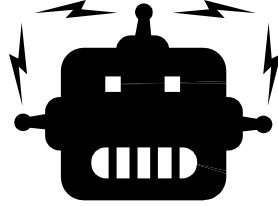
**Next**

**dinosaur activity**

**sediment deposition**

**wind-borne sand**

**high pressure**



**Which of the following processes will change a sedimentary rock into an igneous rock?**

*Which Answer Below is Correct? - Robie Knows!*

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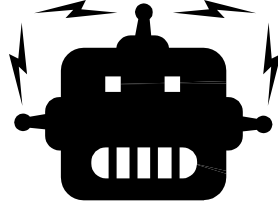
Next

**Melting and crystallization**

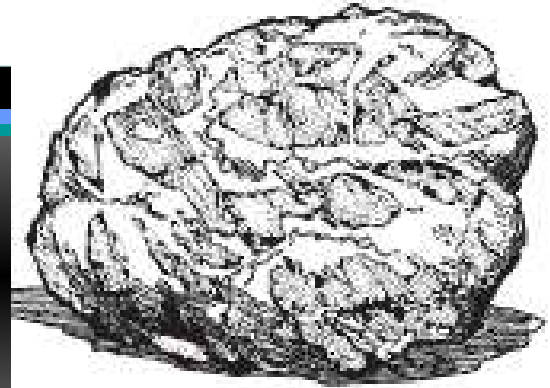
**Erosion and deposition**

**Deformation and deposition**

**Faulting and fracturing**



Igneous Rock



The rock shown is composed primarily of large crystals that were formed by –

*Which Answer Below is Correct? - Robie Knows!*

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Next

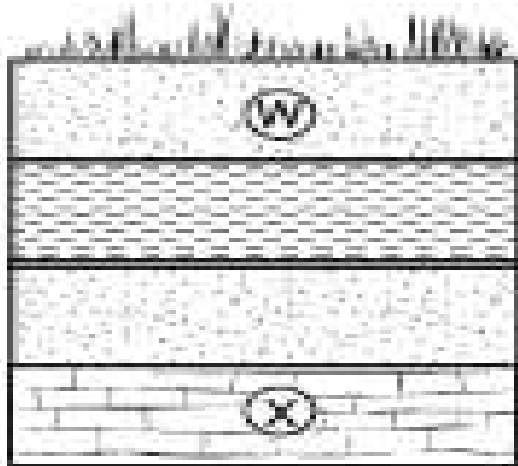
cooling magma

compacting shells

weathering

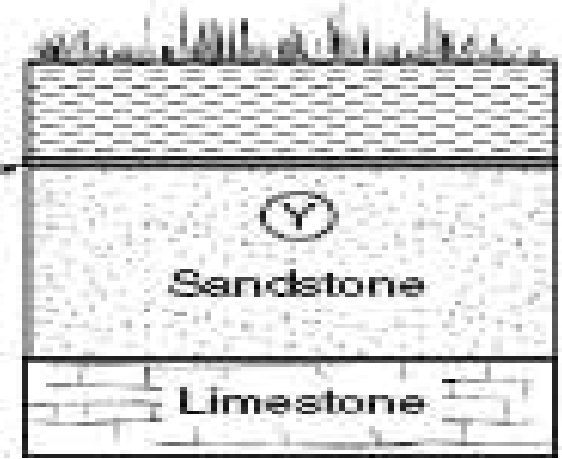
faulting

Site 1



Volcanic Ash

Site 2



Volcanic Ash

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Next

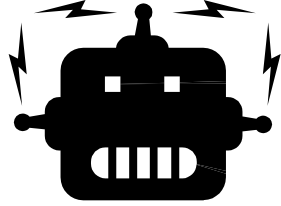
Below species W

In the lowest layer

Above the ash layer

In sandstone

These cross sections show the location of 3 fossilized Species (W, X, and Y) found in rock layers at two nearby sites. Species X is probably the oldest because it is found –



**The diagram shows a test for which mineral property?**

*Which Answer Below is Correct? - Robie Knows!*

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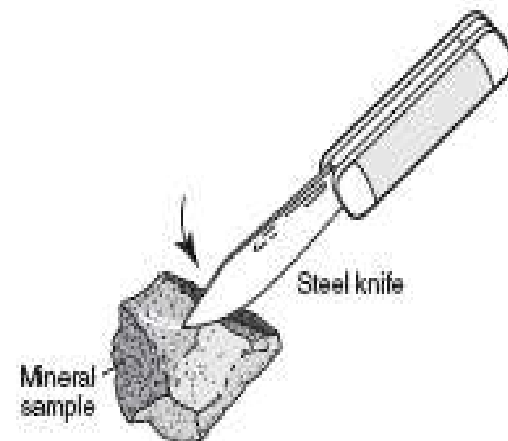
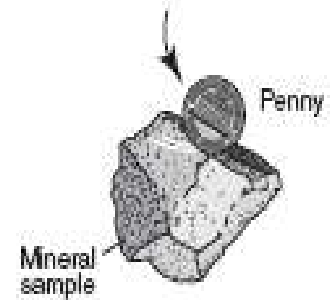
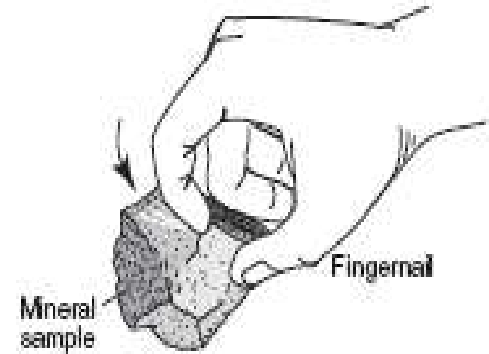
hardness

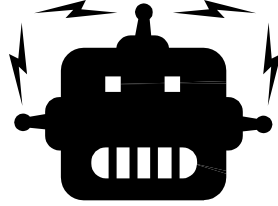
cleavage

luster

streak

Testing a Mineral





**A student made observations of four rock samples. Which of these observations most likely describes a sedimentary rock?**

*Which Answer Below is Correct? - Robie Knows!*

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Next

**bands of light and dark crystals**

**pink, gray, and white crystals grown together**

**made up of one huge, pale pink crystal**

**Made up of layers of sand grains cemented together**

**Authored by  
Jeff Ertzberger - 2004  
University of North Carolina at Wilmington  
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*End It*