

# the Rock Magnet news

For Rockhounds Juniors, Teens & Greyhounds

MHVG+MS

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WATCH  
FOR  
FALLING  
STONES

## Rocks from Space! \*

Meteorites are classified in three basic groups:

### IRON, STONY-IRON AND STONY

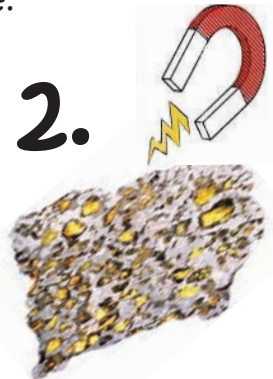
**1. Iron** meteorites are made almost entirely of nickel-iron. These meteorites will be black or brown on the outside. They will be very heavy and a magnet will stick strongly to them since they are metal. If you file or grind on them they will show metal like any piece of iron from your garage that is rusted.



Iron meteorites can easily be confused with rusted pieces of man made iron and steel. They are not porous. They will not have holes, but they may have depressions on the surface.

Gibbon Iron Meteorite  
Namibia, Africa

**Stony-Iron** meteorites are made of a mixture of nickel-iron and stone. The stony portion is usually yellowish green or yellowish brown olivine crystals. Stony-iron meteorites will be heavy since they contain a lot of iron. They will often be very rusted for the same reason. Furnace slag is sometimes confused for stony-iron meteorite material, since it often has a residue of iron along with the melted rock component. But furnace slag light weight and is often porous and meteorites are not.



Polished Slice of a  
Stony-Iron Meteorite  
Glorieta Mt. NM  
Pallasite

**3. Stony** meteorites look like a rock since they are made of mostly material similar to many rocks originating here on Earth. But, true meteorites are often much heavier for their size than an Earth rock. It will be solid inside. It will not be porous like lava rocks are. It may have small round structures like tiny balls showing on the broken surface. These are called chondrules and many stone meteorites, the chondrites, will have them. Most stone meteorites will not have shiny crystals in them. Stone meteorites often have grains of nickel-iron in them. They will respond when a strong magnet is brought near them. The powder produced by grinding most meteorites will be brown. Wikipedia



Allende Meteorite  
Chihuahua, Mexico

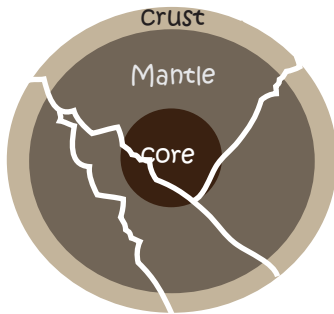
\* Rocks From Space is the title of a book on Meteorites by O. Richard Norton

# Catch a bit of : "Star Dust"



Go to a scrap yard and buy a length of gutter with a downspout. Set it up outside, cover it with hardware cloth so leaves and other debris will not fall in. Tip the gutter so slightly that rain water will trickle out slowly. Wait, wait & wait. Check it ever so often with a strong magnet. You should be able to collect a bit of meteorite dust.

Meteorites are a rare find. The best places for finding a meteorite are: Antarctic, a desert in Africa, China and in the dry Southwest US. This is because the iron in meteorites will rust away in a tropical, semi-tropical or rainy areas of the US. If these sites seem impossible for you, you can save up your dollars and purchase one at a gem & mineral show. A small piece generally isn't too expensive.



## Meteorites Come From Outer Space!

Between Mars and Jupiter there is a jumble of broken and accreted material, the asteroid belt. Some of this material is the result of small planets that had already formed a crust, mantle and core. They have been broken up due to the many colliding bits of astrojunk. The three groups of meteorites come from this asteroid belt. **Stony** meteorites come from the crust, the **Stony-Irons** from the mantle/core and the **Irons** from the Nickel /Iron core.



Scientists being very curious and wanting to put most things into categories have continued to develop sub-groups for these three meteorite groups. One of the most beautiful is the Stony-Iron Pallasite, when sliced and polished. When an Iron meteorite is sliced and treated with acid a pattern of the Nickel and Iron minerals show as the Widmanstätten Pattern.

Two of the Iron-Nickel minerals in iron meteorites are:  
Kamacite - (Fe,Ni) - low crystallization form  
Taenite - (Fe,Ni) - high crystallization form

Widmanstätten Pattern.

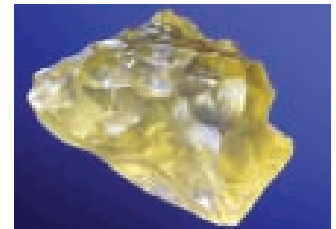


Tektite from Indonesia

## Splash Glass comes from melted Earth Rock!

Tektites (from Greek τεκτός tektos, molten) are natural glass rocks up to a few centimeters in size, which most scientists agree were formed by the impact of large meteorites on Earth's surface. Tektites are typically black or olive-green, and their shape varies from rounded to irregular.

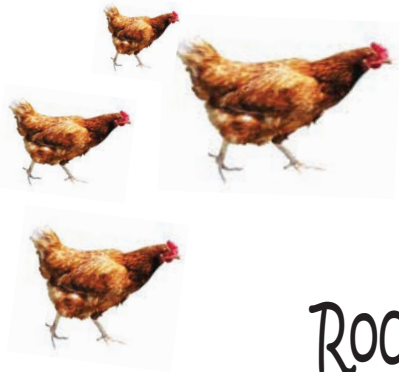
Tektites are among the "driest" rocks, with an average water content of 0.005%. This is very unusual, as most if not all of the craters where tektites may have formed were underwater before impact. Also, partially melted zircons have been discovered inside a handful of tektites. This, along with the water content, suggests that the tektites were formed under phenomenal temperature and pressure not normally found on the surface of the Earth. [Wikipedia](#)



Libyan Splash Glass



Moldavite Tektite



The sky is falling!



## Rocks from Space Word Search!

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

ALLENDE  
 ASTROJUNK  
 EARTH  
 GLASS  
 KAMACITE  
 METEORITE  
 PALLASITE  
 RUST  
 STONY  
 TEKTITE

ASTEROID  
 CHONDRULES  
 FUSION-CRUST  
 HENNYPENNY  
 MAGNETIC  
 NICKEL-IRON  
 PLANET  
 SKY  
 STONY-IRON  
 WIDMANSTATTE N

ASTEROID  
 CRATERS  
 GIBEON  
 IRON  
 METEOR  
 OLIVINE  
 ROCKS  
 SPACE  
 TAENITE

next page answers to this word search-don't look

## The Leonids



Engraving of the Famous  
1833 Meteor Shower

## A Famous Meteor Storm

The night of November 12-13, 1833, not only marks the discovery of the Leonid meteor shower, but it marks the actual birth of meteor astronomy. During the hours following sunset on November 12, some astronomers noted an unusual number of meteors in the sky, but it was the early morning hours of the 13th that left the greatest impression on the people of eastern North America. During the 4 hours which preceded dawn, the skies were lit up by meteors.

Reactions to the 1833 display varied from the hysterics of the superstitious claiming Judgement Day was at hand, to just plain excitement by the scientific, who estimated that a thousand meteors a minute emanated from the constellation Leo. Newspapers of the time reveal that almost no one was left unaware of the spectacle, for if they were not awakened by the cries of excited neighbors, they were usually awakened by flashes of light cast into normally dark bedrooms by the fireballs.

wikipedia

answers to january word search

