

# Fun Facts About Rare Earth Elements

Rare earth elements (REEs) are natural elements with an atomic number from 57 to 71.



Bastnasite (crystal)  
Photo courtesy of iRocks.com

33.44	37.80	34.72	39.26	36.02	40.75	37.36	42.27	38.65	43.95	40.12	45.40	41.53	47.03	42.98	48.72	44.47	50.39	45.99	52.17	47.53	53.93	49.10	55.69	50.73	57.58	52.36	59.35	54.06	61.28	
<b>La</b>	<b>Ce</b>	<b>Pr</b>	<b>Nd</b>	<b>Pm</b>	<b>Sm</b>	<b>Eu</b>	<b>Gd</b>	<b>Tb</b>	<b>Dy</b>	<b>Ho</b>	<b>Er</b>	<b>Tm</b>	<b>Yb</b>	<b>Lu</b>																
Lanthanum 57	Cerium 58	Praseodymium 59	Neodymium 60	Promethium 61	Samarium 62	Europium 63	Gadolinium 64	Terbium 65	Dysprosium 66	Holmium 67	Erbium 68	Thulium 69	Ytterbium 70	Lutetium 71																
4.65	5.04	4.84	5.26	5.03	5.49	5.23	5.72	5.43	5.96	5.64	6.21	5.85	6.46	6.06	6.71	6.28	6.98	6.50	7.25	6.72	7.53	6.95	7.81	7.18	8.10	7.41	8.40	7.65	8.71	

REEs are known as the “Green Elements” because they are essential to many green energy products, including wind turbines, catalytic converters, energy efficient light bulbs, hybrid cars, and rechargeable batteries.



Today, many hybrid cars on the road carry with them about 10 pounds of lanthanum. Nickel-lanthanum hydride batteries are about twice as efficient as the standard lead-acid car battery.

Rare earths are essential to the medical industry



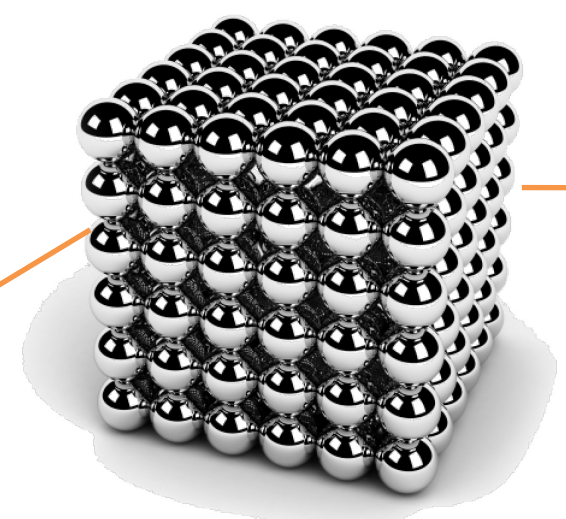
Drug treatments, diagnosis techniques, and medical equipment – including X-ray machines, MRIs and lasers – use rare earth elements.



REEs are commonly used in manufacturing, especially consumer electronics – such as tablet computers, mobile phones, cameras, and televisions.



Rare-earth magnets are the strongest type of permanent magnets made; yet they enable high-tech gadgets to become smaller, lighter, and cheaper.



## Delivering Value to the Mining Industry

Thermo Scientific XRF Portable Analyzers Accurately Identify and Analyze Rare Earth Elements