ARE ALL RARE EARTH ROCKS CREATED EQUAL? NAMES _____ PERIOD _____

Below are the rare earth contents of 6 rocks found at Bull Hill, the future site of the RER mining site. *

Element	Lanthanum (La)		Cerium (Ce)		Praseodymium (Pr)		Neodymium (Nd)		Thorium (Th)		Yttrium (Y)			
Rock	kg	Price $62/kg	kg	Price $80/kg	kg	Price 250/kg	kg	Price 280/kg	kg	Price $5000/kg	kg	Price $170/kg	Mass of the rock kg	Total Value of Rock
A	1.71		2.235		0.278		0.94		0.089		0.105			
B	0.267		0.229		0.045		0.168		0.074		0.031			
C	4.357		8.192		0.874		3.053		0.079		0.076			
D	6.927		9.058		0.991		2.595		0.057		0.147			
E	3.966		5.779		0.686		1.871		0.04		0.087			
F	1.299		1.774		0.206		0.584		0.036		0.032			

(*Contents based on actual data, but simplified for this activity. Data was collected using a Niton XL3t x-ray fluorescence (XRF) analyzer by RER on 6/21/2012. MineralPrices.com - 12/31/2011)

Calculate the mass of each rock (add all of the masses together) and record it on the chart.

Which rock was the largest? _____   Smallest? _____

Calculate the value of each rock (multiply the mass x price, then add the six values together). Record the value on the chart.

Which rock was most expensive? _____   Least expensive? _____

Was there a correlation between size and price?_____ Explain your answer.

Look at the prices of the elements and find their atomic numbers. Is there a correlation between the location on the periodic table and the cost per kg? _____ Explain your answer.

Rare Element Resources (http://www.rareelementresources.com) is the company that analyzed the rocks. After mining the rocks, they need to decide which ones to use. Is the most <u>expensive</u> rock necessarily the most <u>valuable</u> to the company? _____ Explain your answer.

Rock _____

La 26%
Ce 49%
Nd 18%
Pr 5%
Th 1%
Y 1%

Rock ____

La 33%
Ce 28%
Nd 21%
Pr 5%
Th 9%
Y 4%
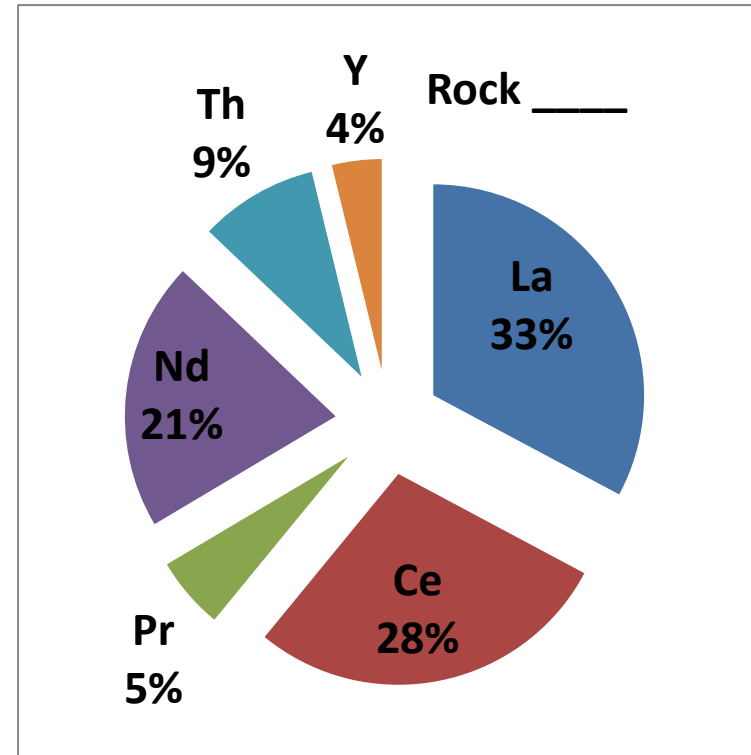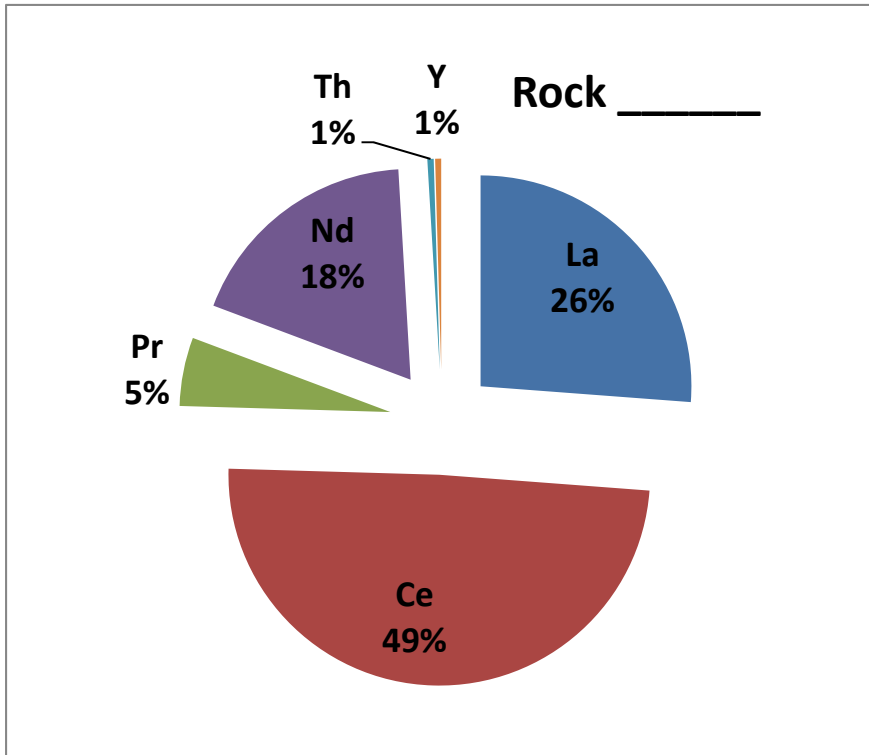
Look at the pie graphs. Based on the data on the previous page, determine which rock is represented by each chart and record in the blank. What was your strategy to figure this out?

When representing rock contents, why are pie graphs the best choice vs. line or bar graphs?

All of the rocks were found very close to each other.   Did the rocks begin as one large rock and break off into smaller rocks? _____ Explain your answer.
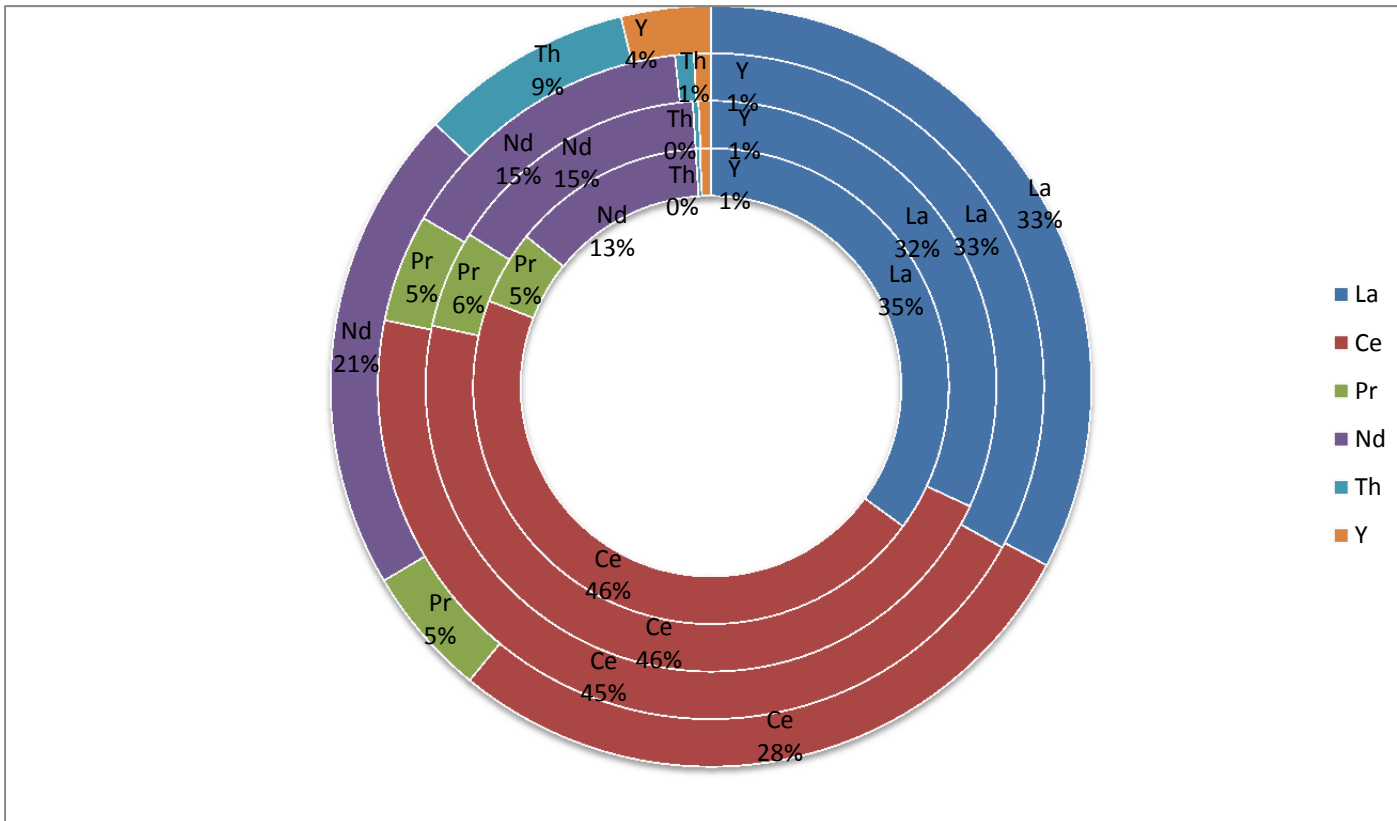
The graph above is called a bubble graph. Each ring is a different rock. Which two rings do you think are the most similar and why?

List one advantage and one disadvantage of a bubble graph.