Volcanic Volumes

ACTIVITY

You need: a calculator

Cindy, the volcanologist from Counter Catastrophe, is talking to a year 8 class about volcanoes.

The size of a volcanic eruption is usually measured in terms of the volume of material it ejects.
We measure this in cubic kilometres.
1 kilometre equals 1 000 metres.

Answer the questions she gave the class after her talk.

1. **a.** How many m^2 is 1 km^2?
b. Picture a cube that has a 1 kilometre by 1 kilometre base and is 1 kilometre high. How many m^3 is 1 km^3?
c. Write your answer to question **1b** as a power of 10.

2. There are 49 volcanoes within 20 kilometres of Auckland City. Copy and complete this table for the amount of material some of the volcanoes have erupted:

Volumes of Erupted Material		
	km^3	m^3
Lake Pupuke	0.06	60 million
Rangitoto	2.45	
Maungarei	0.21	
Maungakiekie		350 million
Mount Māngere	0.19	
Puke Kiwiriki	0.018	
Te Tātua-o-Riukiuta		175 million
Pukekawa	0.0254	
Ōwairaka		38.7 million

3. In 1980, 4.9 km^3 of material erupted from Mount St Helens (Washington State, USA). In 186 AD, the Taupō eruption ejected 100 km^3 of material.
How many times bigger than Rangitoto was each of these eruptions?