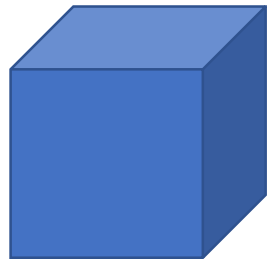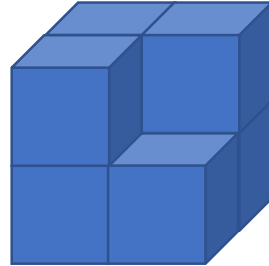If a large particle is broken down into smaller particles, the total surface area increases. Increasing the surface area can increase the rate of a reaction as more surface area is available for the reaction. Surface Area (SA) of a cube = $6s^2$, where s = the length of one side.
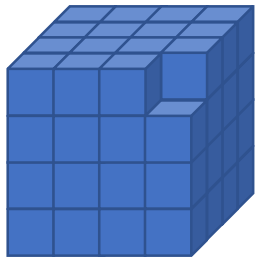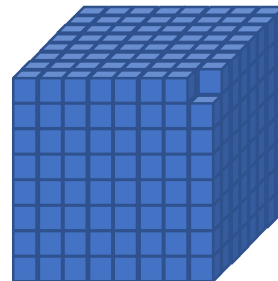
1 particle
5mm/side

SA = $6 \cdot 5^2$ = 150mm^2

8 particles
2.5mm/side

SA = $6 \cdot 2.5^2 \cdot 8$ = 300mm^2

64 particles
1.25mm/side

SA = $6 \cdot 1.25^2 \cdot 64$ = 600mm^2

512 particles
0.625mm/side

SA = $6 \cdot 0.625^2 \cdot 512$ = 1200mm^2

When a particle is broken down into smaller pieces, the surface area increases.