



Exercises Answers

Q1

	Macro	vs	Nano
Gold (Au)	<ul style="list-style-type: none">- Stable- Used in jewellery due to its inability to react		<ul style="list-style-type: none">- Used as a catalyst!
Sugar	<ul style="list-style-type: none">- Used in baking- Every day chemical		<ul style="list-style-type: none">- Can explode!
Silver (Ag)	<ul style="list-style-type: none">- Also used in jewellery- Not very reactive		<ul style="list-style-type: none">- Used as an antimicrobial agent in many therapeutic treatments
Titanium Oxide (TiO ₂)	<ul style="list-style-type: none">- Used in paints due to its intense white colour		<ul style="list-style-type: none">- Used in clear sunscreens
Cadmium (Cd)	<ul style="list-style-type: none">- Toxic heavy metal- Used to be used in batteries		<ul style="list-style-type: none">- CdS used in QD's as therapies for cancer and other diseases

Q2

Polar bears have a small surface area to volume ratio. They are very large, and have been getting larger due to evolution. Due to their large size, and their small SA/V ratio, they store heat better than something which would have a larger SA/V ratio.

Q3

Nanobased materials can be toxic – they could easily reach the cells and cause unknown damage. Limitations can include the fact that it is a very new field of study, and long-term studies still need to be done. This also means there could be build up on nanoparticles over time, and we are unsure of the clearance mechanism.

Q4

D

Q5

A

Q6

D