



**Chemistry in a coffee cup: does coffee waste contain key elements for
plant growth?**

Nitrate worksheet

- Volume of water used for extraction: 200 ml
- Dilution 20×: 5 ml coffee extract in 100 ml volumetric flask
- Volume tested of diluted solution with aquarium kit: 5 ml

What nitrate concentration in ppm did you observe?

How many milligrams of nitrates are present in the 5 ml solution analyzed?

How many milligrams of nitrates were in the 100 ml flask (this is also the amount in the 5 ml sample taken from the coffee extract)?

Many milligrams of nitrates were the 200 ml of water extracted from the coffee grounds?



Assuming all the nitrate was extracted, how much nitrogen will be present in 1 kg of waste?

Molar mass of nitrate:

Molar mass of nitrogen:

Challenge: To match the amount of nitrogen found in a 20 kg bag of commercial fertilizer labelled 20% nitrogen, how much coffee waste would you need.