

Introduction to Moles

Imagine you lived in a different universe where the mass of a hydrogen atom is 0.1 g

- 1 What would be the mass of a carbon atom in this universe?
- 2 What would be the mass of an oxygen atom in this universe?
- 3 What would be the mass of a sulphur atom in this universe?
- 4 How many hydrogen atoms would there be in a 1 g of hydrogen?
- 5 How many oxygen atoms would there be in a 16 g of oxygen?
- 6 How many sulphur atoms would there be in a 32 g of sulphur?
- 7 What do you notice about your answers to 4,5 and 6? Explain

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- 8 How many nitrogen atoms would there be in 14 g of nitrogen?
- 9 What would be the mass of a methane molecule (CH_4) in this universe?.....
- 10 What would be the mass of a water molecule (H_2O) in this universe?
- 11 What would be the mass of an ammonia molecule (NH_3) in this universe?
- 12 How many methane molecules are there in 16 g of methane?.....
- 13 How many water molecules are there in 18 g of water?.....
- 14 How many ammonia molecules are there in 17 g of ammonia?.....
- 15 What do you notice about your answers to 12,13 and 14? Explain

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Extension

- The mass of a carbon atom is actually 1.99×10^{-23} g.
- How many carbon atoms are there in 12 g of carbon?
- How many hydrogen atoms are there in 1 g of hydrogen?
- How many water molecules in 18 g of water?
- How many hydrogen atoms in 18 g of water?