What is a Mole?

It's not just a spot on your skin.

In Chemistry, a mole is such a large quantity of atoms that it allows the atomic mass of an element to be measured in gram weight (This also allows molecules to be measured in grams).
One mole of any substance contains Avogadro's Number of molecules or atoms. That's 6.02×10^{23} or 602000000000000000000000.

The masses you see on periodic tables are in atomic mass units. One atomic mass unit is a very small amount $1\ u \approx 1.66053886 \times 10^{-27}$ kg.
If you have one mole's worth of atomic mass units, you'll have one gram.

$$1.66 \times 10^{-27}\ \text{kg} \quad x \quad 6.02 \times 10^{23} = 1.00\ \text{gram}$$

Celebrating Mole Day

Mole Day is Celebrated on October 23 every years. It is supposed to be observed from 6:02 am to 6:02 pm. Why 6:02 and Why 10/23? It comes from Avogadro's number. 6.02×10^{23}
This number is so titled in honor of Amedeo Avogadro. His main contribution to chemistry was his principle that:

> Equal volumes of all gases at the same temperature and pressure contain the same number of molecules.

The work of Amedeo Avogadro was neglected until it was presented by **Stanislao Cannizarro**. He showed that Avogadro's Principle could be used to determine not only molar masses, but also, indirectly, atomic masses

How big is a Mole:

If you were able to count at the rate of 1 million numbers a second, it would take about 20 billion years to count out one mole.

Some related sites:
http://www.moleday.org/
http://www.chemheritage.org/EducationalServices/chemach/ppt/aa.html
http://www.tufts.edu/as/wright_center/fellows/george/georgepage3.html