D) Specific metals

1) Arsenic (As)

2) Mercury (Hg)

Uses and sources

Oxidation states and health effects

Hg^{o}

Hg^{2+}

HgS

$HgCl_2$

$C_6H_5Hg^+$ (phenyl-Hg)

$HgCH_3^+$ and $Hg(CH_3)_2$

MeHg is produced by bacteria in sediments, algae too

Subject to photodegradation

Methylation occurs faster at lower pH

Accumulates in fish, transferred to humans (Fig. 11-1)

Long half-life ($t_{0.5}$)

Crosses the blood/brain barrier (article)

Work out problem 11-6

3) Lead (Pb)

Uses and sources

Oxidation states and health effects

Pb^{o}

Pb^{2+}

- PbS
- $PbCO_3$

Pb^{4+}

PbO_2

$Pb(CH_3)_4$ - tetravalent, like C

Other

Not magnified in the food chain

4) Cadmium (Cd)

Uses and sources

Oxidation states and health effects

Cd^{2+}