7.8 Static electricity

Science understanding

Visual/Spatial

The list on the right forms part of the triboelectric series. This lists materials in order of how easily they lose electrons. Materials above cotton tend to lose electrons easily, and may become positively charged. Materials below cotton gain electrons easily and so become negatively charged.

Air
Human hands
Asbestos
Glass
Human hair
Nylon
Wool
Fur
Lead
Silk
Aluminium
Paper
Cotton
Steel
Wood
Hard rubber
Nickel, copper
Silver
Gold
Acetate
Polyester
Styrofoam
Polyethene
Vinyl
Teflon

1 **State** whether air is likely to lose or gain negative charges.

_____

2 You rub a plastic acetate sheet against your hair, and your hair is attracted to it.

(a) **State** which has become positively charged.

_____

(b) **State** which has become negatively charged.

_____

(c) **Explain** why your hair is attracted to the acetate.

_____

_____

3 When styrofoam is charged with a piece of silk, **identify** which material loses electrons.

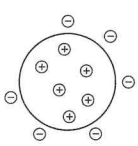
_____

4 On a warm and dry day, the fur of Josef's pet mouse is seen to be attracted to Josef's vinyl shoes. **Explain** what is happening in this situation.

_____

_____

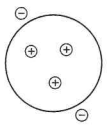
5 Use these diagrams to **state** the number of positive and negative charges in each atom, and **classify** each as having a positive, negative or no overall charge.

(a) 

Positive charges: _____

Negative charges: _____

Overall charge: _____

(b) 

Positive charges: _____

Negative charges: _____

Overall charge: _____