

1

Complete the sentences below:

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| a) Positive (+) and negative (-) charges | — is caused by friction. |
| b) Static electricity | — repel each other. |
| c) Negative charges (-) | — by connecting it to Earth. |
| d) Voltage | — the greater the voltage. |
| e) Induced charge | — repel each other. |
| f) The greater the charge | — are attracted to each other. |
| g) Discharge a conductor | — builds up if charge builds up. |
| h) Two negative (-) charges | — is lost if the charged rod is moved away. |
| i) Electrons | — move, never the positive charges. |
| j) Two positive (+) charges | — are left on a rod if electrons are rubbed off. |
| k) Positive charges (+) | — are found on a rod if electrons are rubbed on. |

2

The diagram opposite shows a duster and a polythene rod.

Copy the diagram and use arrows to show the movement of charge when the rod is rubbed with a duster, and the charge left on each object.



3

Arrange the following statements in the correct order to explain how static is transferred to an acetate rod when it is rubbed by a cloth duster.

...the rod to the cloth.

...and the rod becomes

...positively charged.



...electrons are transferred from...









...negatively charged

So the cloth becomes...

If you rub an acetate rod with a cloth...

4

These two rods,   attract each other with a force F_0 . Study the pairs of rods below and write down if they attract with a force more than or less than F_0 . Explain your answers.

a)  	b)  	c)  	d)  
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- 1 Two positively charged polystyrene spheres are held close to one another. Will they attract or repel one another?
- 2 A polythene rod is rubbed using a woollen cloth. The rod gains a negative charge.
 - a What can you say about the charge gained by the cloth?
 - b Will the rod and the cloth attract or repel each other?
- 3 Here are some things you may have noticed:
 - If you rub a comb through your hair, your hair is attracted to the comb.
 - After combing, your hair is light and fluffy – the individual hairs repel each other.What do these observations tell you about the electric charges on your hair and on the comb?
- 4 Draw a diagram to show how a negatively charged polythene rod can attract an uncharged scrap of paper.
- 5
 - a What charge does an electron have, positive or negative?
 - b Would two electrons attract or repel one another?
- 6 Two identical metal spheres are placed close to one another. One is given a large negative charge. The two are then connected by a wire. Use the idea of electric force to explain what happens next.
- 7
 - a Draw a diagram to represent the electric field around a positively charged sphere.
 - b Draw a diagram to represent the electric field between two horizontal parallel plates. The upper plate has a positive charge and the lower plate has a negative charge.