Triboelectric Charging

Activity 1: What's the Charge

Question Group 1

Question 1

It is known that Object A has a greater affinity (love) for electrons than Object B. When the two objects are rubbed together, they become charged. What is the charge on Object A and Object B? And how do the two objects become charged?

Question 2

It is known that Object C has a greater affinity (love) for electrons than Object D. When the two objects are rubbed together, they become charged. What is the charge on Object C and Object D? And how do the two objects become charged?

Question Group 2

Question 3

It is known that Object A has a weaker affinity (love) for electrons than Object B. When the two objects are rubbed together, they become charged. What is the charge on Object A and Object B? And how do the two objects become charged?

Question 4

It is known that Object C has a weaker affinity (love) for electrons than Object D. When the two objects are rubbed together, they become charged. What is the charge on Object C and Object D? And how do the two objects become charged?

Question Group 3

Question 5

It is known that Object B has a greater affinity (love) for electrons than Object A. When the two objects are rubbed together, they become charged. What is the charge on Object A and Object B? And how do the two objects become charged?

Question 6

It is known that Object D has a greater affinity (love) for electrons than Object C. When the two objects are rubbed together, they become charged. What is the charge on Object C and Object D? And how do the two objects become charged?

Question Group 4
Question 7
It is known that Object B has a weaker affinity (love) for electrons than Object A. When the two objects are rubbed together, they become charged. What is the charge on Object A and Object B? And how do the two objects become charged?

Question 8
It is known that Object D has a weaker affinity (love) for electrons than Object C. When the two objects are rubbed together, they become charged. What is the charge on Object C and Object D? And how do the two objects become charged?

Activity 2: Triboelectric Series
Question Group 5
Question 9
The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Acrylic. As a result, Material A becomes charged negatively. Material A is then rubbed with Cotton. Once more it becomes charged negatively. Where should Material A be placed on the Triboelectric Series?

Above Acrylic
Somewhere between Acrylic and Cotton
Below Cotton

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 10

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Paper. As a result, Material A becomes charged negatively. Material A is then rubbed with Acetate. Once more it becomes charged negatively. Where should Material A be placed on the Triboelectric Series?

Above Paper
Somewhere between Paper and Acetate
Below Acetate

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question Group 6

Question 11

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Polyethylene. As a result, Material A becomes charged postively. Material A is then rubbed with Aluminum. Material A becomes charged negatively. Where should Material A be placed on the Triboelectric Series?

Above Polyethylene
Somewhere between Polyethylene and Aluminum
Below Aluminum

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 12

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Acrylic. As a result, Material A becomes charged postively. Material A is then rubbed with Silk. Material A becomes charged negatively. Where should Material A be placed on the Triboelectric Series?

Above Acrylic
Somewhere between Acrylic and Silk
Below Silk

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question Group 7

Question 13

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Polyester. As a result, Material A becomes charged postively. Material A is then rubbed with Silk. Once more it becomes charged postively. Where should Material A be placed on the Triboelectric Series?

Above Polyester
Somewhere between Polyester and Silk
Below Silk

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 14

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with Polyester. As a result, Material A becomes charged postively. Material A is then rubbed with Aluminum. Once more it becomes charged postively. Where should Material A be placed on the Triboelectric Series?

Above Polyester
Somewhere between Polyester and Aluminum
Below Aluminum

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question Group 8

Question 15

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Polyethylene, Paper, and Wool. Material A becomes charge positively when rubbed with Polyethylene. It becomes charged negatively when rubbed with both Paper and Wool. Where should Material A be placed on the Triboelectric Series?

Above Polyethylene
Somewhere between Polyethylene and Paper
Somewhere between Paper and Wool
Below Wool

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 16

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Vinyl, Silk, and Acetate. Material A becomes charge positively when rubbed with Vinyl. It becomes charged negatively when rubbed with both Silk and Acetate. Where should Material A be placed on the Triboelectric Series?

Above Vinyl
Somewhere between Vinyl and Silk
Somewhere between Silk and Acetate
Below Acetate

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question Group 9
Question 17

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Polyester, Acrylic, and Cotton. Material A becomes charge positively when rubbed with both Polyester and Acrylic. It becomes charged negatively when rubbed with Cotton. Where should Material A be placed on the Triboelectric Series?

Above Polyester
Somewhere between Polyester and Acrylic
Somewhere between Acrylic and Cotton
Below Cotton

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 18

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Acrylic, Cotton, and Glass. Material A becomes charge positively when rubbed with both Acrylic and Cotton. It becomes charged negatively when rubbed with Glass. Where should Material A be placed on the Triboelectric Series?

Above Acrylic
Somewhere between Acrylic and Cotton
Somewhere between Cotton and Glass
Below Glass

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question Group 10

Question 19

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Cotton, Silk, and Acetate. Material A becomes charge negatively when rubbed with all three materials. Where should Material A be placed on the Triboelectric Series?

Above Cotton
Somewhere between Cotton and Silk
Somewhere between Silk and Acetate
Below Acetate

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Question 20

The chart at the right is a **Triboelectric Series**. It ranks materials according to their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Material A is rubbed with three materials on the chart – Vinyl, Acrylic, and Cotton. Material A becomes charge positively when rubbed with all three materials. Where should Material A be placed on the Triboelectric Series?

Above Vinyl
Somewhere between Vinyl and Acrylic
Somewhere between Acrylic and Cotton
Below Cotton

Teflon
Vinyl
Polyethylene
Polyester
Acrylic
Natural Rubber
Wood
Cotton
Paper
Aluminum
Silk
Wool
Glass
Acetate
Rabbit Fur

Activity 3: Rank the Materials
Question Group 11
Question 21

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is + B is -
B and C rubbed together	B is + C is -

Question 22

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is - B is +
A and C rubbed together	A is + C is -

Question 23

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is - B is +
B and C rubbed together	B is - C is +

Question Group 12

Question 24

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is + B is -
B and C rubbed together	B is - C is +
A and C rubbed together	A is + C is -

Question 25

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is + B is -
B and C rubbed together	B is - C is +
A and C rubbed together	A is - C is +

Question Group 13
Question 26

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is - B is +
A and C rubbed together	A is - C is +
B and C rubbed together	B is - C is +

Question 27

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, and C. The table shows the results. Use these results to create a triboelectric series for A, B, and C.

Test	Result
A and B rubbed together	A is - B is +
A and C rubbed together	A is - C is +
B and C rubbed together	B is + C is -

Question Group 14
Question 28

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is + B is -
B and C rubbed together	B is - C is +
A and C rubbed together	A is + C is -
A and D rubbed together	A is - D is +

Question 29

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is + B is -
B and C rubbed together	B is - C is +
A and C rubbed together	A is - C is +
C and D rubbed together	C is - D is +

Question Group 15

Question 30

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is - B is +
B and C rubbed together	B is - C is +
B and D rubbed together	B is - D is +
C and D rubbed together	C is - D is +

Question 31

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is + B is -
A and C rubbed together	A is - C is +
A and D rubbed together	A is - D is +
C and D rubbed together	C is - D is +

Question Group 16

Question 32

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is - B is +
B and C rubbed together	B is - C is +
C and D rubbed together	C is + D is -
B and D rubbed together	B is - D is +

Question 33

A **Triboelectric Series** shows various materials ordered by their relative affinity (love) for electrons. Materials located higher on the chart have a stronger affinity for electrons.

Tests are performed with objects made of Materials A, B, C, and D. The table shows the results. Use these results to create a triboelectric series for A, B, C, and D.

Test	Result
A and B rubbed together	A is + B is -
A and C rubbed together	A is - C is +
C and D rubbed together	C is + D is -
A and D rubbed together	A is - D is +