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Crash Course Physics #27: Voltage, Electric Energy, and Capacitors

Name: _____ Date: _____

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1. A capacitor stores _____ and energy using two oppositely charged conductive plates.
2. The energy stored in a capacitor is a form of _____ potential energy.
3. The potential energy per unit charge in an electric field is called _____.
4. The unit for electric potential (or voltage) is the _____.
5. The equation for voltage across a capacitor is equal to the negative electric field times the _____ between the plates.
6. Lines showing locations with equal electric potential are called _____ lines.
7. For a point charge, the equipotential lines form _____ around the charged particle.
8. The property that describes _____ a capacitor can store per volt is called capacitance.
9. The unit of capacitance is the _____, which equals one Coulomb per Volt.
10. A material inserted between capacitor plates to increase capacitance is called a _____.
11. The symbol for the permittivity of free space is _____.
12. The total energy stored in a capacitor is equal to one half times charge times _____.
13. _____ is the amount of electric potential energy stored per unit volume in a space with an electric field.
14. The greater the area of the plates and the smaller the distance between them, the greater the _____.
15. Polar molecules in a dielectric generate an electric field in the _____ direction as the capacitor's field.

Crash Course Physics #27: Voltage, Electric Energy, and Capacitors KEY

1. A capacitor stores **electric charge** and energy using two oppositely charged conductive plates.
2. The energy stored in a capacitor is a form of **electric** potential energy.
3. The potential energy per unit charge in an electric field is called **voltage**.
4. The unit for electric potential (or voltage) is the **Volt**.
5. The equation for voltage across a capacitor is equal to the negative electric field times the **distance** between the plates.
6. Lines showing locations with equal electric potential are called **equipotential** lines.
7. For a point charge, the equipotential lines form **circles** around the charged particle.
8. The property that describes **how much charge** a capacitor can store per volt is called capacitance.
9. The unit of capacitance is the **Farad**, which equals one Coulomb per Volt.
10. A material inserted between capacitor plates to increase capacitance is called a **dielectric**.
11. The symbol for the permittivity of free space is **ϵ_0** or **epsilon naught**.
12. The total energy stored in a capacitor is equal to one half times charge times **voltage**.
13. **Energy density** is the amount of electric potential energy stored per unit volume in a space with an electric field.
14. The greater the area of the plates and the smaller the distance between them, the greater the **capacitance**.
15. Polar molecules in a dielectric generate an electric field in the **opposite** direction as the capacitor's field.

15 Questions

Answer Key Included

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