

Unit 11 Plan: **Electrostatics**
 Physics1 Honors @ PalmHarborUniversityHigh



Day	Date	Topic	Assignments Due / Schedule
1		Electrostatic Lab	Read Section 20.1
2		Notes: Chapter 20 Video: "Electricity Shorts"	HW#1: Electrostatic_concept worksheet (print from web page) Read Section 20.2
3		Notes: Chapter 20 CW#1:: Coulomb's Law Worksheet	HW#2: p. 552: 9,10,12
4		Electroscope Lab (?)	HW#3: (p. 559: 42,43,47,51)
5		Review Problems; Video (?)	Problems (TBA)
6		Review Problems	HW#4: p 558, MC: 23,25,26,29,30 AC: 31,33,35,36,37,40
7		Concept Review	
8		Unit Test	

Note: Homework is due on the day following the assignment, unless otherwise noted.

Objectives / Essential Learnings: (key terms in **bold**)

1. Recognize the basic properties of the electrical interaction.
2. Know how to charge an object.
3. Know that charging is the separation, not the creation, of charges.
4. State the differences between conductors and insulators.
5. Describe electrical forces between objects.
6. Explain from the point of view of electron transfer, how an object becomes (a) positively charged or (b) negatively charged and relate this to the net charge.
7. Describe the relation between the electrical force between two charged objects, their charge, and the distance between them (Coulomb's Law).
8. Compare the strengths of electrical forces and gravitational forces between charged objects.
9. Describe how an insulator can be charged by friction.
10. Describe how a conductor can be charged by contact.
11. Describe how a conductor can be charged without contact.
12. Describe how an insulator can be charged by charge polarization.

Elementary charge (one electron (e)) = $1.60 \times 10^{-19} \text{C}$

1 coulomb (C) = $6.25 \times 10^{18} \text{e}$

Coulomb's law

Where K (the electrostatic constant) = **$9.0 \times 10^9 \text{ N m}^2/\text{C}^2$**

$$F = K \frac{q_A q_B}{r^2}$$