EATA - SPEECH OUTLINE
LIGHTNING STORMS & SAFETY

I. Introduction - Myths & Misconceptions
   ❖ Explore the truth in old “wives tales”
     • Lightning always strikes the highest point
     • Lightning never strikes the same place twice
     • If lightning is more than five miles away, you’re safe
     • You’re safe waiting 30 minutes after the last visible strike
     • Lightning Safety is simple - Just Pay Attention
   ❖ Studies prove Lightning’s True Nature
     • Severe storms laboratory studies - 1998 Holle/Lopez
       ♦ 80% of all lightning injuries and deaths distant from storm’s rain shaft
       ♦ Lightning can easily strike from a storm 8 or more miles distant
     • Contrast with “30-30” Rule
       ♦ How far does thunder audibly travel
       ♦ How far away can lightning be seen
       ♦ Difference between cloud-to-cloud and cloud-to-ground
   ❖ So many complex statistics - what should you know and do?
LEARN ABOUT STORMS IN GREATER DETAIL

II. Where Do Storms Come From?
   ❖ Storms are complex - Greatly Misunderstood
     • Contribution of Sahara Desert & World Oceans
     • Interactions between high and low pressure zones
       ♦ Wind
       ♦ Evaporation
       ♦ Particle shape, formation and movement
       ♦ Ultimate Creation of 1 million Volt Battery
       ♦ Movement and eventual decline
   ❖ Lightning - How and where does it strike?
     • Electrically charged particle (ions)
     • Movement to and from a storm cloud
     • True dynamics of attraction
     • Explanations
       ♦ Lightning strikes under cloud
       ♦ Lightning strikes away from cloud
       ♦ Lightning strikes 30+ miles from storm - “Bolt-Out-of-Blue”
III. LIGHTNING WARNING DEBATE
   ❖ Detection
     • Technology and original intent discussed
     • How is this different from human detection?
       ◦ Electronics slower and less accurate
       ◦ Humans more accurate but ability to see 10+ miles range greatly challenged
       ◦ If you see or hear it - it’s too close.
     PERIOD
   ❖ Prediction
     • Technology and original intent discussed
     • How is it different from human senses?
       ◦ Humans can’t see ionized air terminal
       ◦ Humans can “feel” terminals but seldom react to the dangerous conditions
       ◦ Prediction technology is proven and affordably available
     • Groups depending on prediction today include airlines, military, schools & universities, etc.

IV. THE SAFE APPROACHES TO LIGHTNING AVOIDANCE
   ❖ Teach your students and fellow teachers about
     • Thunderstorms complex nature
   ❖ Vital Points to consider
     • Always react to lightning safety conservatively
       ◦ Don’t wait too long
       ◦ 30-30 rule is not acceptable
     • Don’t rely on lightning detection devices, “particularly” hand held units
     • When using any man-made system
       ◦ IF YOU SEE LIGHTNING OR HEAR THUNDER, NO MATTER HOW DISTANT, CLEAR THE OUTDOOR GROUNDS
       ◦ THERE IS NO CHEAP OR EASY WAY TO PROVIDE DEPENDABLE CONSTANT LIGHTING SAFETY
     • Have a well publicized and understood lightning evacuation plan then practice your plan