

ENVIRONMENTAL SCIENCE: TOPICS COVERED
West Allis Central High School, Pat Gain

- **Introductory Information**
 - **Course Description**
 - **Field Trip Explanations**
 - **Optional Fundraiser**
 - **Policies and Expectations**
 - **Getting Acquainted**
- **Environmental Ethics**
 - **Beliefs and Value Systems**
 - **Influence of politics and the media**
 - **Indigenous People and the Environment**
 - **Historical Conservation Heroes**
 - **Timeline of Action: The Environmental Movement**
- **Water Quality**
 - **Testing techniques and interpretation**
 - **Water cycle**
 - **Watersheds**
 - **Wetlands**
 - **Rivers**
 - ◆ **Types of rivers**
 - ◆ **Erosional forces**
 - ◆ **Milwaukee River Quality Study**
 - **Lakes**
 - ◆ **Types of lakes**
 - ◆ **Zones within a lake**
 - **Oceans**
 - ◆ **Oil Spills**
 - **Groundwater**
 - ◆ **Aquifers**
 - ◆ **Wells / Artesian wells**
 - ◆ **Depletion / Zone of depression**
 - ◆ **Contamination**
 - **Wastewater storage and treatment**
- **Population Growth**
 - **Exponential Growth**
 - **Carrying Capacity**
 - **Uneven distribution of resource consumption**
- **Ecology**
 - **Biotic / Abiotic Factors**
 - **Renewable vs. Non-renewable**
 - **Food chains / webs**
 - **Energy transfer between organisms**
 - **Interrelationships / Predator-Prey relationships**
 - **Niches**

- **Wildlife Management**
 - **Management mishaps**
 - **Management success stories**
 - **Whitetail Deer Management in Wisconsin Study**
 - **CWD**
 - **Deer Range vs. Not deer range**
 - **Car-killed deer study**
 - **SAK Model**
- **Land Quality**
 - **Testing techniques and interpretation**
 - **Landfills**
 - ◆ **Yesterday versus today**
 - ◆ **Product decomposition comparisons**
 - **Mining**
 - ◆ **Types of mining**
 - ◆ **Products from mining**
 - ◆ **Locating resources**
 - ◆ **Reclamation of land**
 - **Soils**
 - ◆ **Structure & Types**
 - ◆ **Septic systems**
 - ◆ **Use of fertilizers on lawns**
 - **Agriculture in Wisconsin**
 - ◆ **Use of pesticides / fertilizers...organic option**
 - ◆ **Erosional forces / strategies to alleviate**
- **Topography (Mapping and Navigation)**
 - **Map symbols**
 - **Types of scales: estimating distance**
 - **Profiles**
 - **Township-Range-Section / Plat Surveys**
 - **Global Positioning Systems (GPS)**
 - **Orienteering**
- **Land Use Planning**
 - **Types of zoning**
 - **Sprawl**
 - **History of West Allis**
 - **West Allis Land Use Plan**
- **Energy**
 - **History and Types of Energy**
 - **Personal Energy Consumption**
 - **Vehicles / CO₂**
 - **Insulation**
 - **Light Bulb Survey**
 - **Alternative forms of Energy**
 - ◆ **Wind**
 - ◆ **Solar**

- ◆ Hydroelectric
 - ◆ Biomass
 - Power Plants
- Air Quality
 - Testing techniques and interpretation
 - Particulates and gases
 - Incomplete combustion
 - Ozone
 - ◆ Ground level ozone (ozone action days)
 - ◆ Atmospheric ozone & UV light
 - Acid Precipitation
 - Mercury deposition / health effects
 - Global Warming
 - Greenhouse Effect
- Waste Management
 - Reduce / reuse / recycle
 - Hazardous / Toxic Wastes
- Environmental Law
 - Industrial
 - Residential
 - Recreational
- Winter Ecology
 - Astronomy & the Seasons
 - Snow and Weather Systems – Lake Effect Snow
 - Types of snow
 - Animal adaptations for survival
 - ◆ Endotherms: warm-blooded animals
 - ◆ Ectotherms: cold-blooded animals
 - Tracking wildlife in winter
 - Trapping as a management tool
 - Survival strategies for humans
- ANIMALS
 - Birds of Wisconsin
 - ◆ Migratory / waterfowl
 - ◆ Songbirds
 - Mammals of Wisconsin
 - ◆ Game mammals
 - ◆ Agriculturally important mammals
 - ◆ Small carnivores / rodents
 - ◆ Track / Pelt / Skull identification
 - Fish of Wisconsin
 - ◆ Fish identification
 - ◆ Bioaccumulation / biomagnifications
 - ◆ VHS
 - ◆ Fishing Lures: why they work – animal behavior study

- ◆ “Winter-kill” within a lake
 - ◆ Fisheries Management
 - ◆ Tribal Spearing Rights
 - ◆ Perch population decline in Lake Michigan
 - Endangered Species
- **PLANTS**
 - **Forest Trees and shrubs of Wisconsin**
 - ◆ **Identification: Deciduous / Coniferous / Shrubs**
 - ◆ **How to estimate the size of a tree**
 - ◆ **How to estimate value of a tree stand**
 - ◆ **Dating / tree rings**
 - ◆ **Paper Industry**
 - ◆ **Real versus Artificial Christmas Trees**
 - ◆ **Sustainable Forestry**
 - **Prairies**
 - ◆ **Wildflowers, Weeds, and Non-Woody Plants of Wisconsin**
 - ◆ **Identification: Central’s Prairie**
 - ◆ **Fire ecology**
 - **Medicinal and other uses of plants**
- **EXOTIC / INVASIVE SPECIES**
- **ENDANGERED / THREATENED / PROTECTED SPECIES**