PLT Climate Change Workshop (High School)

**Date, time**

**Location, city, Minn.**

**Facilitated by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# 10 AM

1. **“Housekeeping” (10 minutes)**
   1. Introductions
   2. Logistics of
   3. Handout books
   4. Website registration
2. **Activity #1 – Stepping through Climate Science (45 minutes)**
   1. Part A – Climate Change Timeline
   2. Part B – Climate and Forests Video
3. **Activity #7 – Carbon on the Move (45 minutes)**
   1. Part A – The Biological Carbon Cycle
   2. Part B – The Full Carbon Cycle

NOON **– Lunch**

**12:30**

1. **Activity #8 – Counting Carbon (45 minutes)**
   1. Making Clinometers
   2. Calculating the Amount of Carbon in a Tree

# 1:15 PM

1. **Field Tour or guest speaker (optional)**

# 2:30 pm

1. **Wrap up (30 minutes)**
   1. Review Website
   2. Group reflections & time to discuss with “like” teachers/educators about their ideas for lesson adaptations, challenges, etc.
   3. Evaluation

# 3 PM END

NOTES:

Background for “Carbon on the Move” Climate change happening 3 ways

1. Rise in Greenhouse gasses:
   * Carbon dioxide CO2 - 4th most common element
   * Methane CH4
   * Nitrous oxide N2O
   * Water vapor H2O
   * Ozone O3
2. Rise in release of fossilized CO2
3. Lowering of pH of ocean (Acidification- makes less carbonate available for marine life to build hard body parts)

| Carbon POOLS   * Plants * Atmosphere * Soil | Consider  TIME | CARBON FLUX   * Photosynthesis * Respiration (plant or soil) * Fire |
| --- | --- | --- |
| Carbon SINK – a pool that absorbs more than it releases   * Oceans * Soil * Forest * Limestone |  | Carbon SOURCE – a pool that releases more than it stores   * Fossil fuels |

Carbon SEQUESTRATION – a process of transferring CO2 to other pools (plant biomass, soils)

CARBON CYCLE - How photosynthesis is related to carbon cycle

SOIL CARBON– contains WELL OVER 2X the CO2 found in ALL terrestrial plants and animals. The organic part of soil (Carbon) comes from decaying life

SEDIMENT – at bottom of oceans, or in soils, becomes compacted, turns into rock/limestone

**Reminders for attendees:**

* Bring a laptop (if possible)
* Dress for being outside
* Tick prevention
* Bring snacks/water

**Print/Make copies of:**

* Agenda for day for participants
* Adaptation Ideas for States/Regions Outside of the Southeast document
* www.pca.state.mn.us/sites/default/files/trees\_likely\_to\_thrive.pdf
* http://files.dnr.state.mn.us/education\_safety/education/plt/minnesota-forest-types.pdf
* Minnesota Forest and Trees Primer http://files.dnr.state.mn.us/forestry/education/primer/allaboutminnesota'sforestsandtrees\_aprimer.pdf
* STEM Connections document
* Act #1 Timeline Student Handout
* Act #1 Video Student Handout
* Act #1 Video Answer key **(for facilitator)**
* Act #7 Carbon Pathway Student Handout
* Act #7 Mapping Carbon Student Handout
* Act #7 Carbon Cycle Diagram Answer key **(for facilitator)**
* Act #8 Carbon in a Tree (Option A, 3 pages) Student Handout
* Evaluations
* CEU certificates

**Supplies**:

* Books
* Act #1 Timeline cards and Interval signs
* Act #7 Station Cards & Dice
* Act #7 Flip chart paper and Markers
* Act #8 Clinometer kits (protractors, tape, straws, string, weights)
* Act #8 Surveyor tapes; tape measures