**Introductory Modeling Instruction in Chemistry**

**One Week Short Course**

**Summer 2011**

at ND (Torrison and Rose) [11 -15 July] - 8:30 am - 4 p.m.

**Day 1**

Welcome

Introductions

Schedules

Workshop description & goals

Why Modeling presentation

Misconception Research

Matter Concept Inventory & Chemical Concept Inventory

Handout 1st semester Outline

**Unit 1 Physical Properties of Matter – Intro to a simple particle model**

Mass and Change Lab

Whiteboard prep & presentations: Mass and Change

Review of remaining Unit 1 materials/objectives

**Unit 2: Energy & States of Matter – Part I**

Demos

Eureka Videos

PVTn Lab

**Reading/Homework:**

**Day 2**

Whiteboard prep & presentations: PVTn Lab

PVTn problems

Review of remaining Unit 2 materials/objectives

**Unit 3: Energy & States of Matter – Part II**

Icy Hot Lab

Whiteboard prep & presentations: Icy Hot

Energy Reading & Energy Presentation

Energy bar chart problems

**Reading/Homework:**

**Day 3**

Start Empirical Formula Lab

Whiteboard energy bar charts

Review of remaining Unit 3 materials/objectives

**Unit 4: Describing Substances – Particles have some internal structure**

Introductory activities

Sticky Tape Lab

Whiteboard prep & presentations: Sticky Tape

Phet Website

Discussion of nomenclature teaching methods

Review of remaining Unit 4 materials/objectives

**Unit 5: Counting Particles too Small to See**

Discuss methods of presenting the mole

Finish Empirical Formula Lab

Whiteboard prep & presentations: Empirical Formula

Review of remaining Unit 5 materials/objectives

**Reading/Homework:**

**Day 4**

**Unit 6: Chemical Change – Particles and Energy**

Discuss methods of presenting balancing equations

Whiteboard prep & presentations: balancing equations

Reaction Energy Presentation & Discussion

Whiteboard prep & presentations: Reaction Energy Bar Charts

Review of remaining Unit 6 materials/objectives

**Unit 7: Stoichiometry I - Mass**

Start Nail Lab

BCA tables presentation & discussion

**Reading/Homework:**

BCA tables

**Day 5**

Finish Nail Lab

Whiteboard prep & presentation: Nail Lab

Whiteboard presentation: BCA tables

Review of remaining Unit 7 materials/objectives

**Unit 8: Stoichiometry II – Volume & Energy**

Review of Unit 8 materials/objectives

**Workshop Wrap Up**

Revisit Matter Concept Inventory & Chemical Concept Inventory

Issues in implementing modeling

Discussion of 2nd semester topics

Access to curriculum materials (modeling website & password)

Modeling listserve