

# Southern Regional High School

Manahawkin, New Jersey

## Course Syllabus

**Department:** Science

**Course:** CHEMCOM

### Marking Period 1

Topics/Units to be covered:

- Classroom Expectations/Grading

#### **Safety**

ACS Film: Lab Contract

#### **Water: Fish Kill**

Quality of water:

measurement-metrics  
water use  
hydrologic cycle and where water's location on Earth

Contaminants:

physical properties of water  
atomic structure  
atomic number, mass number: calculating the number of protons, neutrons  
mixtures and/solutions  
molecular view of water  
symbols  
writing chemical formulas  
ionic bonding

Fish kill, solubility:

concentration  
dissolved oxygen  
Ionic compounds,  
role of heavy metals

Water purification

- Quarterly

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### Marking Period 2

Topics/Units to be covered:

#### **Conserving Chemical Resources**

renewable & non-renewable resources  
physical/chemical changes  
properties: physical or chemical  
chemical elements and the periodic table  
periodic trends  
families, and chemical reactivity  
modifying properties and sources of resources,  
balancing chemical equations  
mole: molar mass  
mass percent  
refining and the use of copper metal  
the reactivity of metals  
redox  
symbols  
writing chemical formulas  
metrics  
periodic trends

- Quarterly

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## Course Syllabus

### Marking Period 4

Topics/Units to be covered:

#### **Petroleum & Petrochemicals**

life with petroleum  
petroleum's distribution  
simple hydrocarbons,  
petroleum refining and its' products  
intermolecular forces  
organic chemicals: organic families  
covalent bonding  
molecular formulas,  
Lewis structures  
nomenclature of simple hydrocarbos  
alkanes as energy source  
energy conversion  
altering fuels  
petrochemicals  
condensation reaction and addition reactions to form polymers  
alternative energy supplies

- Final Exam- topics of 3<sup>rd</sup>/4<sup>th</sup> marking period

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### Marking Period 3

Topics/Units to be covered:

#### **Nuclear Chemistry**

historical development of the atom  
works of Becquerel, Curie, Rutherford, etc.  
types of radiation: ionizing & non-ionizing  
EM radiation,  
architecture of atoms  
isotopes and isotopic notation  
natural radio-isotopes  
living with benefits & risks,  
radioactive decay  
balancing nuclear equations  
half-life  
fission  
fusion  
nuclear waste  
chemical formulas  
molar mass  
mass percent  
mass number and atomic number  
calculation of the number of protons, neutrons, and electron given isotopic notation

- quarterly