

AN INTRODUCTION TO



FISSION AND FUSION

GRADES 9-12

# AN INTRODUCTION TO SNC - Plant Farley LESSON PLAN FISSION AND FUSION

**Lesson Title:** An Introduction to Fission and Fusion

**Lesson Description:** This is a MS PowerPoint Presentation.

**Grade Level:** 9-12

**Subject Area(s):** Physical Science, Physics, Chemistry

**Objectives:** Students will:

- gain an understanding of the concept of nuclear reactions.
- become familiar with basic characteristics of fission.
- make inferences between atomic nuclear structure and nuclear reactions.
- become familiar with basic characteristics of fusion.
- be able to distinguish between fission and fusion processes.
- answer elementary questions regarding fission and fusion.

**Materials:**

- PPT presentation
- Windows platform computer with MS PPT 2000
- Large monitor for class to view
- Printed handouts for students to follow (optional)

**Correlations (NSES):**

- Content Standard B – Physical Science
  - develop an understanding of the structure and properties of matter
  - develop an understanding of motions and forces
  - develop an understanding of conservation of energy and increase in disorder
  - develop an understanding of interactions of energy and matter
- Content Standard E – Science and Technology
  - develop understandings about science and technology

**Curriculum Integration:**

- Mathematics

**Background Information:**

- Main Ideas
  - nuclear structure of the atom is determinant of nuclear reactions
  - fission is splitting of heavy nuclei into lighter nuclei/fission fragments
  - fusion is the combination of light nuclei into single heavier nuclei
  - nuclear reactions produce vast amounts of energy
  - fission occurs naturally on our planet
  - fusion occurs within stars
- Secondary Ideas
  - principles related to other areas of nuclear science such as uses of radiation (power, medicine, industrial applications, etc.)
  - uses of fission in industry
  - measurement of radioactive decay

**Teacher Activities:**

- Assemble/organize all materials needed for activity
- Present background materials to students
- Distribute PPT Lecture Handout Sheets to students
- Conduct PPT Lecture on Fission & Fusion
- Complete lesson by stressing main points and reviewing quiz

**Student Activities:**

- Listen carefully to background information issued by teacher.
- Obtain handouts.
- Pay close attention to lecture/PPT presentation.
- Take notes during lecture.
- Participate in post-activity discussion.

**Evaluation:**

- Quiz embedded in PPT presentation

**Extension/Enrichment:**

- Take your class on a field trip to tour a nuclear power plant.
- Complete a “star study.”
- Have students research various areas of nuclear science.
- Research natural uranium reactors such as the one in Gabon, West Africa.