



**Instructor:** (Lorrie) Florence Baumann (2003 Science Teacher Workshop participant)

**School District:** Branchburg Township

**Lesson Title:** Modeling Isotopes

**Grade:** 6,7,8

**Subject:** Science

**Objectives:**

- Students will be able to construct models of isotopes of Hydrogen and Carbon using the Periodic table
- Students will be able to explain the meaning of an isotope and describe several uses for the isotopes of hydrogen and carbon.

**Materials and Resources:** Student science text, Internet and reference materials, Periodic Table, Smarties Candies, Glue, Poster Board, Markers

**Introduction:**

Students should have an understanding of the structure of the atom and atomic particles prior to the lesson.

Give students a Periodic Table and review how to use the table to determine the structure of an atom for any particular element. Ask why the average atomic mass is not a whole number. Discuss how the average mass is a weighted average of all the naturally occurring isotopes for a particular element. Ask students to look up the meaning of isotope in their glossary. Discuss the importance of isotopes and how many are radioactive. Look at hydrogen. It has an atomic mass of 1.0079 amu. Hydrogen has three common isotopes: H-1, H-2, and H-3. Look at Carbon. Its mass is 12.011. It has two common isotopes, C-12 and C-14.

**Activity:**

Put students into groups of three. Each group must create two posters. The first poster will contain models of the three isotopes of hydrogen. Underneath each model, students will write the name of the isotope and any uses it has. The second poster will contain two isotopes of carbon, and any uses. Students will work in groups of three to complete their posters. They will use the Internet and science texts to look up information. They will use the Periodic Table to determine the structure of the isotopes.

They will use Smarties Candies for the atomic particles and glue them on the poster.

They will put a + on the protons and a - on the electrons. This may take two periods

When completed, students will present their posters to the class in a team presentation.

They will describe the structure and uses of the isotopes.

**Evaluation:** Students can be graded with a rubric.