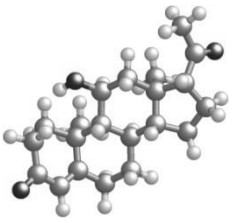

Chem!stry

Name: …… **( )**

Class: ……

Date: …… **/** …… **/** ……

Modelling Atoms, Elements, Compounds and Mixtures

Macroconcept: Models

Introduction:

Physical and mathematical models are often used by scientists to help them understand abstract and complex ideas. For example, scientists model the behaviour of particles that are too small to visualise – even with the most powerful electron microscopes. In this activity you will use M & M's® or Smarties® to model the arrangement of atoms, elements, compounds and mixtures.

Instructions:

A single M & M® or Smartie® represents a single atom. Working individually, arrange the M & M's® or Smarties® in the various boxes to model the substance that is being described. You should take digital photographs of your models to record your work. The photographs should then be uploaded – along with a brief description – and shared on to your class *Chemistry blog* so that your peers can evaluate and comment on them.

a) A Single atom.

b) 4 molecules of an element, each molecule composed of 2 atoms.

Notes:

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c) 3 molecules of an element, each molecule composed of 3 atoms.

d) 2 molecules of an element that are each composed of 2 atoms mixed with 2 molecules of a different element that are each composed of 3 atoms.

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e) 2 molecules of a compound that are each composed of 1 atom of an element bonded to 3 atoms of a different element.

f) 2 molecules of a compound that are each composed of 2 atoms of an element bonded to 4 atoms of a different element.

Notes:

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g) 2 molecules of an element that are each composed of 2 atoms mixed with 3 molecules of a compound that are each composed of 2 atoms.	h) 3 molecules of an element that are each composed of 2 atoms mixed with 1 molecule of a compound that is composed of 4 atoms.

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i) 2 molecules of a compound that are each composed of 3 atoms mixed with 3 molecules of a different compound that are each composed of 2 atoms.	j) 2 molecules of a compound that are each composed of 3 atoms mixed with 1 molecule of a different compound that is composed of 5 atoms.

Notes:

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<u>Questions for Class Discussion</u>:

1. What are the strengths and weaknesses of the models used in this activity?

2. Beyond Chemistry, give examples of how models are used to represent ideas in other subjects.