



## Lesson Plans Overview

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### INTRODUCTION

Chemistry is a practical science but one of the most misunderstood. *Science fusion*<sup>™</sup>, *the Elements of the Scienauts*<sup>™</sup> is an exciting card game that will inspire young people to learn more about **Chemistry**, the science of matter - its composition, properties, and reactions. Young and old alike will be engrossed in 3 phases of game play that make learning about chemistry an authentic, hands-on experience. To increase learning potential, **Edge Games** has thoughtfully provided three lesson plans, one for each game phase. While pitting different element characters against one another in each battle phase, players gain insight into the chemistry principles listed as objectives below.

#### LESSON PLAN ONE Game Phase SOLIGA<sup>™</sup>

**Grades:** 3<sup>rd</sup> and up

**Objectives:** Element vocabulary, abbreviations, and atomic number; States of matter; and Periodic table groupings.

#### LESSON PLAN TWO Game Phase WINDOJO<sup>™</sup>

**Grades:** 4<sup>th</sup> and up\*

**Objectives:** Element uses and properties, ionization potential, and valence shells.

#### LESSON PLAN THREE Game Phase FUSION<sup>™</sup>

**Grades:** 5<sup>th</sup> and up\*

**Objectives:** Compounds.

\*3<sup>rd</sup> grade gifted students can handle these lessons with adult facilitation

### NATIONAL SCIENCE STANDARDS

Although lessons for all three game phases integrate mathematics, language arts, and social studies, only the 1995 *National Science Education Standards* (<http://fermat.nap.edu/html/nses/>) are given and paraphrased below.

After completing hands-on activities in all 3 lessons, participants will develop an understanding of:

- Systems, order, and organization;
- Constancy, change, and measurement;
- Form and function;
- Properties of objects and materials;
- Properties and changes of properties in matter;
- Motions and forces;
- Transfer of energy;
- The nature of science; and
- The history of science.

### HOW TO USE THE LESSON PLANS

The lessons and accompanying handouts are designed to be facilitated by a classroom teacher, exceptional education specialist, game club sponsor, or parent. The first 1-4 pages of each lesson are facilitator instructions. Additional pages in sequence are handouts that can be copied for one-on-one, small group, or total class instruction. Each lesson is broken down into recommended sequential steps or mini-lessons. The time to compete each mini-lesson is 30-60 minutes.

### GAME MATERIALS

The game has four component types to be used as listed with each lesson

**Lesson One:** 111 Element Character Cards

**Lesson Two:** 111 Element Character Cards, 2 T-Bones, 2 Dice Cups, and Electrocoin stickers applied 10 nickels.

**Lesson Three:** 111 Element Character Cards.

52 Mole Cards are optional cards that add more strategy and complexity to the game. Refer to the rulebook for more information.