

Roselle Park Public Schools
510 Chestnut Street
Roselle Park, New Jersey 07204

Pedro A. Garrido
Superintendent of Schools
Phone (908) 245-1197
Fax (908) 245-1226

"A High Performing School District"

James Salvo
Director of Curriculum, Instruction,
and Funded Programs
Phone (908) 245-6665 – ext. 1020
Fax (908) 245-6503

Home Instruction Packet for H - Chemistry

Name of Teacher and Class: Mr. Bangs - H Chemistry

In this packet are materials and directions for students to complete for the above class.

All assignments will be collected on the day school re-opens. These assignments will be reviewed and graded.

I am available to support you during the hours 7:50am-2:50 pm to answer any of your questions. I will be responding to your emails through the following contact: rbangs@rpsd.org

Lesson:	Assignment Directions
Week 1-	Please review the description sheet attached to Learning from Home Lesson Plan which has been distributed to students.
Week 2:	Please review the description sheet attached to Learning from Home Lesson Plan which has been distributed to students.
Week 3:	<ol style="list-style-type: none">Complete "Sweet 16 Chemistry of Gases Tournament".Watch NOVA episode "Treasures of the Earth: Gems". You may have to find it on You Tube. It is about 52 minutes of playtime. You will find it fascinating. Enjoy it with a family member or with several classmates. It is one of my favorite programs. Prepare a 2 paragraph Personal Reaction essay sharing with me how the program impacted you. (Times New Roman, 12 point font, dbl. space).
Week 4:	<ol style="list-style-type: none">Watch NOVA episode "Hunting the elements". You may have to find it on You Tube. It is about 54 minutes of playtime. You will learn so much. Enjoy it with a family member or with several classmates. It is another of my favorite programs. Prepare a 2 paragraph Personal Reaction essay sharing with me how the program impacted you. (Times New Roman, 12 point font, dbl. space).Prepare any outstanding lab reports. Due dates will be determined after school re-opens.

Pedro A. Garrido
Superintendent of Schools
Phone (908) 245-1197
Fax (908) 245-1226

Roselle Park Public Schools
510 Chestnut Street
Roselle Park, New Jersey 07204

"A High Performing School District"

James Salvo
Director of Curriculum, Instruction,
and Funded Programs
Phone (908) 245-6665 - ext. 1020
Fax (908) 245-6503

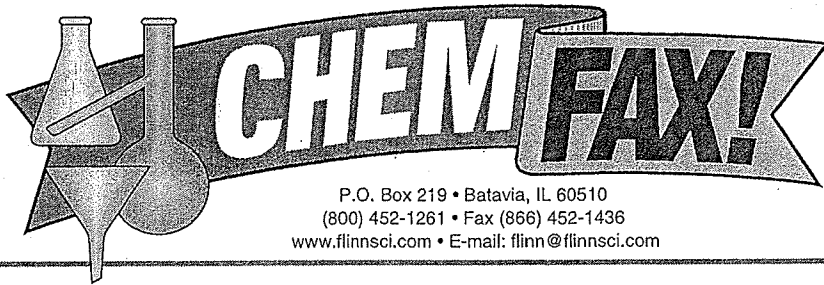
Learning from Home Lesson Plans

Class	Weeks	Electronic Assignments	Paper Assignments
	Week 1		a) Complete "It's Elementary - March Madness" b) Complete worksheet C, pg. 23 c) Textbook pg. 890, Problems 165, 166, 167, 168
	Week 2		a) Complete "Sweet 16 Compound Tournament" b) Complete worksheet D, pg. 24 c) Textbook pg. 890, Problems 169, 170, 171, 172

Honors chemistry (Mr. Bangs)

Comments:

- 1) All assignments will be due on the day of school re-opening.
- 2) Students should use time to work on any outstanding lab reports. Due dates for lab reports will be determined upon school re-opening.
- 3) Utilize Khan Academy, Bozemanscience.com and other on-line resources to strengthen chemistry skills and knowledge.



FLINN
SCIENTIFIC, INC
"Your Safer Source for Science Supplies"

P.O. Box 219 • Batavia, IL 60510
(800) 452-1261 • Fax (866) 452-1436
www.flinnsci.com • E-mail: flinn@flinnsci.com

Publication No. 10915

It's Elementary — March Madness

March Madness is upon us! Your students are probably already working on their next assignment in bracketology, predicting the field for the NCAA Basketball Tournament. (Although the word doesn't appear in Webster's, there is an article on bracketology on Wikipedia, so it must be real.) Let's apply the principles of bracketology to the properties of the elements. The competition among the 64 elements is stiff, and there is a wealth of information for students to research, in this "elementary" version of March Madness!

Review of Element Properties

Define each of the following properties of the elements and briefly describe any periodic trend in the property across a row or down a column in the periodic table.

- Ionization energy
- Atomic radius

Tournament Rules

Here are the rules for predicting the winners in each round of *It's Elementary—March Madness*. In the event of a tie in the properties of two competing elements in any round of the tournament, the element with the larger atomic mass always wins.

- First round: Research the date of discovery of each element. In each bracket, *the element that was discovered earlier (in its free element form) wins* and proceeds to the second round. If an element has been known since ancient times, assign it a discovery date of zero.
- Second round: Compare the ionization energy of the elements in each bracket. *The element with the higher ionization energy is the winner* and advances to the Sweet 16.
- Third round (Sweet 16): Compare the group numbers of the elements—*the winner is the element with the larger group number using the international (IUPAC) system (Groups 1–18)*.
- Fourth round: *The element with the larger atomic radius wins this round and earns a trip to the Final Four*. Use the atomic or covalent radius only, not the van der Waals radius.
- Semifinals (Final Four): *Solve the following riddles to determine the two elements that will compete for the championship.*
 - ❖ This "salt-maker" is also a rainmaker when its silver salt is scattered into clouds.
 - ❖ Once a sedative and cure for nervous tension, the ion of this element is now a trite or commonplace expression.
- Finals: It's often said that there's no _____ in team, but it is the winner in this field!

Connecting to the National Standards

This laboratory activity relates to the following National Science Education Standards (1996):

Unifying Concepts and Processes: Grades K–12

Systems, order, and organization

Content Standards: Grades 9–12

Content Standard B: Physical Science, structure of atoms; structure and properties of matter

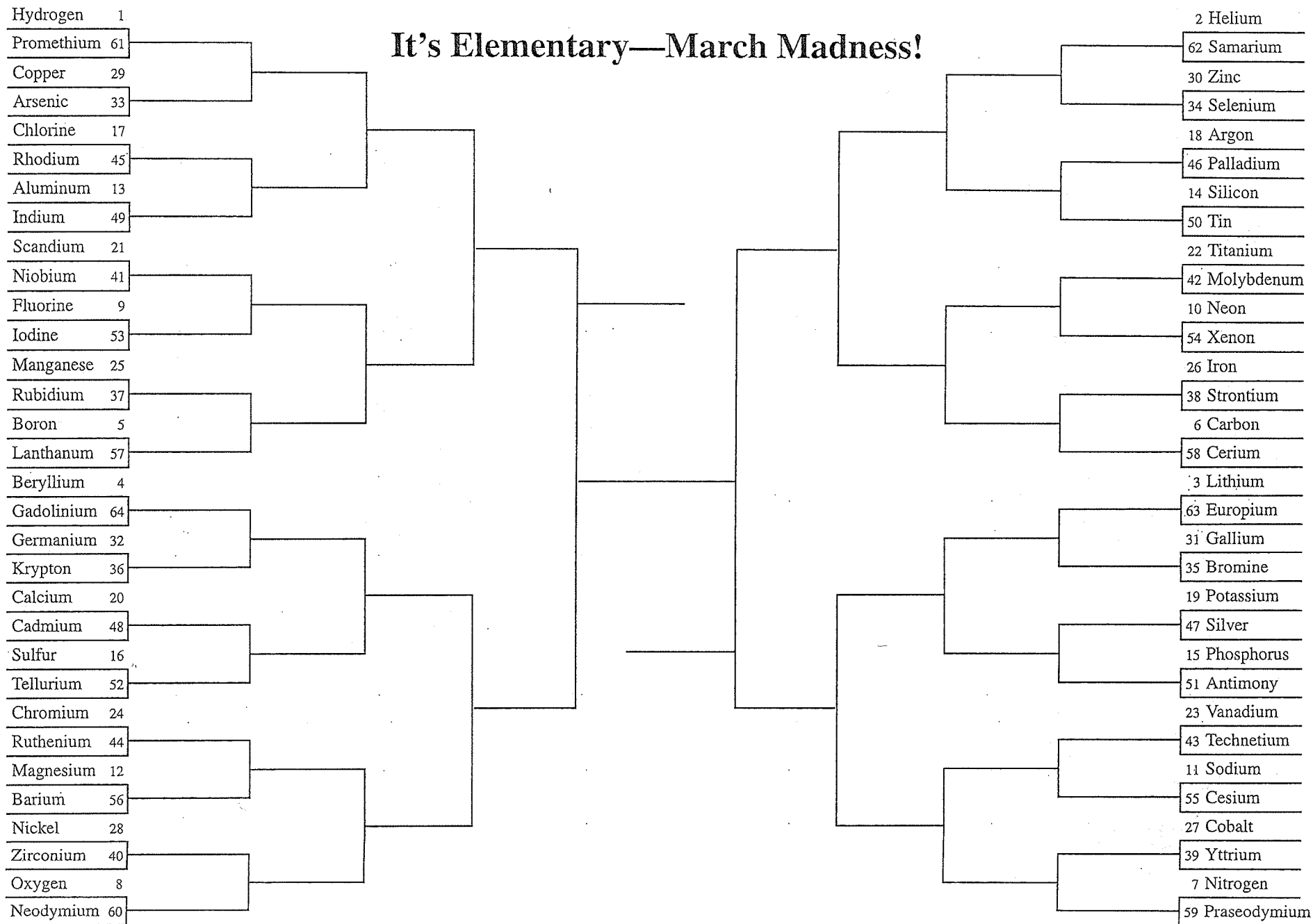
References

John Emsley, *Nature's Building Blocks*, Oxford University Press: Oxford England (2001).

WebElements™ Periodic Table, <http://www.webelements.com> (accessed February 2008).

Flinn Scientific Periodic Table of the Elements, Catalog No. AP9020.

It's Elementary—March Madness!



C. INTERPRETING CONCEPTS

1. Write the symbol used to indicate each of the following physical states.

_____ gas

_____ solid

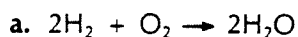
_____ liquid

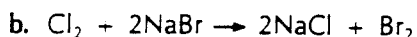
_____ water solution

2. What does it mean to refer to an equation as "balanced"?

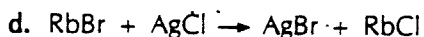
3. List in order the three steps used to write a balanced equation.

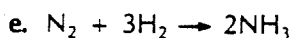
4. Label each of the following reactions as single displacement, double displacement, decomposition, or synthesis.



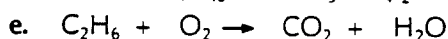
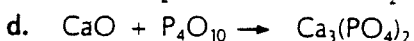
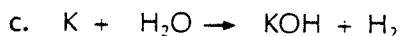
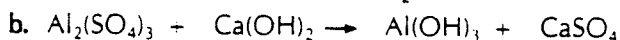
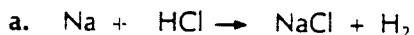




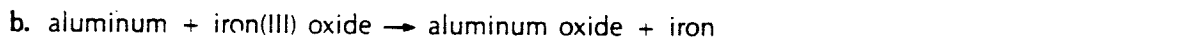




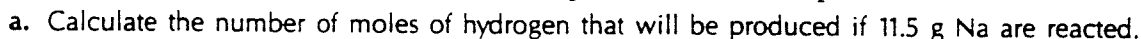
5. Balance the following chemical reactions by placing the correct coefficient in front of each formula.



6. Write balanced formula equations for the following chemical reactions.



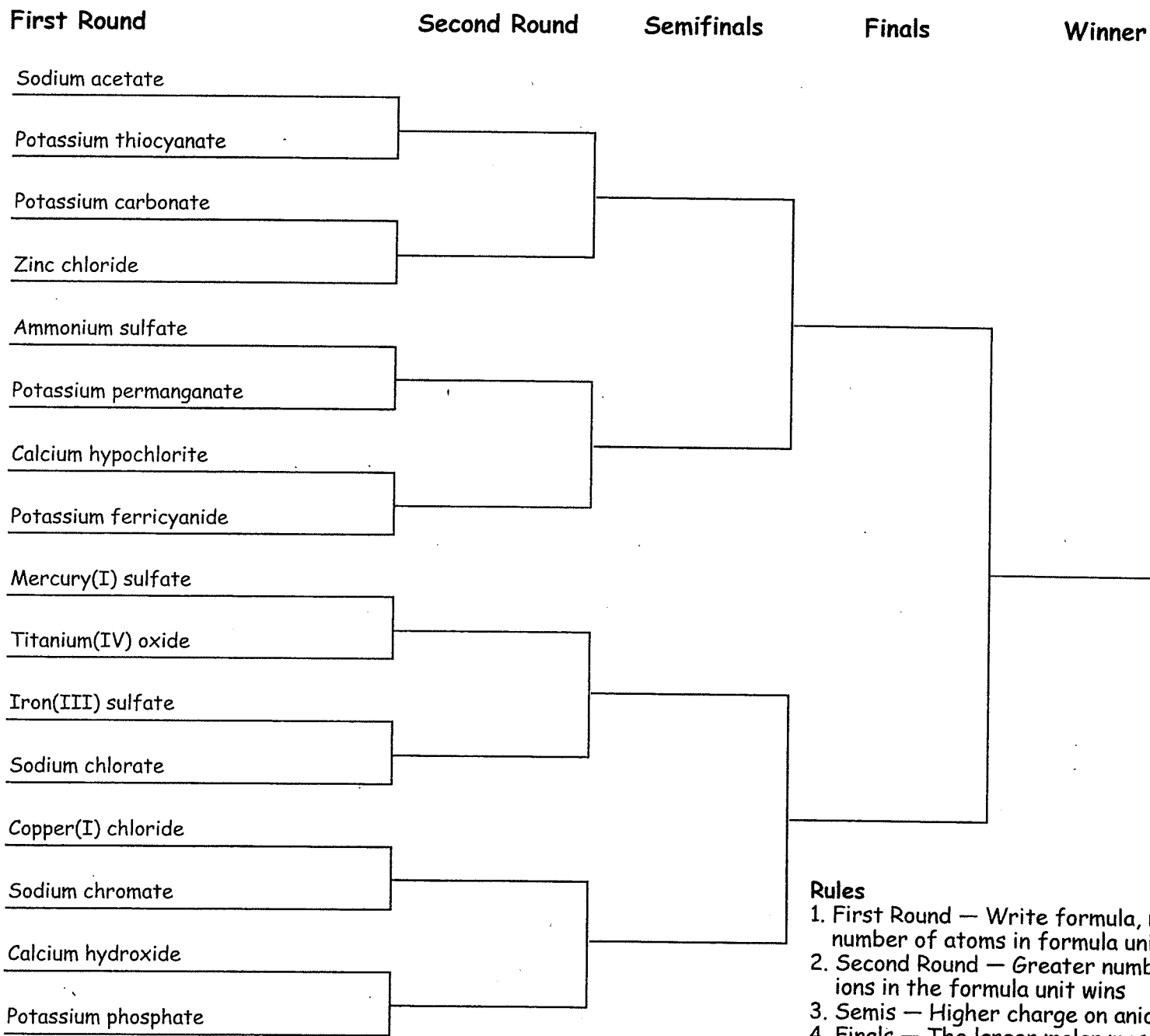
7. The following reaction takes place:
- $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$
- .





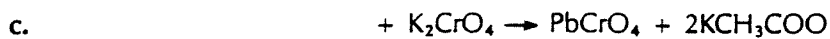
Name _____

Sweet 16 Chemistry Compound Tournament

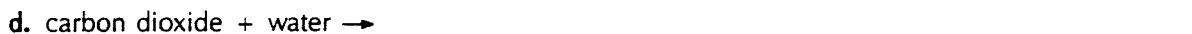


D. USING CONCEPTS

1. Fill in the blank with the correct chemical formula for the missing reactant or product in the reactions below.



2. Predict the products for the following reactions and write balanced formula equations for each.



Use the following information to answer questions 3-6.

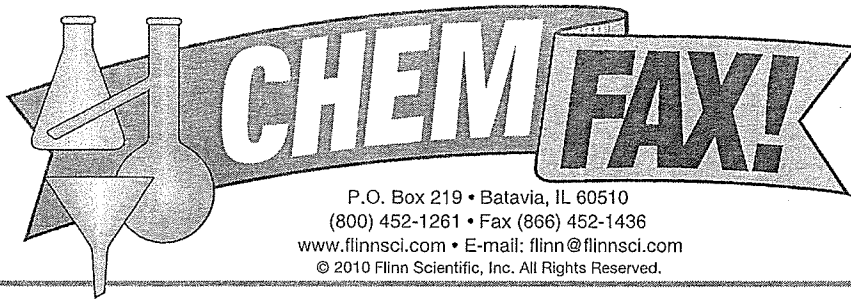
A student placed 8.25 g of aluminum metal into a water solution of hydrogen chloride (hydrochloric acid). All of the aluminum reacted to form aluminum chloride and hydrogen gas. No precipitate was observed. The student later evaporated the water to leave solid aluminum chloride.

3. Write the balanced equation for the above reaction and use the correct symbols for the physical state of each substance involved.

4. How many moles of aluminum did the student use in this reaction?

5. How many grams of hydrogen were produced in this reaction?

6. How many grams of aluminum chloride were produced by this reaction?



FLINN
SCIENTIFIC, INC.
"Your Safer Source for Science Supplies"

P.O. Box 219 • Batavia, IL 60510
(800) 452-1261 • Fax (866) 452-1436
www.flinnsci.com • E-mail: flinn@flinnsci.com
© 2010 Flinn Scientific, Inc. All Rights Reserved.

Publication No. 11014

Sweet 16 Chemistry of Gases Tournament

Do your students eagerly compete to fill out their "March Madness" tournament brackets? Have some fun and inspire your students with March Madness chemistry! This activity combines the popularity of "bracketology" with a review of the preparation and properties of common gases. The historical foundation of modern chemistry was built on the study of gases, such as experiments with hydrogen and oxygen in the 18th century that led to the modern definition of an element versus a compound. From these historical roots, the study of gases continues to influence our lives. The role of "greenhouse gases," in particular, remains a vital area of research—and may help determine the winner of the Sweet 16 Chemistry of Gases tournament!

Review of Concepts

- Common gases
- Solubility of gases in water
- Acid–base properties
- Molar volume of gases at STP
- Ideal gas law
- Greenhouse gases

Tournament Rules

The rules for filling out the tournament bracket are summarized below. A supplementary chemical reactions worksheet has been provided to help identify the contestants in the Sweet 16 Chemistry of Gases tournament.

- First round: Predict the name and formula of the gaseous product obtained in a chemical reaction involving the reactants listed in the first round. The gas "escapes" to the second round!
- Second round: Compare the solubility of the gases in water. The winner is the gas that dissolves in water to form an **acidic** solution.
- Semifinals: Calculate the density of each gas in g/L based on its molar mass (g/mole) and the molar volume of an ideal gas at STP (22.4 L/mole). The winner is the gas that is **more** dense.
- Final: The winner of the tournament is a "greenhouse gas" that is produced in large quantities in volcanic emissions.

Connecting to the National Standards

This laboratory activity relates to the following National Science Education Standards (1996):

Unifying Concepts and Processes: Grades K–12

Constancy, change, and measurement

Content Standards: Grades 5–8

Content Standard B: Physical Science, properties and changes of properties in matter

Content Standard F: Science in Personal and Social Perspectives, natural hazards

Content Standards: Grades 9–12

Content Standard B: Physical Science, structure and properties of matter, chemical reactions

Content Standard D: Earth and Space Science

Content Standard F: Science in Personal and Social Perspectives, environmental quality, natural and human-induced hazards

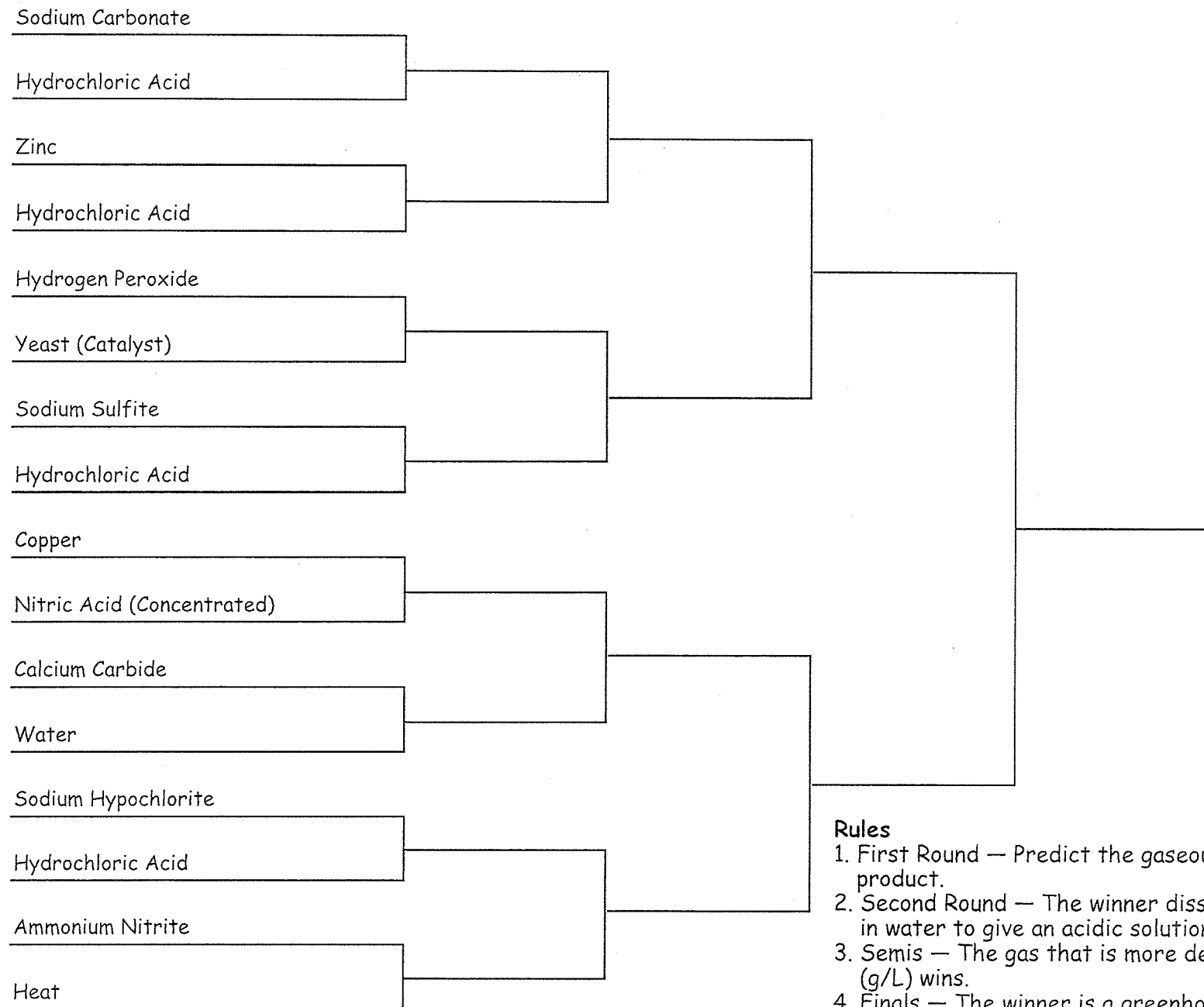
Extension

Add small pieces of dry ice to a series of acid–base indicator solutions—the solutions immediately begin to "boil" and change color. Teach students about sublimation and the acid–base properties of carbon dioxide with this colorful and "cool" demonstration!

Sweet 16 Chemistry of Gases Tournament

Name _____

First Round Second Round Semifinals Finals Winner



Rules

1. First Round — Predict the gaseous product.
2. Second Round — The winner dissolves in water to give an acidic solution.
3. Semis — The gas that is more dense (g/L) wins.
4. Finals — The winner is a greenhouse gas produced in volcanic emissions.

Sweet 16 Chemistry of Gases Tournament

Supplementary Chemical Equations Worksheet

Predict the products and balance the following chemical equations to identify the contestants in the Chemistry of Gases tournament.

