

## POGIL 2 Ions

How are ions made from neutral atoms?

You have learned that not all atoms of an element are the same. Variation in the number of neutrons results in different isotopes of the element. In this activity we will explore another variation that can take place—the loss and gain of electrons. The exchange of electrons between atoms is a very common way for chemical change to take place. We will see it many times throughout the year.

1. Use Diagram 1 on the next page to complete the following table.

	Metal or Nonmetal	Number of protons in the atom	Number of protons in the ion	Number of neutrons in the atom	Number of neutrons in the ion	Number of electrons in the atom	Number of electrons in the ion	Charge on the ion
Lithium	metal	3	3	4	4	3	2	1+
Magnesium	<i>Metal</i>	12	12	12	12	12	10	2+
Aluminum	<i>Metalloid</i>	13	13	14	14	13	10	3+
Fluorine	<i>Non metal</i>	9	9	10	10	9	10	1-
Oxygen	nonmetal	8	8	8	8	8	10	2-
Nitrogen	<i>Non metal</i>	7	7	7	7	7	10	3-

2. Based on the table you completed in Question 1, what distinguishes a neutral atom from an ion?

*A neutral atom has the same number of protons and electrons (no charge). An ion has a charge (# of protons does not equal # of electrons).*

3. Examine the isotope symbols in Diagram 1.

- a. Where is the ion charge located in the isotope symbol?

*Top right corner*

- b. Is a charge indicated on the neutral atoms? If yes, where is it located?

*No*

4. Which subatomic particle carries a positive charge?

*Protons are positive*

5. Which subatomic particle carries a negative charge?

*Electrons are negative*

6. Propose a mathematical equation to calculate the charge on an ion from the number of protons and electrons in an ion. Confirm that your equation works using two positive ion examples and two negative ion examples from Diagram 1.

*The charge of an ion = # of protons - # of electrons*

# Ions Pogil Activities For High School Chemistry

**John Robbins (... I.C.)**



## **Ions Pogil Activities For High School Chemistry:**

*POGIL* Shawn R. Simonson, 2023-07-03 Process Oriented Guided Inquiry Learning POGIL is a pedagogy that is based on research on how people learn and has been shown to lead to better student outcomes in many contexts and in a variety of academic disciplines Beyond facilitating students mastery of a discipline it promotes vital educational outcomes such as communication skills and critical thinking Its active international community of practitioners provides accessible educational development and support for anyone developing related courses Having started as a process developed by a group of chemistry professors focused on helping their students better grasp the concepts of general chemistry The POGIL Project has grown into a dynamic organization of committed instructors who help each other transform classrooms and improve student success develop curricular materials to assist this process conduct research expanding what is known about learning and teaching and provide professional development and collegiality from elementary teachers to college professors As a pedagogy it has been shown to be effective in a variety of content areas and at different educational levels This is an introduction to the process and the community Every POGIL classroom is different and is a reflection of the uniqueness of the particular context the institution department physical space student body and instructor but follows a common structure in which students work cooperatively in self managed small groups of three or four The group work is focused on activities that are carefully designed and scaffolded to enable students to develop important concepts or to deepen and refine their understanding of those ideas or concepts for themselves based entirely on data provided in class not on prior reading of the textbook or other introduction to the topic The learning environment is structured to support the development of process skills such as teamwork effective communication information processing problem solving and critical thinking The instructor s role is to facilitate the development of student concepts and process skills not to simply deliver content to the students The first part of this book introduces the theoretical and philosophical foundations of POGIL pedagogy and summarizes the literature demonstrating its efficacy The second part of the book focusses on implementing POGIL covering the formation and effective management of student teams offering guidance on the selection and writing of POGIL activities as well as on facilitation teaching large classes and assessment The book concludes with examples of implementation in STEM and non STEM disciplines as well as guidance on how to get started Appendices provide additional resources and information about The POGIL Project

**Reactions of Ions** William Edward Marsden, 1996    Atoms and Ions Alfred John Cork, 1969    *Ions in Solution* Ronald W. Gurney, 2022-10-27 This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it This work is in the public domain in the United States of America and possibly other nations Within the United States you may freely copy and distribute this work as no entity individual or corporate has a copyright on the body of the work Scholars believe and we concur that this work is important enough to be preserved reproduced and made generally available to the public We appreciate your support of the preservation process and

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*Ions in Solution* ,1972      Ion Activities in Suspensions. (Preliminary Note) R. Loosjes,A. C. Schuffelen,1941\*  
**Science Foundation Course** ,1971      *Fundamentals of Introductory Chemistry* Darrell D. Ebbing,1998-06-01

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accurately transcribe Father ... TRINITY SUNDAY - Fr. Paul's Homily | St. Gregory the Great ... Trinity more than just an abstract doctrine that we take down off a shelf, dust off and admire once a year. Today we go forth from here mandated by our God ... Homily For Holy Trinity Sunday, Year A May 30, 2023 — Glory Be To The Father, To The Son And To the Holy Spirit, Amen! Readings: 1st: Ex 34, 4-6.8-9; Ps. (Dan 3, 52-56); 2nd: 2Cor 13: 11-13; ... Psychosocial and Legal Perspectives on Mothers Who Kill: ... Margaret Spinelli has gathered a group of experts to examine the subject of maternal infanticide from biologic, psychosocial, legal, and cultural perspectives. Infanticide: Psychosocial and legal perspectives on ... by MG Spinelli · 2003 · Cited by 123 — Infanticide: Psychosocial and legal perspectives on mothers who kill. ; ISBN. 1-58562-097-1 (Hardcover) ; Publisher. Arlington, VA, US: American Psychiatric ... Psychosocial and Legal Perspectives on Mothers Who Kill by PJ Resnick · 2003 · Cited by 9 — Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill gives very good coverage to a variety of topics, including postpartum ... APA - Infanticide Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill brings together in one place the newest scholarship—legal, medical, and psychosocial ... Infanticide: Psychosocial and Legal Perspectives on ... by P Zelkowitz · 2004 — Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill. Spinelli, Margaret G., Ed. (2002). Washington, DC: American Psychiatric Publishing. Infanticide: Psychosocial and Legal Perspectives on Mothers ... by IANF BROCKINGTON · 2004 · Cited by 2 — Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill ... The purpose of this book is to influence public and legal opinion in the ... Infanticide: Psychosocial and Legal Perspectives on ... Overall, Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill is very informative and captivates the reader's interest throughout. It achieves ... Psychosocial and Legal Perspectives on Mothers Who Kill Maternal infanticide, or the murder of a child in its first year of life by ... Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill. edited ... Psychosocial and Legal Perspectives on Mothers Who Kill Request PDF | On Jun 18, 2003, Leslie Hartley Gise published Infanticide: Psychosocial and Legal Perspectives on Mothers Who Kill | Find, read and cite all ... Infanticide. Psychosocial and Legal Perspectives on ... by MG Spinelli — Infanticide. Psychosocial and Legal Perspectives on Mothers Who Kill · 193 Accesses · 1 Citations · Metrics details. Advanced Engineering Mathematics - 5th Edition Find step-by-step solutions and answers to Advanced Engineering Mathematics ... Zill, Wright. ISBN: 9781449691721. Alternate ISBNs. Dennis G. Zill, Wright ... Advanced Engineering Mathematics 5th Edition Textbook ... Access Advanced Engineering Mathematics 5th Edition solutions now. Our solutions are written by Chegg experts so you can be assured of the highest quality! Advanced Engineering Mathematics 5th Edition Solutions. ... View Homework Help - Zill - Advanced Engineering Mathematics 5th Edition Solutions.pdf from ENGR 233 at Concordia University. Zill advanced engineering mathematics 5th edition solutions Stuck on a homework question? Our verified tutors can answer all questions, from basic math to advanced rocket science! Post question. Most Popular Study ... Advanced Engineering Mathematics 5th Edition solutions Advanced Engineering Mathematics 5th Edition solutions. Author: Dennis G.

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