

# **Welcome to Nuclear Friday in Integrated Science!**

**Pick up your (not-graded-yet) lab from this week over on the side lab table.**

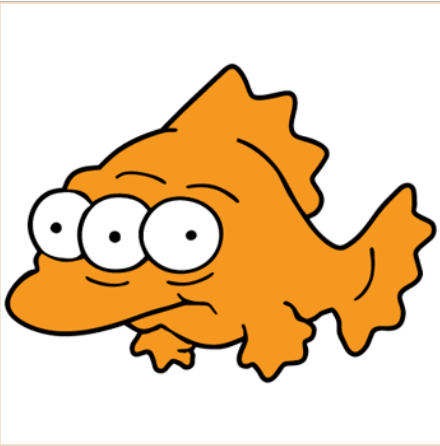
**You'll also be getting back your quiz from Monday, so start by working with one another to fix anything that you missed. MAKE SURE YOU UNDERSTAND WHY YOU MISSED WHAT YOU MISSED!**

# Today's Agenda

- **Get graded quizzes back**
- **Discuss this week's lab**
- **Lesson: Intro to Radioactivity**
- **HW: Finish lab, due Monday**  
**“Volcanic Gases” Lab Analysis (Moodle)**

# Volcanic Gases

- \* Gases emitted from volcanoes give evidence about when a volcano might erupt, and how explosive an eruption might be.
- \* The threshold amt. of gases tells when to evacuate.



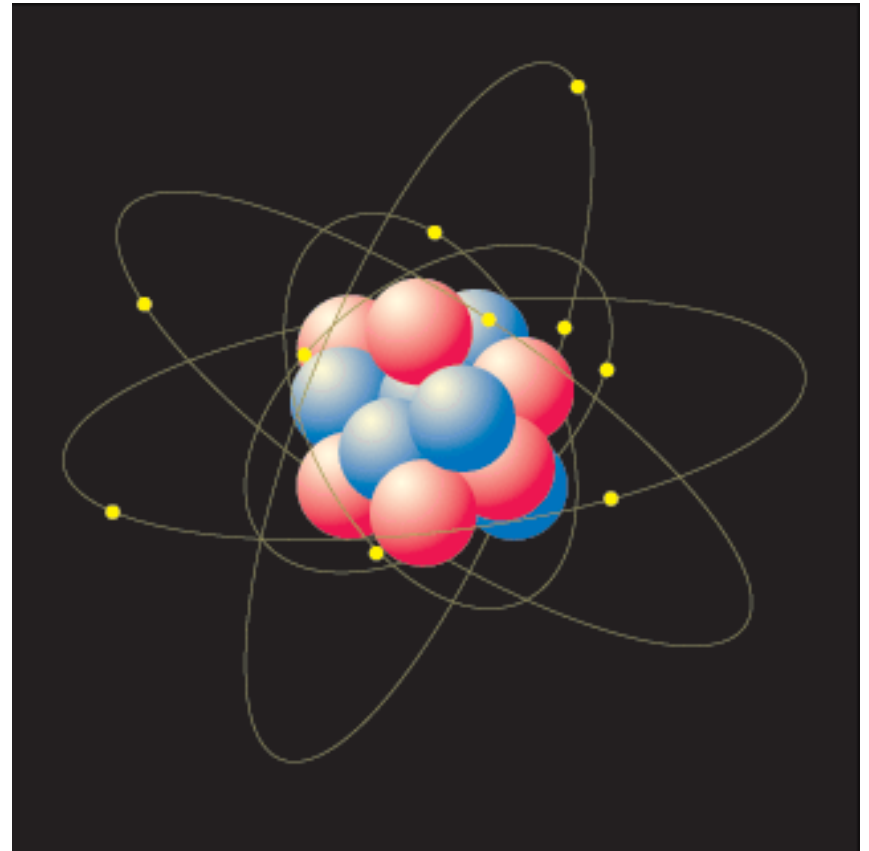
# Introduction to Radioactivity

**Learning Goal: Students will be able to...**

- explain what isotopes are.**
- use correct symbol notation to express different isotopes of an element.**
- explain what it means for a substance to be radioactive.**
- describe the 3 different types of radiation.**

# Atomic Structure

- \* Neutrons are in nucleus.   
 ← no chg.
- \* Electrons outside nucleus, "orbiting"   
 ← neg chg.
- \* Protons are in the nucleus.   
 ← + chg.
- \* # of protons is the only thing that tells what element



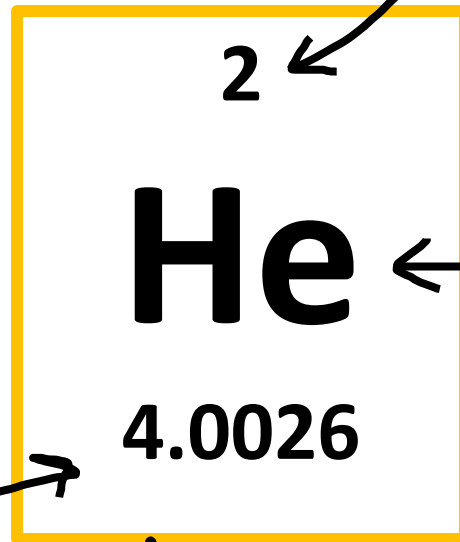
# Isotopes

\* Isotopes are atoms of the same element that have different #s of neutrons.

\* ~~Ex~~: Carbon-12 & Carbon-13 are different isotopes of Carbon

Must each 6 protons,  
but have diff. #s of neutrons

# Isotopes



Atomic #  
(# of protons)

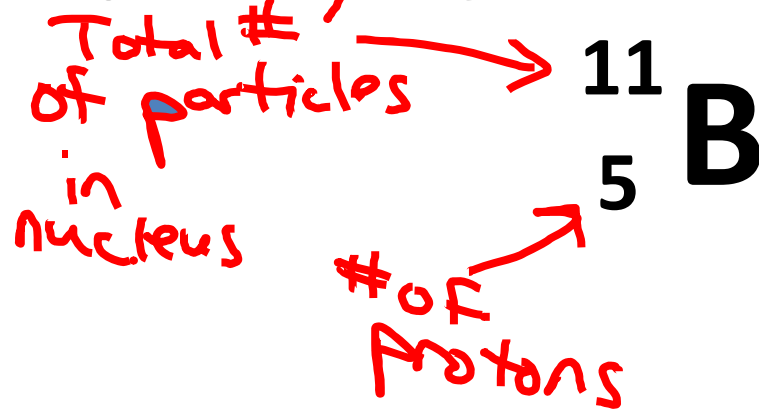
Symbol

Atomic Mass  
(Weighted average of mass of all naturally-occurring isotopes)

# Isotopes

We specify which isotope of an element we're talking about by either naming it, or with a symbol.

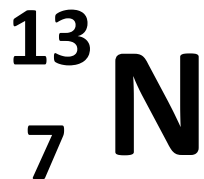
Example: The symbol for the Boron-11 isotope is



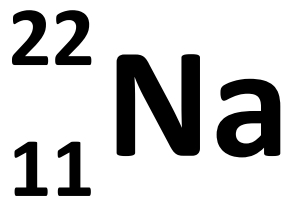
5 protons + 6 neutrons = 11 total

# Isotope Practice

Determine the number of protons and neutrons in each of the following isotopes. (You may need a periodic table.)



**Carbon-14**



**Oxygen-18**

# Isotope Practice

Determine the number of protons and neutrons in each of the following isotopes. (You may need a periodic table.)

