

Element Address Hunt

Read how periodic-table cells reveal an element's place.

PS.4.a "symbols, atomic numbers, atomic mass, chemical groups (families), and periods are identified on the periodic table; and"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Circle every numeral that gives an atomic number or atomic mass, and underline each chemical symbol. Write P beside facts about periods and G beside facts about groups, or families.

Reading an Element Cell

- ① The periodic table is a map of the elements, but its clues are made of numbers and symbols. Each element has a one- or two-letter symbol. The first letter is capitalized, and any second letter is lowercase. For example, sodium uses Na. Its atomic number is 11, meaning every sodium atom has 11 protons. Its atomic mass, about 22.99, is a decimal that represents the average mass of sodium atoms shown by samples of the element found in nature.
- ② The horizontal rows are called periods. Moving from left to right across one period, atomic number increases by one for each next element. Period number also tells how many occupied electron energy levels an atom has. In period 3, magnesium, silicon, and argon all appear in the same horizontal row. Their atomic numbers differ, but their locations show that they belong to one period. A new period begins on the next row down on the table.
- ③ Vertical columns are groups, also called families. Elements in the same group often have similar chemical properties because their outer electrons are arranged in similar ways. Chlorine is in group 17, along with fluorine and bromine. These elements are halogens, a family that readily reacts with many metals. A location therefore gives more than a name: a cell's symbol, atomic number, atomic mass, period, and group help describe an element and predict some behavior in reactions.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What is sodium's chemical symbol, and what capitalization rule does it follow?

2 What are sodium's atomic number and atomic mass? What does its atomic number tell you?

3 Which three elements does the passage name as members of period 3?

4 What group, or family, contains chlorine? Name two other elements in that group.

3 YOUR TURN _____ Your own words

Use a periodic table to choose three elements from the same period. Complete the table, then write one sentence explaining what the three elements have in common.

ELEMENT	SYMBOL	ATOMIC NUMBER	ATOMIC MASS	PERIOD AND GROUP

PART 1 • READ AND MARK

Circle every numeral that gives an atomic number or atomic mass, and underline each chemical symbol. Write P beside facts about periods and G beside facts about groups, or families. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What is sodium's chemical symbol, and what capitalization rule does it follow?	Na. The first letter is capitalized, and the second letter is lowercase.
2	What are sodium's atomic number and atomic mass? What does its atomic number tell you?	Its atomic number is 11, and its atomic mass is about 22.99. Its atomic number means each sodium atom has 11 protons.
3	Which three elements does the passage name as members of period 3?	Magnesium, silicon, and argon.
4	What group, or family, contains chlorine? Name two other elements in that group.	Chlorine is in group 17, the halogen family. Fluorine and bromine are also in that group.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Carbon | C | 6 | 12.011 | Period 2, group 14 Nitrogen | N | 7 | 14.007 | Period 2, group 15 Oxygen | O | 8 | 15.999 | Period 2, group 16 All three elements are in the same horizontal period, period 2.

Accept atomic masses rounded to the precision shown on the student's periodic table. For the open task, accept any three elements from one period if their symbols, atomic numbers, masses, and group locations are accurate.