Name :									Date :										
					Pe	rio	did	c <sup>-</sup>	Tre	nds	3	W	or	ksh	eet	+			
		Use	e the p	eriodic	tabl	e and y	our k	nowle	edge of	perio	dic t	rends	s to a	nswer	the follo	owing	g ques	tions	S.
1	1 Each of the following is a multiple-choice question. Circle the correct answer.																		
<ul> <li>a) Which statements best describes Group 2 e order from top to bottom of the periodic table</li> </ul>																			
<ul> <li>The number of principal energy levels increases, and the number of valence electrons increases.</li> </ul>										ce									
<ul> <li>The number of principal energy levels increases, and the number of valence ele- remains the same</li> </ul>											electrons								
	iii) The number of principal energy levels remains the same, and the number of vale electrons increases.											alence							
	<ul> <li>iv) The number of principal energy levels remains the same, and the number of va electrons</li> </ul>										alence								
	b) What is the total number of valence electrons in a boron atom in the ground state										e?								
		i)	1		ii)	3		iii)	5	i	v)	7							
	<ul> <li>The elements strontium and calcium have similar chemical properties becahave the same</li> </ul>									ecaus	se th	ney both							
		i)	Aton	nic nu	mbe	er				ii)	M	ass r	numl	ber					
		iii)	Num	ber o	f val	ence (	elect	rons		iv)	Νι	umbe	er of	comp	letely	fillec	sub	shel	I
2	Fil	l in	the b	est ar	iswe	er for e	each	of th	e follo	wing:									
a) As you move across a period from left to right, the size of an atom will																			
This is due to the increased number of that the atoms have as to the right.										yoı	u move								
b) As you move down a group, the size of the atoms will due to a g									a gre	eater									
		nι	ımber	of _				as	you m	ove d	owi	n the	gro	up.					
c) The amount of energy required to remove the most loosely held elected the										ctror	n fron	n an	atom is						
	d)	Th	ne am	ount (	of er	nergy i	requi	red t	o rem	ove a	se	cond	or t	hird e	lectror	n fron	m an	ator	m is
		al	ways		t	han th	ne an	noun	t of er	ergy	req	uired	d to	remov	e the t	first	electi	ron.	
3	Cir	rcle	that a	atom	with	the la	rger	aton	nic siz	e:									
	a)	M	g or (	Са		b)	Ν	or A	\s		c)	Ga	or	Br		d)	Rb	or S	Sr
4	su	gge	st a r	easor	n for	this tr	end	in io	nizatio	n ene	ergi	es. (	Hint:	: Wha	to righ t happe ctron a	ens '	to the	e dis	

NI.									ate:		
Nar	ne	:									
				Period	ic	Tren	ds	Woı	rkshee	et	
						Ans	wers				
1	Ea	ach	of the fol	lowing is a mu	ltiple-c	choice qu	estio	n. Circle	the correct	answ	ver.
	a)			ements best de top to bottom o					they are co	nside	ered in
		i)		mber of principals increases.	al ene	rgy levels	s incre	eases, ai	nd the num	oer o	f valence
	(	ii)		mber of principations the same	al ene	rgy levels	s incre	eases, ai	nd the num	ber o	f valence electrons
		iii)		mber of principa ns increases.	al ene	rgy levels	s rem	ains the	same, and	the n	umber of valence
		iv)	The nur	The state of the s	al ene	rgy levels	s rem	ains the	same, and	the n	umber of valence
	b)	W	hat is the	e total number	of vale	ence elec	trons	in a bord	on atom in t	he gı	round state?
		i)	1	ii) 3	iii)	5	iv)	7			
	c)		e eleme ve the s		nd cal	lcium hav	e sim	nilar chen	nical prope	ties l	because they both
		i)	Atomic	number			ii) N	Mass nun	nber		
	(	iii)	Number	r of valence ele	ectrons	3	iv) N	Number o	of complete	y fille	ed subshell
2	Fi	ll in	the best	answer for eac	ch of th	he followi	ng:				
	a)	Th	•	ve across a pe to the increas			•				decrease . ave as you move
	b)	As	you mo	ve down a grou	up, the	size of t	he at	oms will	increase	d	ue to a greater

- b) As you move down a group, the size of the atoms will <u>increase</u> due to a greater number of <u>energy levels</u> as you move down the group.
- c) The amount of energy required to remove the most loosely held electron from an atom is called the <u>first ionization energy</u>.
- d) The amount of energy required to remove a second or third electron from an atom is always more than the amount of energy required to remove the first electron.

3 Circle that atom with the larger atomic size:

- a) Mg or Ca b) N or As c) Ga or Br d) Rb or S
- Keeping in mind the trend in atomic radius as you move from left to right across a period, suggest a reason for this trend in ionization energies. (Hint: What happens to the distance and the force of attraction between the nucleus and the outer electron as atoms get smaller?)

Atoms get small, and electrons are held tightly by the nucleus. As a result, more energy is required to remove the electron.