k on 'Run Now' and se	lect the tab tha	it says 'Fission	: One Nucleus'		
eriment with shooting th What happens when the	e neutron gun a U-235 nucleus	is "hit" with a ne	eutron? There a		•
ect the "Chain Reaction"	•	•		ettings and sho	oting the
			er of U-235 nuc	lei to 100 and U	-238 to 0.
Explain what makes this	a "chain reactio	n".			
4) Click 'Reset' and then set the initial number of U-238 nuclei to 100 and U-235 to 0. Explain what happens when you fire the gun. Does this cause a chain reaction? Try multiple times to start a chain reaction with the U-238. Explain why this happens.					
What is U-239? In what ways is it different from U-238?					
	f U-235 nuclei a	nd U-238 nucle	i to the numbers	s in the table be	low. Record
U-235	100	70	50	30	0
U-238	0	30	50	70	100
•					N/A
	ci//phet.colorado.edu/simek on 'Run Now' and session: One Nucleus' eriment with shooting the What happens when the happen here, describe a set the "Chain Reaction" tron gun and watch what Click the 'Reset All' butto What happens when you explain what makes this Click 'Reset' and then set happens when you fire the reaction with the U-238. What is U-239? In what what is U-235 U-235 U-235 U-235 U-235 G of 235 U fissioned after 1 firing firings required to	cit/phet.colorado.edu/simulations/sims.phek on 'Run Now' and select the tab that sion: One Nucleus: eriment with shooting the neutron gun at What happens when the U-235 nucleus happen here, describe all of them in as reserved to the "Chain Reaction" tab at the top. It tron gun and watch what happens. The Click the 'Reset All' button and then set What happens when you fire the neutron Explain what makes this a "chain reaction." Explain what makes this a "chain reaction. Click 'Reset' and then set the initial num happens when you fire the gun. Does the reaction with the U-238. Explain why this what is U-239? In what ways is it difference when the control of the initial numbers of U-235 nuclei a grour results. U-235	circle to the "Chain Reaction" tab at the top. Experiment with shooting the neutron gun and watch what happens when the U-235 nucleus is "hit" with a new thappen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happen here, describe all of them in as much detail as you happens. Then answer the quark tron gun and watch what happens. Click the "Reset All" button and then set the initial number of U-238 nucleated when you fire the gun. Does this cause a chain reaction with the U-238. Explain why this happens. What is U-239? In what ways is it different from U-238? What is U-239? In what ways is it different from U-238? Set the initial numbers of U-235 nuclei and U-238 nucleated after 1 firing firings required to	eriment with shooting the neutron gun and watch what happens. What happens when the U-235 nucleus is "hit" with a neutron? There a happen here, describe all of them in as much detail as you can. Use the happen here, describe all of them in as much detail as you can. Use the content of the "Chain Reaction" tab at the top. Experiment with changing the stron gun and watch what happens. Then answer the questions below. Click the 'Reset All' button and then set the initial number of U-235 nuclei what happens when you fire the neutron gun? Explain what makes this a "chain reaction". Click 'Reset' and then set the initial number of U-238 nuclei to 100 and happens when you fire the gun. Does this cause a chain reaction? Try reaction with the U-238. Explain why this happens. What is U-239? In what ways is it different from U-238? What is U-239? In what ways is it different from U-238? Set the initial numbers of U-235 nuclei and U-238 nuclei to the numbers your results. U-235 100 70 50 U-238 0 30 50 of 235 U fissioned after 1 firing firings required to	in Reaction: The color of the

Name _____

Phet Simulation

Nuclear Fission

Wł	nat happens to the reaction as the proportion of U-238 nuclei increases? Explain why this happens.
6)	If you were trying to design the most efficient nuclear fission reactor possible, what ratio of U-235 to U-238 would you want? Explain why.
	Iclear Reactor: lect the "Nuclear Reactor" tab at the top. Experiment with changing the settings and firing the neutrons and watch what happens. Then answer the questions below.
7)	Watch very closely to the fission reactions as they happen. Specifically watch what happens to the loose neutrons after the reaction. a) What happens if the neutrons hit another nucleus?
	b) What happens if the neutrons hit a control rod?
8)	Compare the chain reaction that occurs when the control rods are inserted further into the reactor versus when they are pulled all/mostly out of the reactor.
9)	If the purpose of a nuclear reactor in a power plant is to produce energy, why are there control rods?
10	The bar graphs on the right of the display show the "Power Output" and the "Energy Produced". What is the difference between these two quantities?