Activities Indexed by National Science Education Standards: Grades 5-8

Science as Inquiry—Abilities Nec	A Cellophane Toy and Its Wrapper, pg. 13	Where Did the Water Go?, pg. 25	Syringe Investigations, pg. 35	Toys Under Pressure, pg. 43	Sticky Balloons, pg. 49	Degassing Soda Pop, pg. 53	Creaking Plastic Bottles, pg. 61	Investigations with Hand Boilers, pg. 67	Boiling in a Syringe, pg. 73	That Cold Sinking Feeling, pg. 79	Visualizing Matter, pg. 83	Modeling the Behavior of Water, pg. 93	Magic Sand, pg. 101	Colorful Lather Printing, pg. 109	Making and Breaking Emulsions, pg. 117	Curdled Milk, pg. 129	Investigations with Reusable Heat Packs, pg. 135	Dissolving Energy, pg. 145	Pencil Electrolysis, pg. 155	Investigating a Self-Inflating Balloon, pg. 163	Alka-Seltzer Poppers, pg. 175	Penny Sandwiches, pg. 183	Things That Glow, pg. 187	Rubber Band Equilibria, pg. 199
Identify questions that can be answered through scientific investigations.	•	•	•	•				•	•			•	•							•				
Design and conduct a scientific investigation.	•	•	•		•	•	•		•				•			•	•	•		•	•		•	
Use appropriate tools and techniques to gather, analyze, and interpret data.	•		•	•		•										•	•	•			•			
Develop descriptions, explanations, predictions, and models using evidence.	•	•		•		•	•			•	•	•		•	•	•		•	•	•	•	•	•	•
Think critically and logically to make the relationships between evidence and explanations.					•		•			•	•	•		•				•	•		•	•	•	•
Communicate scientific procedures and explanations.			•				•						•			•				•			•	
Use mathematics in all aspects of scientific inquiry.							•										•	•						
Physical Science																								
Properties and changes of properties in matter	•				•	•	•	•	•	•	•		•	•	•	•		•		•	•	•	•	
Motions and forces												•									•			
Transfer of energy	•									•							•	•	•	•			•	•
Science and Technology—Abilitie	es c	of T	ech	no	log	jica	ıl D	esi	gn															
Identify appropriate problems for technological design.	•																			•				
Evaluate completed technological designs or products.	•	•		•									•									•		

Activities Indexed by National Science Education Standards: Grades 9-12

Science as Inquiry—Abilities Nec	A Cellophane Toy and Its Wrapper, pg. 13	Where Did the Water Go?, pg. 25	Syringe Investigations, pg. 35	Toys Under Pressure, pg. 43	Sticky Balloons, pg. 49	Degassing Soda Pop, pg. 53	Creaking Plastic Bottles, pg. 61	Investigations with Hand Boilers, pg. 67	Boiling in a Syringe, pg. 73	That Cold Sinking Feeling, pg. 79	Visualizing Matter, pg. 83	Modeling the Behavior of Water, pg. 93	Magic Sand, pg. 101	Colorful Lather Printing, pg. 109	Making and Breaking Emulsions, pg. 117	Curdled Milk, pg. 129	Investigations with Reusable Heat Packs, pg. 135	Dissolving Energy, pg. 145	Pencil Electrolysis, pg. 155	Investigating a Self-Inflating Balloon, pg. 163	Alka-Seltzer Poppers, pg. 175	Penny Sandwiches, pg. 183	Things That Glow, pg. 187	Rubber Band Equilibria, pg. 199
Identify questions that can be answered through scientific investigations.				•				•	•			•	•							•				
Design and conduct a scientific investigation.	•	•	•		•	•	•		•				•		•	•	•	•		•	•		•	
Use technology and mathematics to improve investigations and communications.	•		•			•	•									•	•	•			•			
Formulate and revise scientific explanations and models using logic and evidence.	•	•		•	•	•	•			•	•	•		•	•	•		•	•	•	•	•	•	•
Recognize and analyze alternative explanations and models.								•															•	
Communicate and defend a scientific argument.			•				•						•			•				•			•	
Understandings about scientific inquiry	•	•	•		•	•									•		•	•		•	•			
Physical Science																								
Structure of atoms											•	•											•	
Structure and properties of matter	•	•	•	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•				•
Chemical reactions						•					•					•		•	•	•	•	•		•
Motions and forces																					•			
Conservation of energy and the increase in disorder							•	•	•								•							•
Interactions of energy and matter	•																•		•				•	
Science and Technology—Abiliti	es c	of T	ech	no	log	jica	l D	esi	gn															
Identify appropriate problems for technological design.	•																			•				
Evaluate the solution and its consequences.		•						•					•									•		
History and Nature of Science																								
Historical perspectives							•																	