Pushing the Envelope			
2009 Science			
Essential Knowledge and Skills			
Texas Science			
Grade 5			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.5.3.D	Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
Physics and Math (pgs. 43-63)	TX	SCI.5.6.D	Design an experiment that tests the effect of force on an object.
Rocket Activity (pgs. 69-75)	TX	SCI.5.6.D	Design an experiment that tests the effect of force on an object.
Pushing the Envelope			
2009 Science			
Essential Knowledge and Skills			
Texas Science			
Grade 6			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.6.3.D	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.6.8.C	Calculate average speed using distance and time measurements;
Types of Engines (pgs. 11-23)	TX	SCI.6.8.B	Identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.
Physics and Math (pgs. 43-63)	TX	SCI.6.8.B	Identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.
Rocket Activity (pgs. 69-75)	TX	SCI.6.8.B	Identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces.
Pushing the Envelope			
2009 Science			
Essential Knowledge and Skills			
Texas Science			
Grade 7			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.7.3.D	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.
Chemistry (pgs. 25-41)	TX	SCI.7.3.C	Identify advantages and limitations of models such as size, scale, properties, and materials.
Physics and Math (pgs. 43-63)	TX	SCI.7.7.A	Contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still.

Rocket Activity (pgs. 69-75)	TX	SCI.7.7.A	Contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still.
Pushing the Envelope			
2009 Science			
Essential Knowledge and Skills			
Texas Science			
Grade 8			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.8.3.D	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.
History of Aviation Propulsion (pgs. 5-9)	TX	SCI.8.6.C	Investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.
Types of Engines (pgs. 11-23)	TX	SCI.8.6.A	Demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion.
Types of Engines (pgs. 11-23)	TX	SCI.8.6.B	Differentiate between speed, velocity, and acceleration.
Chemistry (pgs. 25-41)	TX	SCI.8.3.C	Identify advantages and limitations of models such as size, scale, properties, and materials.
Chemistry (pgs. 25-41)	TX	SCI.8.5.E	Investigate how evidence of chemical reactions indicate that new substances with different properties are formed.
Chemistry (pgs. 25-41)	TX	SCI.8.5.F	Recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass.
Physics and Math (pgs. 43-63)	TX	SCI.8.6.A	Demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion.
Physics and Math (pgs. 43-63)	TX	SCI.8.6.C	Investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.
Rocket Activity (pgs. 69-75)	TX	SCI.8.6.A	Demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion.
Rocket Activity (pgs. 69-75)	TX	SCI.8.6.C	Investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.

Pushing the Envelope			
2009 Science			
Essential Knowledge and Skills			
Texas Science			
Grades 9-12 (Physics)			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	TX	SCI.9-12.4.B	Describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration.
Physics and Math (pgs. 43-63)	TX	SCI.9-12.4.D	Calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.
Rocket Activity (pgs. 69-75)	TX	SCI.9-12.4.D	Calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects.