

National Science Education Standards

In each exploration, we've included a list of the key science standards addressed through the various activities, using the National Science Education Standards as a general point of reference.

With the importance of **measurable student achievement** on the rise, the DSA program provides research-based assessment opportunities.

Exploration	Objectives	National Science Education Standards
Exploration 1: <i>ABCs—Alcohol Basics and Conceptions</i>	<ul style="list-style-type: none"> Identify preconceptions regarding the use and metabolism of alcohol and its effects on the body. Identify content areas in which they need more accurate understandings. Describe the structure of the ethyl alcohol (ethanol) molecule. Relate the structure of alcohol to its metabolism in a cell. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Understandings about scientific inquiry Physical Science (Content Standard B) <ul style="list-style-type: none"> Structure and properties of matter Matter, energy and organization in living systems
Exploration 2: <i>It's in the Blood</i>	<ul style="list-style-type: none"> Describe how alcohol enters the bloodstream. Identify the variables that affect the entry of alcohol into the bloodstream. Identify misconceptions about the entry of alcohol into the bloodstream. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Understandings about scientific inquiry Abilities necessary to do scientific inquiry Life Science (Content Standard C) <ul style="list-style-type: none"> The cell Matter, energy and organization in living systems
Exploration 3: <i>Detox Central</i>	<ul style="list-style-type: none"> Relate structure to function with respect to two cell organelles. Identify the changes in cells due to long-term exposure to alcohol. Identify the changes in tissues due to long-term exposure to alcohol. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Understandings about scientific inquiry Life Science (Content Standard C) <ul style="list-style-type: none"> The cell Behavior of organisms
Exploration 4: <i>Wired!</i>	<ul style="list-style-type: none"> Describe a simple reflex and an action that is controlled by the brain. Describe the regions of the brain. Distinguish between the sympathetic and parasympathetic nervous systems. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Abilities necessary to do scientific inquiry Life Science (Content Standard C) <ul style="list-style-type: none"> The cell Behavior of organisms
Exploration 5: <i>A Game of Numbers</i>	<ul style="list-style-type: none"> Use mathematical data to support a genetic basis for alcohol dependence. Identify examples of Mendelian genes and gene interactions. Describe the influence of the environment on the expression of genes. Identify the locus of one gene suspected to contribute to alcohol dependence. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Abilities necessary to do scientific inquiry Life Science (Content Standard C) <ul style="list-style-type: none"> Molecular basis of heredity
Exploration 6: <i>Walking the Metabolic Tightrope</i>	<ul style="list-style-type: none"> Describe the actions of several brain neurotransmitters. Describe the effects of alcohol on neuroreceptors. Describe how neuroadaptation contributes to dependence. Describe the role of neurotransmitters. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Understandings about scientific inquiry Physical Science (Content Standard B) <ul style="list-style-type: none"> Chemical reactions Life Science (Content Standard C) <ul style="list-style-type: none"> The cell Behavior of organisms
Exploration 7: <i>Remembering and Reacting</i>	<ul style="list-style-type: none"> Describe the processes by which humans acquire short and long-term memories. Explain the effects of alcohol on memory and learning. Describe the effects of alcohol on reflex and response time. Apply their understandings to the effects of alcohol on driving and safety. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Understandings about scientific inquiry Life Science (Content Standard C) <ul style="list-style-type: none"> The cell Behavior of organisms
Exploration 8: <i>Spread the Word</i>	<ul style="list-style-type: none"> Describe the demographics of alcohol dependence in the U.S. Describe the medical interventions for alcohol dependence that are currently available. Describe the cognitive therapies used for alcohol dependence and how they support other forms of treatment. Describe some of the educational approaches that might be used to provide greater public awareness of the social and personal challenges of alcohol abuse and dependence. 	Scientific Inquiry (Content Standard A) <ul style="list-style-type: none"> Abilities necessary to do scientific inquiry Understandings about scientific inquiry Physical Science (Content Standard B) <ul style="list-style-type: none"> Chemical reactions Life Science (Content Standard C) <ul style="list-style-type: none"> Behavior of organisms