

Chemistry
PISD Curriculum: Year at a Glance

Bundle	<i>Title</i> Big Ideas/Enduring Understandings	Guiding Questions
1	<p><i>Safety and Measurements</i></p> <ul style="list-style-type: none"> ▪ Science is a process of inquiry that includes repeatable observations and testable hypotheses. 	<ul style="list-style-type: none"> ▪ Why are safety protocols necessary? ▪ Why is measurement important in science?
2	<p><i>Matter & Change</i></p> <ul style="list-style-type: none"> ▪ Matter is neither created nor destroyed. It is configured and reconfigured. ▪ The physical and chemical properties of substances are determined by their atomic and molecular structures. 	<ul style="list-style-type: none"> ▪ How do you identify the difference between physical and chemical changes?
3	<p><i>The Atom</i></p> <ul style="list-style-type: none"> ▪ Matter is neither created nor destroyed. It is configured and reconfigured. ▪ The physical and chemical properties of substances are determined by their atomic and molecular structures. 	<ul style="list-style-type: none"> ▪ What's in your atoms?
4	<p><i>Chemical Nomenclature</i></p> <ul style="list-style-type: none"> ▪ Atoms combine and recombine to form different compounds. ▪ These combinations and recombinations are made possible through the exchange of energy. ▪ Atoms form bonds to acquire a stable arrangement of electrons. 	<ul style="list-style-type: none"> ▪ What does the name of a compound tell us about its composition? ▪ How can so many compounds be formed from just a few elements?
5	<p><i>Electromagnetic spectrum and Electron Configuration</i></p> <ul style="list-style-type: none"> ▪ An atom's electron configuration determines its chemical properties. 	<ul style="list-style-type: none"> ▪ Why do we have compounds?
6	<p><i>VSEPR and bonding</i></p> <ul style="list-style-type: none"> ▪ Atoms in different combinations form different geometric shapes. 	<ul style="list-style-type: none"> ▪ Why do atoms form chemical bonds?
7	<p><i>Reactions</i></p> <ul style="list-style-type: none"> ▪ Scientists use chemical symbols and equations to represent chemical processes. 	<ul style="list-style-type: none"> ▪ Why do certain combinations of chemicals react and others don't?
8	<p><i>Moles</i></p> <ul style="list-style-type: none"> ▪ The mole is a basic unit of chemistry. 	<ul style="list-style-type: none"> ▪ How do we count the large quantity of particles involved in chemical reactions?
9	<p><i>Stoichiometry and Energy Changes</i></p> <ul style="list-style-type: none"> ▪ Mathematical calculations can be used to determine quantitative relationships between reactants and products. 	<ul style="list-style-type: none"> ▪ How are stoichiometry and cooking similar?
10	<p><i>Solutions, Acids and Bases</i></p> <ul style="list-style-type: none"> ▪ Acids and bases have some similar and different properties. 	<ul style="list-style-type: none"> ▪ What is worse: an acid burn or a base burn?

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11	<i>Neutralization Reactions and Gases</i> <ul style="list-style-type: none">▪ Temperature and pressure affect the motion of gas particles.	<ul style="list-style-type: none">▪ How does Kinetic Molecular Theory explain the behavior of gases?
12	<i>Nuclear Chemistry and Thermochemistry</i> <ul style="list-style-type: none">▪ Nuclear stability depends on the composition of the nucleus.	<ul style="list-style-type: none">▪ Will radioactive substances ever disappear completely?