



8th Grade Science

Willows Preparatory School 2019-20

Subject Aims

- Understand and appreciate science and its implications
- Consider science as a human endeavor with benefits and limitations
- Cultivate analytical, inquiring and flexible minds that pose questions, solve problems, construct explanations and judge arguments
- Develop skills to design and perform investigations, evaluate evidence and reach conclusions
- Build an awareness of the need to effectively collaborate and communicate
- Apply language skills and knowledge in a variety of real-life contexts
- Develop sensitivity towards the living and non-living environments
- Reflect on learning experiences and make informed choices.

Keys to Class

- **iScience McGraw Hill** – The textbook we use is primarily the Physical iScience textbook.
- **OneNote** – We use OneNote to distribute course assignments, readings, laboratory investigations, and reflections. We also use OneNote as means of collaboration and project work.
- **Homework** – Our homework assignments revolve primarily around guiding students through the course readings and build familiarity with relevant vocabulary terms. On average, students should be spending anywhere between 40 minutes to an hour on Science homework a week. This may fluctuate depending on projects or investigations taking place in class
- **Collaborative learning environment** – Students are encouraged to consider multiple points of view and engage in argumentation in processing scientific concepts

Objective Criterion

Objective A: Knowing and Understanding	<ul style="list-style-type: none"> • Are students able to explain scientific knowledge using the appropriate language? • Can students apply their scientific knowledge to solve problems in new and unfamiliar situations? • Can students use and evaluate information to make scientifically supported judgements?
Objective B: Inquiring and Designing	<ul style="list-style-type: none"> ○ Can students explain a problem or question that can be tested by a scientific investigation? ○ Can students formulate a testable hypothesis that can identify independent and dependent variables as well as a logical justification for their relationship?
Objective C: Processing and Evaluating	<ul style="list-style-type: none"> ▪ Can students present collected data and transform data to reflect meaningful analysis? ▪ Are students able to evaluate a hypothesis based on experimental results as well as the validity of the experimental method?
Objective D: Reflecting on the Impacts of Science	<ul style="list-style-type: none"> ❖ Are students able to connect scientific topics and relate them to specific real-world issues? ❖ Are students able to discuss the implications of scientific breakthroughs or discoveries and their relevance? ❖ Can students document the work of others and sources of information used?

Content Brief

Trimester 1	Trimester 2	Trimester 3
<p>Chemical Reactions – Conservation of matter, chemical equations, types of chemical reactions</p> <p>Substances, Mixtures, Acid-Base Solutions – Concentration, reaction rate, saturations, pH, titrations</p>	<p>Carbon Chemistry – Hydrocarbons, molecular structure, polarity, functional groups</p> <p>Nuclear Chemistry – Fission, fusion, nuclear energy, radioactive decay, half-lives</p>	<p>Chemistry in Industry – Equilibrium, reaction quotients, environmental concerns</p> <p>Forensic Chemistry – Analysis, chromatography, formulas, hydrates</p>