7th Grade Sciece

Willows Preparatory School 2020-2021

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

- **STANFORD NGSS 7th grade SCIENCE**
  - PDFs made available through OneNote
- **OneNote – Content Manager**
  - Course assignments, learning modules, laboratory investigations, supplementary material, and reflections.
  - Primary location for collaboration and project work.
- **Next Generation Science Standards (NGSS) within the IB Framework** – Students assessed through IB criteria

Collaboration	Communication
Knowledge Construction	Self-Regulation
Real-World Context	Applying Technology

I.B. Grading Criteria

Objective A: Knowing and Understanding	• 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	• 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: Communicating	• 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	• 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

Semester 1	Semester 2
❖ **A Balanced Biosphere** • Cycles of Matter and Energy Transfer in Ecosystems • Plate Tectonics and Large-Scale Systems Interactions **Matter Matters** • Independent Relationships in Ecosystems • Natural Resources • Structure and Properties of Matter	❖ **Mimicking Nature's Design** • Organization for Matter and Energy Flow in Organisms • Energy in Chemical Processes and Everyday Life • Earth's Materials and Systems • Chemical Reactions • Defining possible solutions and optimizing the design solution ❖ **Save the Andes!** • The Role of Water in Earth's Surface Processes • Natural Hazards • Ecosystem Dynamics, Functioning and Resilience • Biodiversity and Humans • Defining and Delimiting Engineering Problem