



EXPLORE
REFLECT
APPLY

Science Policy 2025-2026

Middle and High School



**KOREA KENT
FOREIGN SCHOOL**

Middle & High School Divisions

Science Policy

Updated August 2025

Rationale

At Korea Kent Foreign School (KKFS), we aim to stimulate students' natural curiosity, build their interest in the world and themselves, and provide opportunities to practice the scientific method. Through these practices, students gain the confidence to make informed decisions about their scientific future and develop a foundation for career readiness in an evolving world.

Mission Statement

To **explore** the three main branches of science (earth science, physical science, and life science), **reflect** on how they relate to the world around us, and **apply** this knowledge to real-world situations.

Aims and Objectives

At KKFS we aim to:

- Encourage **critical thinking** when observing the world around us
- Develop **culturally empathetic** students who can consider the values and perspectives of others
- Assist students in **communicating** their ideas and hypotheses
- To foster **creative** methods to test their hypotheses
- Cultivate **mindful** students who analyze and report their findings
- Prepare students for an increasingly globalized world using **technology** to express their learning

Academic Standards

KKFS's science curriculum uses standards derived from the [Next Generation Science Standards \(NGSS\)](#).

Inclusion

At Korea Kent Foreign School (KKFS), we respect and support the diverse backgrounds of our students by differentiating instruction for all abilities and English language levels. We offer a wide range of leveled texts to cater to the needs of beginning through advanced readers. For our English Language Learner (ELL) students, we provide both in-class and small-group pull-out support to build essential academic language skills within the context of science. Our commitment is to use skills-based assessments rather than language-based assessments to ensure that our evaluation of student learning is accurate and equitable, promoting continuous growth.

Science in the Grades 6-12 Classroom

In secondary science at KKFS, students delve deeper into the three core disciplines of science: **physical science**, **life science**, and **earth science**. Building upon their foundational knowledge, they explore complex scientific concepts and engage in rigorous investigations. By the end of high school, students should be able to demonstrate mastery of the school's SLOs in Science:

- **Creativity:**
 - Formulating hypotheses
 - Designing experiments
 - Collecting and analyzing data
 - Drawing evidence-based conclusions.
- **Communication:**
 - Using key scientific concepts, principles, and theories across the three disciplines.
- **Critical thinking:**
 - Evaluating information
 - Analyzing arguments
 - Applying scientific reasoning to real-world problems.
- **Technology:**
 - Using scientific tools and technologies to investigate and communicate findings.
- **Culturally empathetic and mindful:**
 - Recognizing the ethical implications of scientific research and its impact on society.

Overview of Units

Please find an overview of the units covered [here](#).

Approaches to the Sciences

In secondary science, students refine their scientific method skills to explore complex questions. We extend their learning beyond the classroom by examining the positive and negative forces that have shaped our environment and critically analyzing their ongoing impact. To foster engagement, we integrate relevant current events and everyday technologies that influence how students interact with their peers and the world. We emphasize the importance of social responsibility and the underlying national and universal values that shape our society.

Instructional Methods

Students at KKFS are encouraged to be engaged in real-world problem-solving activities where they are able to demonstrate the school motto: **Explore, Reflect, Apply**.

- **Explore - Cultivating curiosity and discovery**
 - *Inquiry-Based Learning*
 - Encouraging students to ask scientific questions, design experiments, and seek answers.
 - *Laboratory Experiments*
 - Hands-on exploration of concepts through structured and student-designed labs.
 - *Field Investigations*
 - Real-world science learning through ecological studies, geological mapping, and community science projects.
 - *STEM Challenges / Design Thinking*
 - Using creativity and innovation to solve problems through prototyping and testing.
 - *Simulations and Modeling*
 - Exploring complex systems through digital tools and physical models.
- **Reflect - Deep thinking and critical analysis**

- *Project-Based Learning (PBL)*
 - Long-term projects that require reflection at every stage to refine ideas and deepen understanding.
- *Case-Based Learning*
 - Analyzing real-world problems to evaluate multiple perspectives and possible solutions.
- *Socratic Seminars / Class Discussions*
 - Encouraging students to think critically about the ethical, environmental, and societal implications of science.
- *Data Analysis Activities*
 - Interpreting graphs, statistics, and experimental results to draw meaningful conclusions.
- *Scientific Writing and Communication*
 - Reflecting on processes and findings through lab reports, essays, and presentations.
- **Apply - Purposeful action and real-world application**
 - *Direct Instruction & Concept Modeling*
 - Applying scientific principles to solve real-world problems after foundational learning.
 - *Flipped Classroom*
 - Applying learning in class through problem-solving and hands-on practice.
 - *Collaborative Learning Groups*
 - Applying teamwork and communication skills to solve problems and conduct experiments.
 - *Cross-Curricular Integration*
 - Connecting science with math, technology, engineering, and the humanities.
 - *Formative Assessment Techniques*
 - Applying feedback to improve understanding and performance.

Monitoring & Evaluation

- **Formative Assessments**
 - Quick, ongoing checks to gauge understanding during lessons.
 - Examples: exit tickets, concept-check questions, classroom polls, mini whiteboard responses.
- **Quizzes & Unit Tests**
 - Assess comprehension of core concepts and problem-solving skills.
 - Can include multiple-choice, short answer, calculation-based, and essay questions.
- **Laboratory Reports & Experiments**
 - Students design, conduct, and document experiments.
 - Assessment focuses on methodology, data analysis, scientific reasoning, and conclusions.
- **Performance Tasks / Projects**
 - Long-term assignments such as building models, creating simulations, or conducting research projects.
- **Research Papers & Essays**
 - Encourage in-depth exploration of scientific topics.
- **Presentations & Oral Explanations**
 - Students communicate findings or explain concepts to peers or teachers.
- **Concept Maps / Diagrams / Infographics**
 - Visual representations of scientific systems, processes, or relationships.
- **Peer and Self-Assessment**
 - Students critique their own or peers' experiments, projects, or problem-solving approaches.
- **Digital Simulations & Online Assessments**

- Use virtual labs, simulations, or adaptive science platforms to test application and conceptual understanding.
- **Case Studies**
 - Students analyze real-world scientific problems, propose hypotheses, and suggest solutions.
- **Observation & Lab Performance Rubrics**
 - Teachers assess hands-on skills, safety practices, teamwork, and engagement in labs or fieldwork.

Academic Resources

Teachers at KKFS use these resources to help them plan, create, and execute their lesson/unit plans.

- [Vernier](#)
 - A suite of scientific sensors, data-collection devices, and software that allows students to gather and analyze real-time experimental data.
- [OpenSciEd](#)
 - A free, NGSS-aligned science curriculum offering inquiry-based units and teacher resources for middle and high school.
- [PhET Simulations](#)
 - Interactive, research-based online simulations for science and math concepts that let students experiment virtually.
- [NGSS Website \(Exemplar Units\)](#)
 - The official Next Generation Science Standards site offering example instructional units and best-practice resources.
- [Albert.io](#)
 - An online practice and assessment tool with standards-aligned questions, explanations, and progress tracking for multiple subjects, including science.
- [Diffit.io](#)
 - An AI tool that adapts or generates educational texts, questions, and activities at different reading levels for differentiated instruction.