

ARCHDIOCESAN STANDARDS SCIENCE DEPARTMENTS

A

1. Show respect for life and the physical world demonstrated in actions and in written work.
2. Respect, support, and work with other students in their learning.
3. Demonstrate qualitative and quantitative problem solving approaches to articulate and understand scientific concepts.
4. Conduct lab experiments and other activities in a manner that regards their own safety and the safety of others and reflects proper use of school materials.
5. Evaluate and integrate information gained through research.
6. Articulate, orally and in writing, work that is well organized and clear.
7. Use technology where appropriate in investigation and analysis.
8. Make connections between science, other disciplines and their lives.

B

1. Formulate a question about the physical world, and design and perform a scientifically valid experiment to answer the question and communicate the results.
2. Solve problems given quantitative and qualitative data.
3. Explain major scientific concepts and relate these concepts to their own experience.
4. Discuss ethical, moral and societal issues associated with scientific and technological developments.
5. Work both collaboratively and independently in pursuing scientific knowledge.
6. Utilize scientific knowledge to serve the greater community.
7. Discuss how different cultures have contributed to exploration of the physical world.

C

1. Acquire basic knowledge about a broad range of scientific topics.
2. Be confident and proficient in the use of the scientific method.
3. Use core science knowledge to assimilate new ideas and discoveries.
4. Appreciate the universe and its inhabitants.
5. Communicate scientific principles, theories, and historical discoveries.
6. Become proficient with laboratory techniques and experimental apparatus.
7. Reflect on the environmental and ethical consequences of scientific progress.
8. Act as a "person for others" in accordance with Catholic faith, Jesuit tradition, and our school's mission.
9. Be prepared for future study in any academic discipline.
10. Enjoy, learn about, and practice science throughout their lives.

D

1. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.
2. Identify and communicate sources of unavoidable experimental error.
3. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.
4. Formulate explanations by using logic and evidence.
5. Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.
6. Distinguish between hypothesis and theory as scientific terms.
7. Recognize the usefulness and limitations of models and theories as scientific representations of reality.

8. Recognize the issues of statistical variability and the need for controlled tests.
9. Recognize the cumulative nature of scientific evidence.
10. Analyze situations and solve problems that require combining and applying concepts from more than one area of science.
11. Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.
12. Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e.g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).

E

1. Apply basic scientific literacy to global issues.
2. Utilize current technologies in scientific inquiry.
3. Demonstrate critical thinking skills.
4. Interpret and analyze data.
5. Work collaboratively.
6. Demonstrate understanding of subject matter through oral communication.

F

1. Understand Scientific Method and its application.
2. Recognize time and sequence as it relates to the evolution of the universe, life on Earth and the geological changes on our planet.
3. Problem solve using quantitative and qualitative analysis
4. Understand and recognize the relationship between all branches of science.

G

1. To provide students with a strong base in fundamental science concepts.
2. To develop active learners who think critically
3. To hone the math skills necessary for success in science
4. To encourage inquiry, critical analysis and safety during laboratory activities
5. To nurture the values of equity and sustainability in our curriculum
6. To support and challenge a student body whose skills are wide-ranging

H

1. Use the Metric system to measure length, volume, weight, and temperature and to make unit conversions.
2. Write a hypothesis that predicts an outcome. Set up a controlled experiment that tests the hypothesis. Collect, compile, and organize the data they have collected. Use the data to arrive at a reasonable conclusion.
3. Understand their individual impact on the Earth and the other life we share this planet with.
4. Consistently construct a standardized lab report.
5. Research scientific issues via the library and electronic sources and be able to cite those sources accurately.
6. Verbalize the negative consequences of poor lifestyle choices (tobacco, illegal drugs, nutrition, and sexual behavior).
7. Demonstrate understanding of fundamental scientific principles through the construction of models.
8. Recognize that any system is greater than the sum of its parts (cause and effect) such that they can explain and predict outcomes when these systems (chemical, social, physiologic, and environmental) are disrupted.

9. Apply the quantitative process to everyday life decisions.
10. Evaluate the contributions of standout men and women in the development of modern science.
11. Participate in lab safely and to be able too correctly use scientific equipment

