Parent Guide

Grade Five Science Curriculum

Diocese of Cleveland

Below is a list of the skills your child will be taught in Grade Five.
As parents, you are encouraged to support the work of your child's teacher in helping your child acquire each of these skills.

Capacities of the Literate Individual	
	They demonstrate independence.
	They build strong content knowledge.
	They respond to the varying demands of audience, task, purpose.
	They comprehend as well as critique.
	They value evidence.
	They use technology and digital media strategically and capably.
	They come to understand other perspectives and cultures.
Scientific Process and Inquiry	
Scientific Inquiry and Application (Ohio Revised Science Standards and Model Curriculum)	
	Observe and ask questions about the natural environment.
	Plan and conduct simple investigations.
	Employ simple equipment and tools to gather data and extend the senses.
	Use appropriate mathematics with data to construct reasonable explanations.
	Communicate about observations, investigations and explanations.
	Review and ask questions about the observations and explanations of others.
Scientific Process (Diocesan Curriculum)	
	Recall, explain and use the steps of the scientific process (state the problem, hypothesis, procedure, experiment, data and conclusion) in observations and experiments.
	Develop, design and conduct investigations or experiments.
	Identify one or two variables in a simple experiment.
	Evaluate observations and measurements made by self/others and identify reasons for discrepancies.
	Record and organize observations (journals, charts, tables).
	Communicate findings to others through variety of methods (written, oral, or graphic representation).
Scientific Interpretation (Diocesan Curriculum)	
	Read and analyze tables and graphs produced by self/others.
	Use evidence and observations to explain and communicate the results of investigations.
	Explain why results of an experiment are sometimes different from expected results.
Scientific Tools and Safety (Diocesan Curriculum)	
	Discuss and apply specific science safety procedures.
	Choose the appropriate tools, measurements, or instruments to safely complete scientific investigations.
	Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.
	Use simple instruments correctly to make observations (thermometers, balances, scales, microscopes).
Ethical Practices Reflecting Catholic Social Justice Teaching (Diocesan Curriculum)	
	Interact with living things and the environment in ways that promote respect.
	Evaluate ways that using the solution to a problem may affect people or the environment.
	Describe the importance of keeping clear, thorough and accurate records of observation.

Ethical Practices Reflecting Catholic Social Justice Teaching (continued)	
	Use technology with gratitude and responsibility to enhance human life.
Earth and Space Science – Cycles and Patterns in the Solar System	
	The solar system includes the sun and all celestial bodies that orbit the sun.
	Each planet in the solar system has unique characteristics.
	a. The distance from the sun, size, composition and movement of each planet are unique.
	b. Planets revolve around the sun in elliptical orbits.
	c. Some planets have moons and/or debris that orbit them.
	d. Comets, asteroids and meteoroids orbit the sun.
	The sun is one of many stars that exist in the universe.
	a. The sun appears to be the largest star in the sky because it is the closest star to Earth.
	b. Some stars are larger than the sun and some stars are smaller than the sun.
	Most of the cycles and patterns of motion between the Earth and sun are predictable.
	a. Earth's revolution around the sun takes approximately 365 days.
	b. Earth completes one rotation on its axis in a 24-hour period, producing day and night making the sun, stars and moon appear to change position in the sky.
	c. Earth's axis is tilted at an angle of 23.5° and this tilt, along with Earth's revolution around the sun, affects the amount of direct sunlight that the Earth receives in a single day and throughout the year.
	d. The average daily temperature is related to the amount of direct sunlight received.
	e. Changes in average temperature throughout the year are identified as seasons.
Life Science – Interactions within Ecosysems	
	Organisms perform a variety of roles in an ecosystem.
	a. Populations of organisms can be categorized by how they acquire energy.
	b. Food webs can be used to identify the relationships among producers, consumers and decomposers in an ecosystem.
	All of the processes that take place within organisms require energy.
	a. For ecosystems, the major source of energy is sunlight.
	b. Energy entering ecosystems as sunlight is transferred and transformed by producers into energy that organisms use through the process of photosynthesis.
	c. Energy that passes from organism to organism illustrated in food webs.
	d. In most ecosystems, energy derived from the sun is transferred and transformed into energy that organisms use by the process of photosynthesis in plants and other photosynthetic organisms.
	Relationships between the carbon dioxide/oxygen and nitrogen cycles in the ecosystems
	Differences and similarities of biomes and ecosystems
	Symbiotic relationships
Physical Science – Light, Sound, and Motion	
	The amount of change in movement of an object is based on the mass of the object and the amount of force exerted.
	a. Movement can be measured by speed. The speed of an object is calculated by determining the distance (d) traveled in a period of time (t).
	b. Earth pulls down on all objects with a gravitational force.
	c. Weight is a measure of the gravitational force between an object and the Earth.
	d. Any change in speed or direction of an object requires a force and is affected by the mass of the object and the amount of force applied.

Physical Science – Light, Sound, and Motion (continued)	
	Light and sound are forms of energy that behave in predictable ways.
	a. Light travels and maintains its direction until it interacts with an object or moves from one medium to another, and then it can be reflected, refracted or absorbed.
	b. Sound is produced by vibrating objects and requires a medium through which to travel. The rate of vibration is related to the pitch of the sound.
Literacy in Science & Technical Subjects – Reading Informational Text	
	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.
Literacy in Science & Technical Subjects – Writing	
	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
	Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting, illustrations, and multimedia when useful to aiding comprehension.
	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
	Link ideas within and across categories of information using words, phrases, and clauses.
	Use precise language and domain-specific vocabulary to inform about or explain the topic.
	Provide a concluding statement or section related to the information or explanation presented.
	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.
	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
	Draw evidence from literary or informational texts to support analysis, reflection, and research.
	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.
	Provide logically ordered reasons that are supported by facts and details.
	Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).
	Provide a concluding statement or section related to the opinion presented.

Literacy in Science & Technical Subjects – Writing (continued)	
	Apply grade 5 Reading standards to informational texts.
	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
Literacy in Science & Technical Subjects – Speaking and Listening	
	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
	Follow agreed-upon rules for discussions and carry out assigned roles.
	Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
	Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.

Notes:

National Governors Association Center for Best Practices, Council of Chief State School Officers. *Common Core State Standards*. National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington, D.C., 2010.