A Correlation of

Interactive Science
Grade K ©2012

To the

New Jersey
Science Standards
Learning Progressions 2009
Grade K
Introduction


Pearson Education is pleased to introduce Interactive Science, a Kindergarten through Grade 5 program that makes all students really want to learn more about science and the world. It helps students develop scientific literacy so they better understand the world we live in. Organized into three distinct pathways – reading, inquiry, and digital, Interactive Science makes learning and teaching science personal, relevant, and engaging for both students and teachers.

Reading Path

• Target Reading Skills, continual vocabulary support, and graphic organizers help students develop critical reading skills and strategies to uncover meaning when they read.
• Core Content in the Write-in Student Editions as well as below-, on-, and advanced-Leveled Readers with built-in ELL support give students tools to become successful readers.

Inquiry Path

• ABCs of Inquiry – Activity Before Concept activities in the Write-in Student Edition engage students and set a purpose for reading.
• Scaffolded inquiry activities consist of directed, guided, and open inquiry options to allow students to move from teacher-directed to student-centered hand-on experiences.

Digital Path

• Interactive Science goes digital at myscienceonline.com. Untamed Science and Got It? 60-Second Videos, I Will Know activities, and Virtual labs resources engage students in today’s digital world.

My scienceonline.com can be used for teacher-led instruction from a single computer, with an interactive whiteboard, or by students working at their own pace at school or at home.
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<tr>
<th>5.1 Science Practices: Science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.</th>
</tr>
</thead>
</table>

**A. Understand Scientific Explanations:** Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.

**By the end of grade 4**

**Content:** Fundamental scientific concepts and principles and the links between them are more useful than discrete facts.

**5.1.4.A.1:** Demonstrate understanding of the interrelationships among fundamental concepts in the physical, life, and Earth systems sciences.

<table>
<thead>
<tr>
<th>SE: 2, 3, 4, 5, 6, Inquiry Try It, 18, Let’s Read Science, 19, The Big Question, 5, 6, My Science Online.com, 5, 6, Interactive Science Journal, 5, 6</th>
</tr>
</thead>
</table>

**Content:** Connections developed between fundamental concepts are used to explain, interpret, build, and refine explanations, models, and theories.

**5.1.4.A.2:** Use outcomes of investigations to build and refine questions, models, and explanations.

<table>
<thead>
<tr>
<th>SE: 8, The Big Question, 8, My Science Online.com, 8, Interactive Science Journal, 8</th>
</tr>
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SE = Student Edition  
TE = Teacher’s Edition
### New Jersey Science Standards Learning Progressions 2009

**Content:** Outcomes of investigations are used to build and refine questions, models, and explanations.

**5.1.4.A.3:** Use scientific facts, measurements, observations, and patterns in nature to build and critique scientific arguments.

**SE:** 7, 9, The Big Question, 7, 9, My Science Online.com, 7, 9, Interactive Science Journal, 7, 9


### B. Generate Scientific Evidence Through Active Investigations:

**By the end of grade 4**

**Content:** Building and refining models and explanations requires generation and evaluation of evidence.

**5.1.4.B.1:** Design and follow simple plans using systematic observations to explore questions and predictions.

**SE:** 7, The Big Question, 7, My Science Online.com, 7, Interactive Science Journal, 7


**Content:** Tools and technology are used to gather, analyze, and communicate results.

**5.1.4.B.2:** Measure, gather, evaluate, and share evidence using tools and technologies.

**SE:** 9, The Big Question, 9, My Science Online.com, 9, Interactive Science Journal, 9


**Content:** Evidence is used to construct and defend arguments.

**5.1.4.B.3:** Formulate explanations from evidence.

**SE:** 8, The Big Question, 8, My Science Online.com, 8, Interactive Science Journal, 8


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| Content: Reasoning is used to support scientific conclusions. 5.1.4.B.4: Communicate and justify explanations with reasonable and logical arguments. | SE: 8, The Big Question, 8, My Science Online.com, 8, Interactive Science Journal, 8  

### C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.

| By the end of grade 4 | SE: 5, 6, 7, 8, 9, 10, Interactive Science Journal, 5, 6, 7, 8, 9, 10  

| Content: Scientific understanding changes over time as new evidence and updated arguments emerge. 5.1.4.C.1: Monitor and reflect on one’s own knowledge regarding how ideas change over time. | SE: 8, The Big Question, 8, My Science Online.com, 8, Interactive Science Journal, 8  

| Content: Revisions of predictions and explanations occur when new arguments emerge that account more completely for available evidence. 5.1.4.C.2: Revise predictions or explanations on the basis of learning new information. | SE: 8, The Big Question, 8, My Science Online.com, 8, Interactive Science Journal, 8  

| Content: Scientific knowledge is a particular kind of knowledge with its own sources, justifications, and uncertainties. 5.1.4.C.3: Present evidence to interpret and/or predict cause-and-effect outcomes of investigations. | SE: 5, 8, The Big Question, 5,8, My Science Online.com, 5,8, Interactive Science Journal, 5, 8  
### New Jersey Science Standards Learning Progressions 2009

#### D. Participate Productively in Science:
The growth of scientific knowledge involves critique and communication, which are social practices that are governed by a core set of values and norms.

**By the end of grade 4**

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<tr>
<td>Science has unique norms for participation. These include adopting a critical stance, demonstrating a willingness to ask questions and seek help, and developing a sense of trust and skepticism.</td>
<td>5.1.4.D.1: Actively participate in discussions about student data, questions, and understandings.</td>
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<tr>
<td>In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., scientific argumentation and representation).</td>
<td>5.1.4.D.2: Work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories.</td>
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<tr>
<td>Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.</td>
<td>5.1.4.D.3: Demonstrate how to safely use tools, instruments, and supplies.</td>
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<tr>
<th>Content</th>
<th>SE: 7, The Big Question, 7, My Science Online.com, 7, Interactive Science Journal, 7</th>
<th>TE: 19, 31, 80-81</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisms are treated humanely, responsibly, and ethically.</td>
<td>5.1.4.D.4: Handle and treat organisms humanely, responsibly, and ethically.</td>
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### New Jersey Science Standards

#### Learning Progressions 2009

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**5.2 Physical Science: Physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.**

**A. Properties of Matter:** All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.

### By the end of grade 2

**Content:** Living and nonliving things are made of parts and can be described in terms of the materials of which they are made and their physical properties.

**5.2.2.A.1:** Sort and describe objects based on the materials of which they are made and their physical properties.

**SE:** 58, 59, 61, 62, 63, Inquiry Try It, 58, 61, 62, 63, Let's Read Science, 59, The Big Question, 61, 62, 63, My Science Online.com, 61, 62, 63  

**Content:** Matter exists in several different states; the most commonly encountered are solids, liquids, and gases. Liquids take the shape of the part of the container they occupy. Solids retain their shape regardless of the container they occupy.

**5.2.2.A.2:** Identify common objects as solids, liquids, or gases.

**SE:** 71-73, The Big Question, 71, 72, 73, My Science Online.com, 71, 72, 73, Interactive Science Journal, 71, 72, 73  
## B. Changes in Matter

Substances can undergo physical or chemical changes to form new substances. Each change involves energy.

### By the end of grade 2

**Content**: Some properties of matter can change as a result of processes such as heating and cooling. Not all materials respond the same way to these processes.

**5.2.2.B.1**: Generate accurate data and organize arguments to show that not all substances respond the same way when heated or cooled, using common materials, such as shortening or candle wax.

**SE**: 74, The Big Question, 74, My Science Online.com, 74, Interactive Science Journal, 74


## C. Forms of Energy

Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.

### By the end of grade 2

**Content**: The Sun warms the land, air, and water.

**5.2.2.C.1**: Compare, citing evidence, the heating of different colored objects placed in full sunlight.

**SE**: 49, The Big Question, 49, My Science Online.com, 49, Interactive Science Journal, 49

**TE**: 140-141, 142-143, 146-147

**Content**: An object can be seen when light strikes it and is reflected to a viewer’s eye. If there is no light, objects cannot be seen.

**5.2.2.C.2**: Apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen.

**SE**: 49, The Big Question, 49, My Science Online.com, 49, Interactive Science Journal, 49


**Content**: When light strikes substances and objects through which it cannot pass, shadows result.

**5.2.2.C.3**: Present evidence that represents the relationship between a light source, solid object, and the resulting shadow.

**SE**: 49, The Big Question, 49, My Science Online.com, 49, Interactive Science Journal, 49


This standard may be addressed in conjunction with Chapter 5, Lesson 3, “How does the sun seem to move?”
### New Jersey Science Standards Learning Progressions 2009

#### D. Energy Transfer and Conservation

The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.

**By the end of grade 2**

**Content:** Batteries supply energy to produce light, sound, or heat.

**5.2.2.D.1:** Predict and confirm the brightness of a light, the volume of sound, or the amount of heat when given the number of batteries, or the size of batteries.

See Grade 1; **SE/TE:** Chapter 8 Energy; Inquiry: What Does Light Do?

#### E. Forces and Motion

It takes energy to change the motion of objects. The energy change is understood in terms of forces.

**By the end of grade 2**

**Content:** Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).

**5.2.2.E.1:** Investigate and model the various ways that inanimate objects can move.

**SE:** 81, 82, 85, 86, The Big Question, 81, 82, Inquiry Investigate It, 85, STEM, 86


**Content:** A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, it is because another push or pull (friction) is being applied by the environment.

**5.2.2.E.2:** Predict an object’s relative speed, path, or how far it will travel using various forces and surfaces.

**SE:** 83, The Big Question, 83, My Science Online.com, 83, Interactive Science Journal, 83


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**Content:** Some forces act by touching, while other forces can act without touching.

**5.2.2.E.3:** Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip).

**5.3 Life Science:** Life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.

#### A. Organization and Development

Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.

**By the end of grade 2**

**Content:** Living organisms:
- Exchange nutrients and water with the environment.
- Reproduce.
- Grow and develop in a predictable manner.

**5.3.2.A.1:** Group living and nonliving things according to the characteristics that they share.

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**SE:** 82, 84, 85, 86, The Big Question, 82, 84, Inquiry Investigate It, 85, STEM, 86


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**B. Matter and Energy Transformations:** Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.

**By the end of grade 2**

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<tr>
<td><strong>Content:</strong> A source of energy is needed for all organisms to stay alive and grow. Both plants and animals need to take in water, and animals need to take in food. Plants need light. <strong>5.3.2.B.1:</strong> Describe the requirements for the care of plants and animals related to meeting their energy needs.</td>
<td><strong>SE:</strong> 40 The Big Question, 40, My science Online, 40, Interactive Science Journal, 40</td>
<td><strong>TE:</strong> Engage, 114, Explore, 114, For Interactive Whiteboard Classrooms, 114, Differentiated Instruction, 114, ELL Support, 115, Explain: Unlock the Big Question, 115, Elaborate, 115, Evaluate, 115</td>
</tr>
<tr>
<td><strong>Content:</strong> Animals have various ways of obtaining food and water. Nearly all animals drink water or eat foods that contain water. <strong>5.3.2.B.2:</strong> Compare how different animals obtain food and water.</td>
<td><strong>SE:</strong> 30, The Big Question, 30, Interactive Science Journal, 30, My Science Online.com, 30</td>
<td><strong>TE:</strong> 68-73, 86-87, 90-91, 92-95, Resource Guide: Reading, Digital, Inquiry, Lesson Objectives, Additional Resources, ELL Support, 68-69, Integrate Your Day, 70-71, School-to-Home Letter, 72-73, Vocabulary Smart Cards, 86, Engage: Envision It, 86, Explore: Activate Prior Knowledge, 86, For Interactive Whiteboard Classrooms, 86, Interactive Science Journal, 86, Professional Development Note, 86, ELL Support, 87, Explain: Unlock the Big Question, 87, Elaborate: Infer, Compare and Contrast, Draw Conclusions, 87, My Science Online.com , 87, Interactive Science Journal, 90-91, Activity Card Support, 92, Guided Inquiry, 93, Got It, 94-95</td>
</tr>
<tr>
<td><strong>Content:</strong> Most plants have roots to get water and leaves to gather sunlight. <strong>5.3.2.B.3:</strong> Explain that most plants get water from soil through their roots and gather light through their leaves.</td>
<td><strong>SE:</strong> 68-73, 86-87, 90-91, 92-95, Resource Guide: Reading, Digital, Inquiry, Lesson Objectives, Additional Resources, ELL Support, 68-69, Integrate Your Day, 70-71, School-to-Home Letter, 72-73, Vocabulary Smart Cards, 86, Engage: Envision It, 86, Explore: Activate Prior Knowledge, 86, For Interactive Whiteboard Classrooms, 86, Interactive Science Journal, 86, Professional Development Note, 86, ELL Support, 87, Explain: Unlock the Big Question, 87, Elaborate: Infer, Compare and Contrast, Draw Conclusions, 87, My Science Online.com , 87, Interactive Science Journal, 90-91, Activity Card Support, 92, Guided Inquiry, 93, Got It, 94-95</td>
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C. Interdependence: All animals and most plants depend on both other organisms and their environment to meet their basic needs.

By the end of grade 2

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<tr>
<td>Humans can change natural habitats in ways that can be helpful or harmful for the plants and animals that live there. 5.3.2.C.3: Communicate ways that humans protect habitats and/or improve conditions for the growth of the plants and animals that live there, or ways that humans might harm habitats.</td>
<td>43, Biography, 43</td>
<td>119, Activate Prior Knowledge, 119, Teach with Visuals, 119, For Interactive Whiteboard Classrooms, 119, Apply the big Question, 119, Science/Math, 119, Interactive Science Journal, 119</td>
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<tr>
<td><strong>D. Heredity and Reproduction:</strong> Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.</td>
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<tr>
<td><strong>E. Evolution and Diversity</strong></td>
<td>Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.</td>
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<tr>
<td><strong>By the end of grade 2</strong></td>
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<tr>
<td><strong>Content</strong>: Variations exist within a group of the same kind of organism.</td>
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</table>
**5.3.2.E.1**: Describe similarities and differences in observable traits between parents and offspring. |
| **SE**: 36, The Big Question, 36, Interactive Science Journal, 36, My Science Online.com, 36 |
| **Content**: Plants and animals have features that help them survive in different environments. | 
**5.3.2.E.2**: Describe how similar structures found in different organisms (e.g., eyes, ears, mouths) have similar functions and enable those organisms to survive in different environments. |
| **SE**: 40, 41, The Big Question, 40, 41, Interactive Science Journal, 40, 41, My Science Online.com, 40, 41 |
5.4 Earth Systems Science: Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.

A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.

By the end of grade 2

<table>
<thead>
<tr>
<th>Content: The Sun is a star that can only be seen during the day. The Moon is not a star and can be seen sometimes at night and sometimes during the day. The Moon appears to have different shapes on different days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4.2.A.1: Determine a set of general rules describing when the Sun and Moon are visible based on actual sky observations.</td>
</tr>
<tr>
<td>SE: 50, The Big Question, 50, Interactive Science Journal, 50, My Science Online.com, 50</td>
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C. Properties of Earth Materials: Earth’s composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.

By the end of grade 2

<table>
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<tr>
<th>Content: Soils are made of many living and nonliving substances. The attributes and properties of soil (e.g., moisture, kind and size of particles, living/organic elements, etc.) vary depending on location.</th>
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<tbody>
<tr>
<td>5.4.2.C.1: Describe Earth materials using appropriate terms, such as hard, soft, dry, wet, heavy, and light.</td>
</tr>
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</table>
### E. Energy in Earth Systems: Internal and external sources of energy drive Earth systems.

**By the end of grade 2**

**Content:** Plants need sunlight to grow.

**5.4.2.E.1:** Describe the relationship between the Sun and plant growth.

**SE:** 53, The Big Question, 53, Interactive Science Journal, 53, My Science Online.com, 53


### F. Climate and Weather: Earth’s weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.

**By the end of grade 2**

**Content:** Current weather conditions include air movement, clouds, and precipitation. Weather conditions affect our daily lives.

**5.4.2.F.1:** Observe and document daily weather conditions and discuss how the weather influences your activities for the day.

**SE:** 52, 54, 55, The Big Question, 52, Interactive Science Journal, 52, My Science Online.com, 52, Inquiry Investigate It, 54, Big World My World, 55


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#### G. Biogeochemical Cycles

The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth’s internal and external sources of energy, and are impacted by human activity.

#### By the end of grade 2

| Content: Water can disappear (evaporate) and collect (condense) on surfaces. | **SE**: 74, The Big Question, 74, Interactive Science Journal, 74, My Science Online.com, 74  
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<tr>
<td><strong>5.4.2.G.1</strong>: Observe and discuss evaporation and condensation.</td>
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| Content: There are many sources and uses of water. | **SE**: 28, The Big Question, 28, Interactive Science Journal, 28, My Science Online.com, 28  
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<tr>
<td><strong>5.4.2.G.2</strong>: Identify and use water conservation practices.</td>
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<tr>
<td><strong>Content</strong>: Organisms have basic needs and they meet those needs within their environment.</td>
<td><strong>SE</strong>: 28, The Big Question, 28, Interactive Science Journal, 28, My Science Online.com, 28</td>
</tr>
</tbody>
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