

**Correlation of**  
***Seeds of Science/Roots of Reading***<sup>®</sup>  
**Integrated Science and Literacy Units**

**with the State of Connecticut**  
**Science Standards**  
**for Grade 4**

Created October 2011



*Seeds of Science/Roots of Reading*<sup>®</sup> was created with partial support from the National Science Foundation under grant numbers ESI-0242733 and ESI-0628272.  
The program was created by a team at the Lawrence Hall of Science at the University of California, Berkeley.

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
<b>Forces and Motion — What makes objects move the way they do?</b>												
<b>4.1 — The position and motion of objects can be changed by pushing or pulling.</b>												
4.1.a. The size of the change in an object’s motion is related to the strength of the push or pull.												
b. The more massive an object is, the less effect a given force will have on its motion.												
Students should be able to:												
1. Demonstrate that a force can cause an object to start moving, stop, or change speed or direction.				• •								
2. Use measurement tools and standard units to compare and contrast the motion of common objects such as toy cars, balls, model rockets or planes in terms of change in position, speed and direction.												
3. Design and conduct experiments to determine how the motion of an object is related to the mass of the object and the strength of the force applied.												

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
4. Describe how friction forces caused by air resistance or interactions between surface materials affect the motion of objects.												
5. Predict the effect of an object’s mass on its motion.												
<b>Matter and Energy in Ecosystems — How do matter and energy flow through ecosystems?</b>												
<b>4.2 — All organisms depend on the living and nonliving features of the environment for survival.</b>												
4.2.a. When the environment changes, some organisms survive and reproduce, and others die or move to new locations.												
Students should be able to:												
1. Give examples of ways that living and nonliving things are interdependent within an ecosystem.	• • •	• • •				•	•			• • •		
2. Draw diagrams showing how the sun’s energy enters and is transferred from producers to consumers in a local land or aquatic food chain.	• •									•		
3. Design and conduct simple investigations to record interactions among producers, consumers,										• •		

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
herbivores, carnivores, omnivores and decomposers in an ecosystem.												
4. Analyze food webs to describe how energy is transferred from plants to various animals in an ecosystem.									• • •			
5. Distinguish between naturally occurring changes in ecosystems and those caused by human activity.	•	• • •							• •			
6. Predict the effect an environmental change, such as drought or forest destruction, might have on the community of living things.	•	•				•			•			

**Energy in the earth's systems — How do external and internal sources of energy affect the earth's systems?**

**4.3 — Water has a major role in shaping the earth's surface.**

4.3.a. Water circulates through the earth's crust, oceans and atmosphere.

Student should be able to:

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
1. Describe the role of heat energy (i.e., heating and cooling) in the continuous cycling of water between the earth and the atmosphere through evaporation, condensation and precipitation.						• • •						
2. Use models to demonstrate that topography causes precipitation landing on Earth to move in streams and rivers from higher to lower elevations.						• • •						
3. Design and conduct simple investigations to determine how moving water (flowing downhill or in ocean waves) causes changes to the land, the coastline or the course of a stream or river.						•						
4. Pose testable questions and employ simple equipment and measuring tools to collect data about factors that affect erosion (e.g., type of earth material in an area, volume of moving water, slope of land, vegetation coverage).												
5. Present evidence to support a scientific claim about the relationship between the amount and						•						

- • • = Addressed completely with explicit instruction and repeated learning opportunities.
- • = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
speed of moving water and the size of earth materials moved (e.g., sand, silt, pebbles, boulders).												
<b>Energy Transfer and Transformations — What is the role of energy in our world?</b>												
<b>4.4 — Electrical and magnetic energy can be transferred and transformed.</b>												
4.4.a. Electricity in circuits can be transformed into light, heat, sound and magnetic effects.												
4.4.b. Magnets can make objects move without direct contact between the object and the magnet.												
Students should be able to:												
1. Construct complete (closed) and incomplete (open) series circuits in which electrical energy is transformed into heat, light, sound and/or motion energy.												
2. Draw labeled diagrams of complete and incomplete circuits, explain necessary components and how components can be arranged to make a complete circuit.												

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
3. Predict whether diagrammed circuit configurations will light a bulb.												
4. Develop a method for testing conductivity and analyze data to generalize that metals are generally good electrical conductors and nonmetals are not.												
5. Observe magnetic effects associated with electricity and investigate factors that affect the strength of an electromagnet.												
6. Describe materials that are attracted by magnets.				• • •								
7. Design procedures to move objects and separate mixtures of solids using magnets.												
8. Investigate how magnets react with other magnets and analyze findings to identify patterns in the interactions between north and south poles of magnets.				• • •								

- • • = Addressed completely with explicit instruction and repeated learning opportunities.
- • = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.

CT Science Standards – 4th Grade	2 <sup>nd</sup> - 3 <sup>rd</sup> Grade				3 <sup>rd</sup> - 4 <sup>th</sup> Grade				4 <sup>th</sup> - 5 <sup>th</sup> Grade			
	Soil Habitats	Shoreline Science	Designing Mixtures	Gravity & Magnetism	Light Energy	Weather & Water	Variation and Adaptation	Digestion & Body Systems	Planets & Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
9. Give examples of uses of magnets (e.g., motors, generators, household devices).												

- ● ● = Addressed completely with explicit instruction and repeated learning opportunities.
- ● = Addressed partially with explicit instruction and some learning opportunities.
- = Touched upon, with a few learning opportunities and/or instruction may be expanded to more fully address this standard.