Curriculum Development Course at a Glance
Planning for 1st Grade Science

<table>
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<tr>
<th>Content Area</th>
<th>Science</th>
<th>Grade Level</th>
<th>1st Grade</th>
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<tbody>
<tr>
<td>Course Name/Course Code</td>
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<table>
<thead>
<tr>
<th>Standard</th>
<th>Grade Level Expectations (GLE)</th>
<th>GLE Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physical Science</td>
<td>1. Solids and liquids have unique properties that distinguish them</td>
<td>SC09-GR.1-S.1-GLE.1</td>
</tr>
<tr>
<td>2. Life Science</td>
<td>1. Offspring have characteristics that are similar to but not exactly like their parents’ characteristics</td>
<td>SC09-GR.1-S.2-GLE.1</td>
</tr>
<tr>
<td></td>
<td>2. An organism is a living thing that has physical characteristics to help it survive</td>
<td>SC09-GR.1-S.2-GLE.2</td>
</tr>
<tr>
<td>3. Earth Systems Science</td>
<td>1. Earth’s materials can be compared and classified based on their properties</td>
<td>SC09-GR.1-S.3-GLE.1</td>
</tr>
</tbody>
</table>

Colorado 21st Century Skills

- **Critical Thinking and Reasoning:** Thinking Deeply, Thinking Differently
- **Information Literacy:** Untangling the Web
- **Collaboration:** Working Together, Learning Together
- **Self-Direction:** Own Your Learning
- **Invention:** Creating Solutions

Intrgrated Curriculum Design: This interdisciplinary approach matches basic elements in each of the science strands – physical, life, earth systems sciences - forming overlaps in instruction of certain topics and concepts in an authentic integrated model.

<table>
<thead>
<tr>
<th>Unit Titles</th>
<th>Length of Unit/Contact Hours</th>
<th>Unit Number/Sequence</th>
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<tbody>
<tr>
<td>What’s The Matter? -Solids and Liquids</td>
<td>2 - 4 weeks</td>
<td>1</td>
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<tr>
<td>Organisms and Offspring</td>
<td>3 – 5 weeks</td>
<td>2</td>
</tr>
<tr>
<td>Earth Materials</td>
<td>2 - 4 weeks</td>
<td>3</td>
</tr>
<tr>
<td>Survival of the Fittest</td>
<td>3 – 5 weeks</td>
<td>4</td>
</tr>
</tbody>
</table>

Authors of the Sample: Judy Swanson (Cheyenne Mountain 12); Kim Smith (Mesa County Valley 51)

1st Grade, Science

Complete Sample Curriculum – Posted: February 15, 2013
## Unit Planning for 1st Grade Science

### Unit Title
What’s the Matter? - Solids and Liquids

### Length of Unit
2-4 weeks

### Focusing Lens(es)
Patterns

* Patterns find similarities and differences when comparing and contrasting the properties of solids and liquids.

### Standards and Grade Level Expectations Addressed in this Unit

* SC09-GR.1-S.1-GLE.1

### Inquiry Questions (Engaging - Debatable):

- How are patterns detected when sorting solids and liquids? (SC09-GR.1-S.1-GLE.1; RA.2)

### Unit Strands
Physical Science

### Concepts
Properties, matter, patterns, compare and contrast

### Generalizations

#### My students will Understand that...

<table>
<thead>
<tr>
<th>Factual</th>
<th>Guiding Questions</th>
<th>Conceptual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patterns in nature are often revealed by comparing and contrasting states of matter (SC09-GR.1-S.1-GLE.1-EO.c)</td>
<td>Where would one find patterns in nature?</td>
<td>Why is it important to find similarities and differences amongst matter? (SC09-GR.1-S.1-GLE.1-EO.a,b,c)</td>
</tr>
<tr>
<td>States of matter possess unique properties which facilitates classification (SC09-GR.1-S.1-GLE.1-EO.a)</td>
<td>What are the common properties of a solid? (SC09-GR.1-S.1-GLE.1-EO.a; IQ.2,4)</td>
<td>How are the properties of matter identified?</td>
</tr>
<tr>
<td></td>
<td>What are the common properties of a liquid? (SC09-GR.1-S.1-GLE.1-EO.a; IQ.1,3)</td>
<td>How can you prove if something is a solid? (SC09-GR.1-S.1-GLE.1; IQ.2)</td>
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<tr>
<td></td>
<td>What is different about the properties of matter? (SC09-GR.1-S.1-GLE.1-EO.a; IQ.1,2,3,4)</td>
<td>How can you prove if something is a liquid? (SC09-GR.1-S.1-GLE.1; IQ.1)</td>
</tr>
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Curriculum Development Overview  
Unit Planning for 1st Grade Science

<table>
<thead>
<tr>
<th>Critical Content:</th>
<th>Key Skills:</th>
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<tr>
<td><strong>My students will Know...</strong></td>
<td><strong>My students will be able to (Do)...</strong></td>
</tr>
<tr>
<td>• The unique properties of solids and liquids (SC09-GR.1-S.1-GLE.1-EO.a)</td>
<td>• Analyze and interpret observations (SC09-GR.1-S.1-GLE.1-EO.a)</td>
</tr>
<tr>
<td>• The similarities and differences of solids and liquids (SC09-GR.1-S.1-GLE.1-EO.b)</td>
<td>• Classify and justify your choice based on evidence (SC09-GR.1-S.1-GLE.1-EO.c)</td>
</tr>
<tr>
<td>• The properties of solids and liquids in relation to the understanding of matter (SC09-GR.1-S.1-GLE.1; RA.1)</td>
<td>• Share results of experiments with others (SC09-GR.1-S.1-GLE.1;N.1)</td>
</tr>
<tr>
<td>• The practical reasons for sorting solids and liquids (SC09-GR.1-S.1-GLE.1;RA.2)</td>
<td>• Conduct collaborative experiments (SC09-GR.1-S.1-GLE.1;N.3)</td>
</tr>
<tr>
<td>• Observations as an important part of science (SC09-GR.1-S.1-GLE.1;N.2)</td>
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</table>

**Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.**

EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: "Mark Twain exposes the hypocrisy of slavery through the use of satire."

A student in ______________ can demonstrate the ability to apply and comprehend critical language through the following statement(s):

Some things about solids and liquids are the same and some things are different.
A solid can hold its shape and a liquid does not.

**Academic Vocabulary:**
classify, analyze, similar, different, interpret, collaboration, justify, identify

**Technical Vocabulary:**
solid, liquid, ice, water, hard, wet, hot, cold
# Curriculum Development Overview

## Unit Planning for 1st Grade Science

### Authors of the Sample:
- Judy Swanson (Cheyenne Mountain 12)
- Kim Smith (Mesa County Valley 51)

### 1st Grade Science Complete Sample Curriculum – Posted: February 15, 2013

<table>
<thead>
<tr>
<th>Unit Title</th>
<th>Organisms &amp; Offspring</th>
<th>Length of Unit</th>
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<tr>
<td></td>
<td></td>
<td>3 – 5 weeks</td>
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<table>
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<tr>
<th>Focusing Lens(es)</th>
<th>Standards and Grade Level Expectations Addressed in this Unit</th>
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<tr>
<td>Patterns</td>
<td>SC09-GR.1-S.2-GLE.1</td>
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<table>
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<tr>
<th>Inquiry Questions (Engaging-Debatable):</th>
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<tr>
<td>- How are offspring like their parents? (SC09-GR.1-S.2-GLE.1; IQ.1,2)</td>
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<tr>
<th>Unit Strands</th>
<th>Concepts</th>
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<tr>
<td>Life Science</td>
<td>organism, offspring, variation, characteristics, patterns, inheritance</td>
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## Generalizations

<table>
<thead>
<tr>
<th>Generalizations</th>
<th>My students will Understand that...</th>
<th>Factual</th>
<th>Guiding Questions</th>
<th>Conceptual</th>
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<tr>
<td>Patterns of inheritance acknowledge that offspring originate from the adult organism (SC09-GR.1-S.2-GLE.1-EO.a,b,c)</td>
<td>What does the adult look like? (SC09-GR.1-S.2-GLE.1-EO.a,b,c: IQ.1,2)</td>
<td>How can you tell if an organism and offspring are related? (SC09-GR.1-S.2-GLE.1-EO.a,b,c: IQ.1,2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offspring can demonstrate variations in the characteristics they inherit from their parental organism (SC09-GR.1-S.2-GLE.1-EO.a,b,c)</td>
<td>What characteristics are different? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d)</td>
<td>How do the characteristics of organisms and offspring vary? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d; RA.1; N.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristics of adult organisms often transfer to offspring (SC09-GR.1-S.2-GLE.1_EO.a,b,c)</td>
<td>What characteristics are similar between the adult and offspring? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d; RA.2,3)</td>
<td>How are adults and offspring similar? (SC09-GR.1-S.2-GLE.1-EO.a,b,c,d)</td>
<td></td>
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</tr>
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</table>
## Curriculum Development Overview
### Unit Planning for 1st Grade Science

<table>
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<tr>
<th>Critical Content:  My students will <strong>Know</strong>...</th>
<th>Key Skills:  My students will be able to <strong>Do</strong>...</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The similarities and differences of parents and offspring in a variety of organisms including both plants and animals (SC09-GR.1-S.2-GLE.1-EO.a)</td>
<td>• Use evidence to analyze similarities and differences (SC09-GR.1-S.2-GLE.1-EO.a)</td>
</tr>
<tr>
<td>• Diversity or variation within populations of living organisms (SC09-GR.1-S.2-GLE.1;RA.1)</td>
<td>• Analyze and interpret data (SC09-GR.1-S.2-GLE.1-EO.b; N.1)</td>
</tr>
<tr>
<td>• How family photographs often reveal similar physical traits (SC09-GR.1-S.2-GLE.1;RA.2)</td>
<td>• Question peers about evidence used in developing ideas (SC09-GR.1-S.2-GLE.1-EO.c; N.2)</td>
</tr>
<tr>
<td>• That eye color may or may not be passed from parents eye color can be different than their child’s (SC09-GR.1-S.2-GLE.1;RA.3)</td>
<td>• Interpret information represented in pictures, illustrations, and simple charts (SC09-GR.1-S.2-GLE.1-EO.d)</td>
</tr>
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</table>

### Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.

**EXAMPLE:** A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: "Mark Twain exposes the hypocrisy of slavery through the use of satire."

**A student in _____________ can demonstrate the ability to apply and comprehend critical language through the following statement(s):**

**Some living things and their offspring have traits that are similar, but not exactly alike.**

**Academic Vocabulary:** evidence, analyze, interpret, data, question, collaboration, pictures, illustrations, simple charts, characteristics, traits, diversity, variation, similar

**Technical Vocabulary:** parent, offspring, adult, child, family, mother, father, son, daughter, seed, plant, animal, resemble
## Unit Title
Earth Materials

## Length of Unit
2-4 weeks

### Focusing Lens(es)
Compare and Contrast

### Standards and Grade Level Expectations Addressed in this Unit
SC09-GR.1-S.3-GLE.1

### Inquiry Questions (Engaging-Debatable):
- How do humans use natural resources in their daily lives? (SC09-GR.1-S.3-GLE.1; RA.1)
- What happens when we run out of a natural resource we need? (SC09-GR.1-S.3-GLE.1; RA.2)

### Unit Strands
Earth Science

### Concepts
properties, matter (earth materials), patterns, compare and contrast, exploration, innovation, diversity

<table>
<thead>
<tr>
<th>Generalizations</th>
<th>Factual</th>
<th>Guiding Questions</th>
<th>Conceptual</th>
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</thead>
<tbody>
<tr>
<td><strong>My students will Understand that...</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better understanding of Earth’s materials (through comparing and contrasting) enables people to make informed decisions around the usage of natural resources (SC09-GR.1-S.3-GLE.1-EO.b)</td>
<td>What are the properties of Earth materials? (SC09-GR.1-S.3-GLE.1-EO.a,b,c)</td>
<td>How are Earth materials sorted into groups? (SC09-GR.1-S.3-GLE.1-EO.a,b) How might the earth’s materials be reused or recycled? (SC09-GR.1-S.3-GLE.1-EO.a,b,c; IQ.2)</td>
<td></td>
</tr>
<tr>
<td>Earth’s material diversity affords communities opportunities for exploration and innovation (SC09-GR.1-S.3-GLE.1-EO.a)</td>
<td>What are the texture, size, color, and shape of various Earth Materials?</td>
<td>How are various materials on Earth similar and different? (SC09-GR.1-S.3-GLE.1-EO.a; IQ.1; N.1)</td>
<td></td>
</tr>
<tr>
<td>Properties and availability of Earth’s materials determine the use and limitation of that material (SC09-GR.1-S.3-GLE.1-EO.c; RA.1)</td>
<td>What Earth materials can we use? What are some natural resources or Earth materials?</td>
<td>How do the properties of various materials on Earth affect the way we can use them Why are resources extracted from the Earth in limited supply?</td>
<td></td>
</tr>
</tbody>
</table>
# Curriculum Development Overview
## Unit Planning for 1st Grade Science

### Critical Content:

**My students will Know...**

- The texture, size, color, and shape of various materials on Earth. (SC09-GR.1-S.3-GLE.1-EO.a)
- That usefulness of Earth materials based on their properties (SC09-GR.1-S.3-GLE.1-EO.c)
- The differences between soils from different places (SC09-GR.1-S.3-GLE.1-EO.d)
- The various ways in which humans use natural resources in their daily lives SC09-GR.1-S.3-GLE.1; RA.1)
- How the same materials can be sorted in a number of ways based on characteristics (SC09-GR.1-S.3-GLE.1; N.1)
- The limits on resources and materials extracted from the natural environment (SC09-GR.1-S.3-GLE.1; RA.2)
- The impact(s) of reducing, reusing, and recycling on Earth’s materials (SC09-GR.1-S.3-GLE.1-EO.f)

### Key Skills:

**My students will be able to (Do)...**

- Identify and represent similarities and differences (SC09-GR.1-S.3-GLE.1-EO.a)
- Sort, group, and classify based on observations (SC09-GR.1-S.3-GLE.1-EO.b)
- Make predictions about the usage of natural resources (SC09-GR.1-S.3-GLE.1-EO.c)
- Communicate ideas about properties of Earth materials (SC09-GR.1-S.3-GLE.1-EO.d)
- Use a variety of tools to observe, analyze, record, and compare Earth’s materials (SC09-GR.1-S.3-GLE.1-EO.e)
- Make predictions based on what they know (SC09-GR.1-S.3-GLE.1; N.2)

### Critical Language:

- includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.

**EXAMPLE:** A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: "Mark Twain exposes the hypocrisy of slavery through the use of satire."

**A student in ____________ can demonstrate the ability to apply and comprehend critical language through the following statement(s):**

- The Earth has materials that humans can use for different things.
- Earth materials can be sorted by how they feel and how they look.

### Academic Vocabulary:

- identify, represent, similarities, differences, predict, communicate, analyze, observe, sort, group, classify, analyze, similar, different, interpret, collaboration, justify, tools

### Technical Vocabulary:

- texture, size, color, shape, natural resources, Earth, reduce, reuse, recycle
## Unit Title
Survival of the Fittest

## Length of Unit
3 – 5 weeks

### Focusing Lens(es)
Structure and Function

### Standards and Grade Level Expectations Addressed in this Unit
SC09-GR.1-S.2-GLE.2

### Inquiry Questions (Engaging-Debatable):
- How do an animals’ or plants’ structure and subsequent function enable survival in the local environment?  
  (SC09-GR.1-S.2-GLE.2; RA.1)
- What happens to an organism if a need is removed?  
  (SC09-GR.1-S.2-GLE.2; N.2)

### Unit Strands
Life Science

### Concepts
organism, survival, characteristics, structure/function, resources

### Generalizations

<table>
<thead>
<tr>
<th>My students will Understand that...</th>
<th>Factual</th>
<th>Guiding Questions</th>
<th>Conceptual</th>
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</table>
| Survival of organisms can depend on their physical characteristics (structure)  
  (SC09-GR.1-S.2-GLE.2-EO.c) | What determines which structures help an organism survive?  
  (SC09-GR.1-S.2-GLE.2-EO.c) | What helps a specific plant or animal survive?  
  (SC09-GR.1-S.2-GLE.2; IQ.2) |
| Organisms must utilize resources from the environment in order to live.  
  (SC09-GR.1-S.2-GLE.2-EO.b) | What do organisms need to survive?  
  (SC09-GR.1-S.2-GLE.2-EO.c) | How do the needs of plants and animals differ?  
  (SC09-GR.1-S.2-GLE.2-EO.a,b; IQ.1) |

### Critical Content:

<table>
<thead>
<tr>
<th>My students will Know...</th>
<th>Key Skills: My students will be able to (Do)...</th>
</tr>
</thead>
</table>
| - Characteristics of organisms and how to sort by these characteristics  
  (SC09-GR.1-S.2-GLE.2-EO.a) | - Use evidence based scientific explanations for classifying into groups  
  (SC09-GR.1-S.2-GLE.2-EO.a) |
| - The needs of plants and animals (SC09-GR.1-S.2-GLE.2-EO.b) | - Analyze and interpret data  
  (SC09-GR.1-S.2-GLE.2-EO.b) |
| - The physical characteristics of plants and animals that help them survive  
  (SC09-GR.1-S.2-GLE.2-EO.c; RA.1) | - Use direct observations and other evidence to support ideas  
  (SC09-GR.1-S.2-GLE.2-EO.c) |
| - The consequences, for living things, when resources are scarce  
  (SC09-GR.1-S.2-GLE.2; RA.2) | - Ask testable questions  
  (SC09-GR.1-S.2-GLE.2; N.2) |
### Critical Language

includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline.

EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: "Mark Twain exposes the hypocrisy of slavery through the use of satire."

### A student in ___________ can demonstrate the ability to apply and comprehend critical language through the following statement(s):

- Plants and animals need things to survive.
- There are traits that plants and animals have that help them stay alive.

### Academic Vocabulary

- identify, analyze, classify, Classify, interpret, analyze, similar, characteristics

### Technical Vocabulary

- plant, animal, shelter, water, food, environment, survive, organism