



Grade Kindergarten – Wood and Paper Physical Science

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**Science Vision for
San Diego Unified School District**
Science is an integral part of the intellectual development of a child. Interest in science begins with attitudes and values established in the earliest years through daily experiences. Students graduating from high school must have a foundation in scientific knowledge and evidence based reasoning.

Updated versions of this unit of study can be found online in the *Curriculum Resources for Teachers* section of www.sandi.net



San Diego Unified School District
Instructional Support Services - Science



**Grade K – Wood and Paper
Module Overview**

Overview of the Unit

The modern world is a wonderland of different materials for early- childhood students. Two of those materials are wood and the paper that is derived from it. Scores of different kinds of wood and paper fill students’ environment. In the **Wood and Paper Module** students are introduced to a wide variety of woods and papers in a systematic way. They observe the properties of these materials and discover what happens when they subject them to a number of tests and interactions with other materials. Students learn that wood and paper can be recycled to create new forms of paper or wood that have new properties. Finally, they use what they know about the properties of these marvelous materials as they change wood and paper into a variety of products. Throughout the module, students have many opportunities to make comparisons between different kinds of wood, different types of paper, and wood and paper. The concept of trees as natural resources is introduced, and students become aware of the need to conserve and reuse natural resources.

Grade K Physical Science Conceptual Flow

Concept #1
Properties of materials can be observed, measured, and predicted. (Physical Science)

Subconcepts Investigation #1: Getting to Know Wood	Subconcepts Investigation #2: Changing Wood	Subconcepts Investigation #3: Getting to Know Paper
Wood is a resource that comes from different kinds of trees and it can be conserved.	Wood has many observable properties.	Paper has many observable properties.
Some woods are processed and transformed by people.	Wood that is waterlogged sinks.	Many objects are made from paper.
Wood is used for many everyday things.	Sanding can change the shape of wood.	The properties of different papers determine their use.
Wood has many observable physical properties.	Sawdust can be recycled into usable wood.	People make paper from wood. Wood is a resource that comes from trees. Resources can be conserved.
Wood floats in water. Some kinds of wood sink more easily than others.	Gluing thin sheets of wood together produce much stronger wood.	Water left in the open evaporates into the air.
Wood absorbs water.	Some objects occur in nature. Others are made by people.	
	Water left in the open evaporates into the air.	

Grade K Physical Science Conceptual Flow – continued

Concept #1 (continued)

Properties of materials can be observed, measured, and predicted. (Physical Science)

Subconcepts

Investigation #4: Changing paper

The properties of recycled paper can be compared to those of new paper.

Water left in the open evaporates into the air.

Water changes to a solid when it freezes and to a liquid when ice melts.

Subconcepts

Investigation #5: Construction

Knowledge of the properties of wood, paper, and fabric can be used to make useful or artistic constructions.

Some fabrics are woven.

Concept #2

Earth is composed of land, air, and water. (Earth Science)

Subconcepts

Investigation #4: Changing paper

New paper can be made from old paper.

Recycling extends the use of trees and other resources from the earth.

Objects can be made from paper.

Subconcepts

Investigation #5: Construction

Paper containers we use every day began as flat pieces of paper.

Paper can be woven by using an under-over alternating pattern.



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**Grade K – Wood and Paper
California Science Standards**



Kindergarten Science Content Standards Addressed in this Module

Physical Science

PS1 Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:

- PS1a Students know objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).
- PS1b Students know water can be a liquid or a solid and can be made to change back and forth from one form to the other.
- PS1c Students know water left in an open container evaporates (goes into the air) but water in a closed container does not.

Earth Science

ES3 Earth is composed of land, air, and water. As a basis for understanding this concept:

- ES3c Students know how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.

Investigation and Experimentation

I&E4 Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- I&E4a Observe common objects by using the five senses.
- I&E4b Describe the properties of common objects.
- I&E4c Describe the relative position of objects by using one reference (e.g., above or below).
- I&E4d Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).
- I&E4e Communicate observations orally and through drawings.



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Grade K – Wood and Paper
Pacing the Unit as a Whole

Pacing the Unit as a Whole – Wood and Paper

Day 1 Start Inv. 1 Part 1 A/W	Day 2 Start Inv. 1 Part 2 A/W/R	Day 3 Start Inv. 1 Part 3 A/W	Day 4 Start Inv. 1 Part 4 A/W	Day 5 Start Inv. 1 Part 5 A/W
Day 6 Review	Day 7 Start Inv. 2 Part 1 A/W	Day 8 Start Inv. 2 Part 2 A/W	Day 9 Start Inv. 2 Part 3 A	Day 10 W
Day 11 Start Inv. 2 Part 4 A	Day 12 W/R	Day 13 Start Inv. 3 Part 1 A/W/R	Day 14 Start Inv. 3 Part 2 A/W	Day 15 Start Inv. 3 Part 3 A/W
Day 16 Start Inv. 3 Part 4 A	Day 17 A/W	Day 18 Review	Day 19 Start Inv. 4 Part 1 A	Day 20 W
Day 21 Start Inv. 4 Part 2 A	Day 22 A/W	Day 23 Start Inv. 4 Part 3 R/W	Day 24 Start Inv. 4 Part 4 A	Day 25 A/W
Day 26 Review	Day 27 Start Inv. 5 Part 1 A/W	Day 28 Start Inv. 5 Part 2 A/W	Day 29 R	Day 30 Start Inv. 5 Part 3 A
Day 31 W/R	Day 32 Review			

A – Small-Group Centers Most of the observations and investigations with trees and leaves are conducted with small groups at a learning center. Limit the number of students at the center to six to ten at one time. When possible, each student will have his or her own equipment to work with. In some cases, students will have to share materials and equipment and make observation together. As one group at a time is working at the center on a FOSS activity or talking a walk outdoors to visit trees or collect leaves, other students will be doing something else. Over the course of an hour or more, plan to rotate all students through the center, or allow the center to be a free-choice station.

(Approximately 45 minutes)

W – Whole-Class Activities Introducing and wrapping-up the center activities require you to work for brief periods with the whole class. FOSS suggests for these introductions and wrap-ups that you gather the class at the rug or other location in the classroom where students can sit comfortably in a large group. (Approximately 45 minutes)

R – Reading sessions (*Science Resources* book) include interactive reading, answering review questions, and discussing the reading to ensure that students integrate the information.

Pacing the Unit as a Whole – Trees – Please refer to the Earth Science Unit of Study for details

Teach in Winter				
Day 21 Start Inv. 3 Part 4 A/W	Day 22 Start Inv. 3 Part 5 A/W	Day 23 Start Inv. 3 Part 6 A/W/I		

I-Individual Assessments The goals of FOSS assessment system fall into three categories called assessment variables; (1) contents knowledge, (2) conducting investigations, and (3) building explanations. **Content knowledge** reflects the “facts” of science that students learn throughout the module. **Conducting investigation** focuses on skills needed for a successful scientific investigation. **Building Explanation** refers to students’ discourse – how they communicate observation and how they organize their observation and interpretations of them.



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Grade K – Wood and Paper
Pacing Guide – Investigation 1: Getting to Know Wood

Investigation Overview

Investigation 1: Getting to Know Wood		
<p>Concept: Properties of materials can be observed, measured, and predicted. (Physical Science)</p> <p>Students know how to compare the physical properties of different kinds of wood and that wood products are part of our natural resources which composes many things that we use in our daily lives. Students work with five different wood samples to observe their properties. They begin with free exploration, go on a hunt for matching samples, drop water on the samples, and float them in basins. They test the wood to find out how many paper clips it takes to sink it, then organize their results by making a concrete graph.</p>		
Part 1: Introduction to Wood Samples	Part 2: Wood Hunt	Part 3: Wood and Water
<p><u>Summary</u> Students become familiar with different kinds and forms of wood found in their homes and school environments. They compare and describe five uniform samples of different kinds of wood, earn their names, and observe how they are alike and how they are different.</p>	<p><u>Summary</u> Students go on a wood hunt and label objects in the classroom that are made of wood. They read about how the wood to make a chair starts as a tree and ends up as boards.</p>	<p><u>Summary</u> Students observe how wood and water interact, first by putting drops of water on the wood, then by putting the wood in basins of water.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable physical properties. ▪ Wood is a resource that comes from different kinds of trees. ▪ Some woods are produced and transformed by people. ▪ People observe objects by using their senses. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable physical properties ▪ Wood is used for many everyday things. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable physical properties ▪ Wood floats in water. ▪ Wood absorbs water.
<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>
<p><u>CA Science Standards</u> PS1a, I&E4a, I&E4b, I&E4c, I&E4d, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E4a, I&E4b, I&E4d, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E4a, I&E4e</p>

Investigation Overview (continued)

Investigation 1: Getting to Know Wood

Concept: Properties of materials can be observed, measured, and predicted. (Physical Science)

Students know how to compare the physical properties of different kinds of wood and that wood products are part of our natural resources which composes many things that we use in our daily lives. Students work with five different wood samples to observe their properties. They begin with free exploration, go on a hunt for matching samples, drop water on the samples, and float them in basins. They test the wood to find out how many paper clips it takes to sink it, then organize their results by making a concrete graph.

Part 4: Sink the Pine and Plywood	Part 5: Sinking Investigation (optional)	
<p><u>Summary</u> Students find ways to sink two of the floating wood samples by attaching paper clips to the wood with rubber bands. They discover how easy it is to sink the plywood compared to the pine sample. They use relative position words to describe the location of the wood.</p>	<p><u>Summary</u> Students refine their techniques of using paper clips and rubber bands to sink the wood samples. And test two kinds of wood. They make a concrete graph of their results, lining up and comparing the number of clips.</p>	
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable physical properties. ▪ Wood floats in water. Some kinds of wood sink more easily than others. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood floats in water. Some kinds of wood sink more easily than others. 	
<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day Review/Interdisciplinary Extensions: 1 day</p>	
<p><u>CA Science Standards</u> PS1a, I&E4c, I&E4d, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E4d, I&E4e</p>	



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Grade K – Wood and Paper
Pacing Guide – Investigation 1: Getting to Know Wood

Pacing Guide – Investigation 1: Getting to Know Wood

Day 1		Day 2		Day 3	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Read “Science Background” <i>TG p. 6-7</i> <input type="checkbox"/> Read “At a Glance” <i>TG p. 38-39</i> <input type="checkbox"/> Read “Background for the Teacher” <i>TG p. 40-41</i> <input type="checkbox"/> Read “Teaching Children About Wood” <i>TG p. 42-43</i> <input type="checkbox"/> Watch Video demo of Inv. 1, Pt 1 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 44-47</i>	Guiding the Investigation <input type="checkbox"/> “Part 1: Introduction to Wood; Wrapping up Part 1” Steps 1-11 <i>TG p. 48-52</i> <input type="checkbox"/> Body of Evidence Prompt #1 <i>TG p. 52 or 215</i>	<input type="checkbox"/> Watch Video demo of Inv. 1, Pt 2 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 53-55</i>	Guiding the Investigation <input type="checkbox"/> “Part 2: Wood Hunt; Wrapping up Part 2” Steps 1-9 <i>TG p. 56-58</i> Reading in Science Resources <input type="checkbox"/> Steps 10-13 <i>TG p.58</i> Student Reading: Science Resources p. 3-8 <input type="checkbox"/> Body of Evidence Prompt #2 <i>TG p. 58 or 215</i>	<input type="checkbox"/> Watch Video demo of Inv. 1, Pt 3 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 59-60</i>	Guiding the Investigation <input type="checkbox"/> “Part 3: Wood and Water; Wrapping up Part 3” Steps 1-12 <i>TG p. 62-64</i> <input type="checkbox"/> Body of Evidence Prompt #3 <i>TG p. 64 or 215</i>

Pacing Guide – Investigation 1: Getting to Know Wood (continued)

Day 4		Day 5 (Optional)		Day 6	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Watch Video demo of Inv. 1, Pt 4 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 65-66</i>	Guiding the Investigation <input type="checkbox"/> “Part 4: Sink the pine and plywood; Wrapping up Part 2” Steps 1-10 <i>TG p. 67-69</i>	<input type="checkbox"/> Watch Video demo of Inv. 1, Pt 5 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 70-71</i>	Guiding the Investigation <input type="checkbox"/> “Part 5: Sinking Investigation; Wrapping up Part 5” Steps 1-10 <i>TG p. 72-74</i> <input type="checkbox"/> Body of Evidence Prompt #4 <i>TG p. 74 or 215</i>		<input type="checkbox"/> Interdisciplinary Extensions <i>TG p. 75-77</i>



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Grade Kindergarten – Wood and Paper
Pacing Guide – Investigation 2: Changing Wood



Investigation Overview

<p>Investigation 2: Changing Wood Concept: Properties of materials can be observed, measured, and predicted. (Physical Science) Students use sandpaper to change the shape of wood. They compare sawdust and shavings and how they interact with water. They simulate the manufacture of two kinds of wood they observed in Investigation 1, particleboard and plywood</p>	
<p>Part 1: Sanding Wood</p>	<p>Part 2: Sawdust and Shavings</p>
<p><u>Summary</u> Students add to their knowledge of the properties of wood and learn how to use those properties to change wood. They use sandpaper to change the shape of basswood.</p>	<p><u>Summary</u> Students compare sawdust and shavings. They find out what happens to sawdust and shavings when they are mixed with water and then separate out the shavings. They spread wet sawdust out on newspaper and put some in a closed container.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable properties. ▪ Sanding can change the shape of wood. ▪ Sawdust I tiny pieces of wood. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Wood has many observable properties including whether it floats or sinks in water. Some pieces of wood float on top; some sink to the bottom. ▪ Wood that is waterlogged sinks to the bottom of the cup.
<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>
<p><u>CA Science Standards</u> PS1a, I&E4b, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, PS1c, I&E4c, I&E4e</p>
<p>Part 3: Making Sawdust Wood</p>	<p>Part 4: Making Sandwich Wood</p>
<p><u>Summary</u> Students observe wet sawdust from the day before, Some was spread out to dry and some was put in a closed container, They also compare what let in an open cup and closed cup. Students simulate the making of particleboard using sawdust and a cornstarch matrix. They compare their particleboard wit the samples.</p>	<p><u>Summary</u> Students make plywood form thin strips of wood and glue. They compare the breakable strength of a craft stick to that of their homemade plywood. In Reading, students compare what they do to study wood to what a scientist does.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Some objects occur in nature. Others are made by people. ▪ Sawdust can be recycled into usable wood. ▪ Water left in an open cup dries up and goes into the air (evaporates). Water left in a closed cup does not evaporate. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Some objects occur in nature and others are made by people. ▪ Gluing (laminating) thin sheets of wood together produces much stronger wood.
<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 2 days</p>	<p><u>Time Allocation</u> Active Investigation: 1 day Wrap-Up/Reading: 1 day</p>
<p><u>CA Science Standards</u> PS1a, PS1c, I&E4b, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E4a, I&E4b, I&E4e</p>



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Grade Kindergarten – Wood and Paper
 Pacing Guide – Investigation 2: Changing Wood



Pacing Guide – Investigation 2: Changing Wood

Day 7		Day 8		Day 9	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Read “At a Glance” <i>TG p. 80-81</i> <input type="checkbox"/> Read “Background for the Teacher” <i>TG p. 82-83</i> <input type="checkbox"/> Read “Teaching Children About Changing Wood” <i>TG p. 84-85</i> <input type="checkbox"/> Watch Video demo of Inv. 2, Pt 1 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 86-87</i>	Guiding the Investigation <input type="checkbox"/> “Part 1: Sanding Wood; Wrapping up Part 1” Steps 1-10 <i>TG p. 88-89</i> <input type="checkbox"/> Body of Evidence Prompt #5 <i>TG p. 89 or 215</i>	<input type="checkbox"/> Watch Video demo of Inv. 2, Pt 2 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 90-91</i>	Guiding the Investigation <input type="checkbox"/> “Part 2: Sawdust and Shavings; Wrapping up Part 2” Steps 1-14 <i>TG p. 92-94</i>	<input type="checkbox"/> Watch Video demo of Inv. 2, Pt 3 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 96-97</i>	Guiding the Investigation <input type="checkbox"/> “Part 3: Making Sawdust” Steps 1-10 <i>TG p. 97-98</i> <input type="checkbox"/> Body of Evidence Prompt #6 <i>TG p. 97 or 215</i>

Pacing Guide – Investigation 2: Changing Wood (continued)

Day 10		Day 11		Day 12	
Prep	Instruction	Prep	Instruction	Prep	Instruction
	Guiding the Investigation <input type="checkbox"/> “Wrapping up Part 3” Steps 11-12 <i>TG p. 99</i>	<input type="checkbox"/> Watch Video demo of Inv. 2, Pt 4 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 100-101</i>	Guiding the Investigation <input type="checkbox"/> “Part 4: Making Sandwich Wood” Steps 1-5 <i>TG p. 102-103</i>		Guiding the Investigation <input type="checkbox"/> “Wrapping up Part 4” Steps 6-7 <i>TG p. 104</i> Reading in Science Resources <input type="checkbox"/> Steps 8-10 <i>TG p. 105</i> Student Reading: Science Resources p. 9-12



San Diego Unified School District
 Instructional Support Services - Science
Grade Kindergarten – Wood and Paper
Pacing Guide – Investigation 3: Getting to Know Paper



Investigation Overview

<p>Investigation 3: Getting to Know Paper Concept: Properties of materials can be observed, measured, and predicted. (Physical Science) Students observe and compare the properties of ten kinds of paper and go on a hunt for matching samples. They test the papers for different properties, comparing how well they fold and which has the best surface for writing. They drop water on the samples to compare absorption, then soak the samples overnight.</p>	
<p>Part 1: Paper Hunt</p>	<p>Part 2: Writing and Drawing on Paper</p>
<p><u>Summary</u> Students sort a variety of materials based on state: Students observe and compare the properties of ten kinds of paper. They go on a hunt, looking for a sample that matches one the teacher gave them. They read a story about how trees turn into a cardboard box.</p>	<p><u>Summary</u> Students use crayon, pencils, and markers to explore and compare the properties of paper that make it suitable or unsuitable for writing and drawing.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Paper has many observable properties. ▪ Many objects are made from paper. ▪ People make paper from wood. Wood is a resource that comes from trees. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Paper has many observable properties. ▪ The properties of some kinds of paper make them useful for writing to drawing.
<p><u>Time Allocation</u> Active Investigation/Reading: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day</p>
<p><u>CA Science Standards</u> PS1a, I&E 4a, I&E4b, I&E4d, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E 4a, I&E4b, I&E4d, I&E4e</p>
<p>Part 3: Folding Paper</p>	<p>Part 4: Paper and Water</p>
<p><u>Summary</u> Students fold paper and compare the properties of paper that allow it to be folded.</p>	<p><u>Summary</u> Students drop water on ten different paper samples and observe and compare the results. They submerge the paper changes in any way. Students observe another example of water evaporating from a wet object left in the open.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Paper has many observable properties. ▪ The properties of different papers determine their use. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Some kinds of paper absorb water while others do not. ▪ Paper changes when soaked in water. Some papers break down to small fibers. ▪ Water evaporates from wet paper left in the air to dry.
<p><u>Time Allocation</u> Active Investigation: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Warp-Up: 2 days Review: 1 day</p>
<p><u>CA Science Standards</u> PS1a, I&E 4a, I&E4b, I&E4d, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, PS2c, I&E 4a, I&E4d, I&E4e</p>



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Grade Kindergarten - Wood and Paper
 Pacing Guide – Investigation 3: Getting to Know Paper



Pacing Guide – Investigation 3: Getting to Know Paper

Day 13		Day 14		Day 15	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Read “At a Glance” <i>TG p. 108-109</i> <input type="checkbox"/> Read “Background for the Teacher” <i>TG p. 110-111</i> <input type="checkbox"/> Read “Teaching Children About Paper” <i>TG p. 112-113</i> <input type="checkbox"/> Watch Video demo of Inv. 3, Pt 1 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 114-116</i>	Guiding the Investigation <input type="checkbox"/> “Part 1: Paper Hunt; Wrapping up Part 1” Steps 1-10 <i>TG p. 117-119</i> Reading in Science Resources; <input type="checkbox"/> Steps 11-13 <i>TG p. 120</i> Student Reading: Science Resources p. 13-18 <input type="checkbox"/> Body of Evidence Prompt #7 <i>TG p. 119 or 215</i>	<input type="checkbox"/> Watch Video demo of Inv. 3, Pt 2 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 121-122</i>	Guiding the Investigation <input type="checkbox"/> “Part 2: Writing and Drawing; Wrapping up Part 2” Steps 1-9 <i>TG p. 123-125</i>	<input type="checkbox"/> Watch Video demo of Inv. 3, Pt 3 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 126-127</i>	Guiding the Investigation <input type="checkbox"/> “Part 3: Folding Paper; Wrapping up Part 3” Steps 1-11 <i>TG p. 128-130</i>

Pacing Guide – Investigation 3: Getting to Know Paper (continued)

Day 16		Day 17		Day 18	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Watch Video demo of Inv. 3, Pt 4 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 131-132</i>	Guiding the Investigation <input type="checkbox"/> “Part 4: Paper and Water; Steps 1-5 <i>TG p. 133-134</i> <input type="checkbox"/> Body of Evidence Prompt #8 <i>TG p. 134 or 215</i>		Guiding the Investigation <input type="checkbox"/> “Part 4: Paper and Water; Wrapping up Part 4” Steps 6-10 <i>TG p. 135</i>		<input type="checkbox"/> Interdisciplinary Extensions <i>TG p. 136-138</i>



San Diego Unified School District
 Instructional Support Services - Science
Grade Kindergarten – Wood and Paper
Pacing Guide – Investigation 4: Changing Paper



Investigation Overview

<p>Investigation 4: Changing Paper Concept: Properties of materials can be observed, measured, and predicted. (Physical Science) Students learn two ways to transform paper, making it stronger and more durable. They make a piece of recycled paper and papier-mâché bowls. They work with water, freezing and melting it to see the change in its properties. They evaporate water.</p>	
<p>Part 1: Paper Recycling</p>	<p>Part 2: Papier-Mâché</p>
<p><u>Summary</u> Students are introduced to papermaking and recycling. They shake toilet paper and water in a bottle to make pulp and then form it into a new piece of paper. They discover that the new paper has many of the properties of the original paper, and has some very different properties</p>	<p><u>Summary</u> Students use wheat paste (flour and water) to mold strips of newspaper over a small container. They use this papier-mâché technique to change the paper from flexible to stiff and strong so it will keep a shape.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Recycling extend the use of trees. ▪ New Paper can be made from old paper. ▪ The properties of recycled paper can be compared to those of new paper. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Objects can be made from paper. ▪ Paper can be soaked in wheat past to make it soft and moldable when wet, and stiff and strong when dry.
<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 2 days</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 2 days</p>
<p><u>CA Science Standards</u> PS1a, PS1c, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, I&E4e</p>

Investigation Overview (continued)

<p>Investigation 4: Changing Paper Concept: Properties of materials can be observed, measured, and predicted. (Physical Science) Students learn two ways to transform paper, making it stronger and more durable. They make a piece of recycled paper and papier-mâché bowls. They work with water, freezing and melting it to see the change in its properties. They evaporate water.</p>	
<p>Part 3: Reuse and Recycle Resources</p>	<p>Part 4: Changes to Water</p>
<p><u>Summary</u> Through a reading, students are introduced to natural resources provided by Earth and the need to reuse and recycle materials. They learn about recycling programs at their school and in their community. They sort materials for recycling, based on the kind of material. They use magnets to sort steel from other metals.</p>	<p><u>Summary</u> Students freeze water in various plastic containers and observe how ice melts. They learn that water can take different forms, liquids and solids, and can change from one to another and back again.</p>
<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Natural resources come from the earth, they include air, water, land, and trees. ▪ Natural resources are used to make many things we use every day and need to be reused and recycled. 	<p><u>Subconcepts</u></p> <ul style="list-style-type: none"> ▪ Water can be a liquid or a solid. ▪ When liquid water freezes, it turns to a solid, ice. ▪ When solid water melts, it turns to a liquid.
<p><u>Time Allocation</u> Reading/Wrap-Up: 1 day</p>	<p><u>Time Allocation</u> Active Investigation/Wrap-Up: 2 days Review: 1 day</p>
<p><u>CA Science Standards</u> PS1a, ES3c, I&E4e</p>	<p><u>CA Science Standards</u> PS1a, PS1b, I&E4e, I&E4a</p>



San Diego Unified School District
 Instructional Support Services - Science
Grade Kindergarten - Wood and Paper
 Pacing Guide – Investigation 4: Changing Paper



Pacing Guide – Investigation 4: Changing Paper

Day 19		Day 20		Day 21	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Read “At a Glance” <i>TG p. 140-141</i> <input type="checkbox"/> Read “Background for the Teacher” <i>TG p. 142-143</i> <input type="checkbox"/> Read “Teaching Children About Changing Paper” <i>TG p. 144-145</i> <input type="checkbox"/> Watch Video demo of Inv. 4, Pt 1 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 146-148</i>	Guiding the Investigation <input type="checkbox"/> “Part 1: Paper Recycling” Steps 1-8 <i>TG p. 149-150</i>		Guiding the Investigation <input type="checkbox"/> “Wrapping up Part 1” Steps 9-10 <i>TG p. 151</i> <input type="checkbox"/> Body of Evidence Prompt #9 <i>TG p. 151 or 215</i>	<input type="checkbox"/> Watch Video demo of Inv. 4, Pt 2 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 152-153</i>	Guiding the Investigation <input type="checkbox"/> “Part 2: Papier-Mâché” Steps 1-7 <i>TG p. 154-155</i>

Pacing Guide – Investigation 4: Changing Paper (continued)

Day 22		Day 23		Day 24	
Prep	Instruction	Prep	Instruction	Prep	Instruction
	Guiding the Investigation <input type="checkbox"/> “Part 2: Papier-mâché; Wrapping up Part 2” Steps 8-13 <i>TG p. 157</i>	<input type="checkbox"/> Watch Video demo of Inv. 4, Pt 3 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 158-159</i>	Guiding the Investigation Reading in Science Resources; <input type="checkbox"/> “Part 3: Reuse and Recycle Resources; Wrapping up Part 3” Steps 1-10 <i>TG p. 160-161</i> Student Reading: Science Resources p. 19-23	<input type="checkbox"/> Watch Video demo of Inv. 4, Pt 4 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 162-163</i>	Guiding the Investigation <input type="checkbox"/> “Part 4: Changes to Water” Steps 1-4 <i>TG p. 164</i>

Day 25		Day 26			
Prep	Instruction	Prep	Instruction		
	Guiding the Investigation <input type="checkbox"/> “Part 4: Changes to Water; Wrapping up Part 4” Steps 5-10 <i>TG p. 164-165</i> <input type="checkbox"/> Body of Evidence Prompt #10 <i>TG p. 165 or 215</i>		<input type="checkbox"/> Interdisciplinary Extension <i>TG p. 166-168</i>		



San Diego Unified School District
 Instructional Support Services - Science
Grade Kindergarten – Wood and Paper
Pacing Guide – Investigation 5: Constructions



Investigation Overview

Investigation 5: Constructions		
Concept: Properties of materials can be observed, measured, and predicted. (Physical Science)		
Students explore a variety of techniques for making things from paper and wood. They combine all the processes to make a free-form wood, paper, and cloth sculpture.		
Part 1: Paper Boxes	Part 2: Paper Weaving	Part 3: Using Materials
<u>Summary</u> Students take apart paper boxes, tracing around the flat boxes on newsprint. They put the boxes back together, folding and taping then in their original shape.	<u>Summary</u> Students learn the alternating under-over pattern used in weaving, and make a woven paper may. Students extend their understanding of weaving to fabric and take burlap apart to see how it is woven. At the end, students read two stories about how fabric is made and used.	<u>Summary</u> Through a reading, students are introduced to natural resources provided by Earth and the need to reuse and recycle materials. They learn about recycling programs at their school and in their community. They sort materials for recycling, based on the kind of material. They use magnets to sort steel from other metals.
<u>Subconcepts</u> <ul style="list-style-type: none"> ▪ Knowledge of the properties of paper can be used to make useful or artistic constructions. ▪ Paper containers we use every day began as flat pieces of paper. 	<u>Subconcepts</u> <ul style="list-style-type: none"> ▪ Knowledge of the properties of paper and fabric can be used to make useful or artistic constructions. ▪ Paper can be woven by using an under-over alternating pattern. ▪ Some Fabrics are woven. 	<u>Subconcepts</u> <ul style="list-style-type: none"> ▪ Knowledge of the properties of paper and fabric can be used to make useful or artistic constructions. ▪ Some objects are found in nature; others are made by people. ▪ Wood, paper, and fabric can be held together with glue.
<u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day	<u>Time Allocation</u> Active Investigation/Wrap-Up: 1 day Reading: 1 day	<u>Time Allocation</u> Active Investigation: 1 day Wrap-Up/Reading: 1 day Review: 1 day
<u>CA Science Standards</u> PS1a, I&E4e	<u>CA Science Standards</u> PS1a, I&E4e, I&E4b, I&E4c	<u>CA Science Standards</u> PS1a, ES3c



San Diego Unified School District
 Instructional Support Services - Science
Grade K Wood and Paper
 Pacing Guide – Investigation 5: Constructions



Pacing Guide – Investigation 5: Constructions

Day 27		Day 28		Day 29	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Read “At a Glance” <i>TG p. 170-171</i> <input type="checkbox"/> Read “Background for the Teacher” <i>TG p. 172-173</i> <input type="checkbox"/> Read “Teaching Children About Useful Materials” <i>TG p. 169</i> <input type="checkbox"/> Watch Video demo of Inv. 4, Pt 1 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 176-178</i>	Guiding the Investigation <input type="checkbox"/> “Part 1: Paper Boxes; Wrapping up Part 1” Steps 1-9 <i>TG p. 179-181</i>	<input type="checkbox"/> Watch Video demo of Inv. 5, Pt 2 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 182-184</i>	Guiding the Investigation <input type="checkbox"/> “Part 2: Paper Weaving; Wrapping up Part 1” Steps 1-10 <i>TG p. 185-187</i>		Reading in Science Stories (BIG BOOK) <input type="checkbox"/> Steps 11-14 <i>TG p. 188</i>
Day 30		Day 31		Day 32	
Prep	Instruction	Prep	Instruction	Prep	Instruction
<input type="checkbox"/> Watch Video demo of Inv. 5, Pt 3 <input type="checkbox"/> Review “Materials” and “Getting Ready” <i>TG p. 189-190</i>	Guiding the Investigation <input type="checkbox"/> “Part 3: Using Materials” Steps 1-7 <i>TG p. 191-192</i>		Guiding the Investigation <input type="checkbox"/> “Wrapping up Part 3” Steps 8-10 <i>TG p. 192</i> Reading in Science Resources <input type="checkbox"/> Steps 11-12 <i>TG p. 193</i>		<input type="checkbox"/> Interdisciplinary Extension <i>TG p. 194-196</i>



San Diego Unified School District
Instructional Support Services - Science
Grade Kindergarten – Wood and Paper
Recommended Body of Evidence



Overview

This guide is intended to support the collection of a Body of Evidence. A student's Body of Evidence should, at a minimum, include work from the listed prompts and in-class investigations. Other class work and assessments that demonstrate a student's level of proficiency may be included.

Download samples of proficient work @ <https://eteams.sandi.net/sites/sbrc>

Note: Observing and questioning will give you information about what individual students can and can't do, and what they know or don't know. Use Assessment Checklist (TG p. 231 & 232) to keep a record of observations and oral responses to questions.

Recommended Body of Evidence – Grade K Physical Science

Concept #1

Describe the properties of objects. (CA Standards PS1a, PS1b, PS1c)

Prompt #1: (I&E) FOSS: Wood and Paper Investigation 1: Getting to know Wood Part 1: Introduction to Wood Samples
(TG p.52 Step #11 Start A Content Chart - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 1 Part 1: Where does wood come from?

Prompt #2: (I&E) FOSS: Wood and Paper Investigation 1: Getting to know Wood Part 2: Wood Hunt
(TG p.58 Step #12 Ask Science Notebook Question - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 1 Part 2: What is made of wood?

Prompt #3: (I&E) FOSS: Wood and Paper Investigation 1: Getting to know Wood Part 3: Wood and Water
(TG p.64 Step #12 Make Content Chart Entries - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 1 Part 3: What happens when wood gets wet?

Prompt #4: (I&E) FOSS: Wood and Paper Investigation 1: Getting to know Wood Part 5: Sinking Investigation
(TG p.74 Step #10 Make Content Chart Entries - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 1 Part 5: How did you test the wood? What did you find out?

Prompt #5: (I&E) FOSS: Wood and Paper Investigation 2: Changing Wood Part 1: Sanding Wood
(TG p.89 Step #9 Make Content Chart Entries - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 2 Part 1: How did you change the shape of wood?

Recommended Body of Evidence – Grade K Physical Science (continued)

Prompt #6: (I&E) FOSS: Wood and Paper Investigation 2: Changing Wood Part 3: Making Sawdust Wood

(TG p.97 Step #2 Recall the Sawdust)

What happened to the water that was on the sawdust on the paper? Where did it go? What happened to the water that was on the sawdust in the cup? Where did it go?

Prompt #7: (I&E) FOSS: Wood and Paper Investigation 3: Getting to Know Paper Part 1: Paper Hunt

(TG p.119 Step #10 Make Content Chart Entries - TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv. 3 Part 1: What is made of paper?

Prompt #8: (I&E) FOSS: Wood and Paper Investigation 3: Getting to Know Paper Part 4: Paper and Water

(TG p.134 Step #7 Dry the Wet Samples)

What happened to the water?

Prompt #9: (I&E) FOSS: Wood and Paper Investigation 4: Changing Paper Part 1: Paper Recycling

(TG p.151 Step #10 Make Content Chart Entries)

What happened to the water in the paper pulp?

Prompt #10: (I&E) FOSS: Wood and Paper Investigation 4: Changing Paper Part 4: Changes to Water

(TG p.165 Step #10 Make Content Chart Entries- TG p. 215 – Science Notebook Questions - No. 19 - Teacher Sheet)

Inv.4 Part 4: How does water change from a liquid to a solid and back again?



San Diego Unified School District
 Instructional Support Services - Science
Grade Kindergarten – Wood and Paper
Module Materials and Equipment



Materials Provided

The FOSS kit comes with most of the supplies that are needed to teach the unit. The kits will be delivered to the school site prior to the start of the 12-week unit of instruction. At the end of the 12-weeks, the kit will be returned to the Science Resource Center where it will be refurbished and prepared for its next use. Please review the refurbishment calendar for kit drop-off and return dates. Kits must be returned according to the refurbishment calendar to ensure that all kits are checked and restocked with consumable materials.

Materials Supplied by the Teacher or School Site

Be aware that the classroom teacher or school site must supply a few items. These are indicated in the materials list for each part of the investigation with an asterisk (*). Here is a summary of those items.

Investigation 1: Getting to Know Wood	Investigation 2: Changing Wood	Investigation 3: Getting to Know Paper	Investigation 4: Changing Paper	Investigation 5: Constructions
<ul style="list-style-type: none"> ▪ Chart paper ▪ 2 marking pens, different colors ▪ Newspaper ▪ Paper towels ▪ 1 Permanent Marker ▪ 1 Pitcher or empty 2-liter soda bottle ▪ 2-3 Small objects that float (optional) ▪ 2-3 Small objects that sink (optional) ▪ 1 turkey baster (optional) ▪ Water 	<ul style="list-style-type: none"> ▪ Cornstarch 1 or 2 boxes ▪ 1 Container, Large zip bag or jar ▪ Newspaper ▪ Paper Towels ▪ Pencil or Marker ▪ Pitcher or Empty 2-liter bottle ▪ Saucepan ▪ Saw and Plane (optional) ▪ Scratch Paper ▪ 1 Long handled spoon ▪ Water ▪ White Glue 	<ul style="list-style-type: none"> ▪ Construction Paper- white ▪ Clothesline and clothespins (optional) ▪ Crayons, markers, and pencils ▪ Facial Tissue ▪ Newspaper ▪ Paper towels ▪ Turkey baster (optional) ▪ Water ▪ White Paper 	<ul style="list-style-type: none"> ▪ 1 Book – The Piñata Maker (optional) ▪ 1 Container ▪ Fabric Scraps ▪ Flour 3-4 Cups ▪ 1 large Spoon ▪ Materials to sort and recycle (cans, plastic, paper, small jars) ▪ Newspaper ▪ Paper towels or newsprint ▪ Pitcher or empty 2-liter soda bottle ▪ Rags, old towels ▪ Scissors ▪ Screwdriver or mat knife ▪ Toilet Tissue ▪ Water ▪ Wood Scraps 	<ul style="list-style-type: none"> ▪ Construction Paper ▪ Crayons and Markers ▪ Fabric Scraps ▪ Mat Board Scraps ▪ Newspaper ▪ Newsprint ▪ 20 Paper Boxes ▪ 1 Paper cutter ▪ Paper scraps ▪ Scissors ▪ Scratch Paper ▪ White Glue ▪ White Paper ▪ Wood Scraps