

# Properties

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# About **Properties**

**DeltaScienceModules**, THIRD EDITION

**S**tudents explore *Properties* with thirteen hands-on activities and the Delta Science Reader. To make sense of the world, a child must develop the capacity to classify and sort. Because students love to explore things with their hands, free play with kit contents is the first step in every session. Students use their hands and eyes to classify and sort by color, size, shape, and texture. They work with balances and other equipment to compare and contrast objects by weight, buoyancy, magnetic attraction, and material composition. As they practice distinguishing and grouping objects, they also build two vital vocabulary skills: describing and explaining.

In the Delta Science Reader *Properties*, students are introduced to the concept of matter and some of the properties that distinguish one object from another. Students read about the properties of solids, liquids, and gases. They observe that some objects sink while others float and that some objects are magnetic while others are not magnetic. The book describes how a geologist uses properties in her work. Students also read about how water can change.

# Overview Chart for Hands-on Activities

Hands-on Activity	Student Objectives
<b>1 What Are Properties?</b> <i>page 13</i>	<ul style="list-style-type: none"> <li>describe similar objects according to properties they have in common</li> <li>operationally define <i>property</i></li> <li>identify common properties, including color, size, texture, weight, shape, and material</li> </ul>
<b>2 Describing Properties</b> <i>page 19</i>	<ul style="list-style-type: none"> <li>examine a variety of objects and describe them with words</li> <li>create a chart showing different categories of descriptive words</li> <li>classify objects into groups according to their properties</li> </ul>
<b>3 Size and Color</b> <i>page 25</i>	<ul style="list-style-type: none"> <li>describe properties of paper squares and circles</li> <li>classify and sort squares and circles by size</li> <li>classify and sort circles by color</li> </ul>
<b>4 Shape</b> <i>page 33</i>	<ul style="list-style-type: none"> <li>examine and describe a collection of shapes</li> <li>sort objects according to shape</li> <li>identify objects in the real world that have a shape similar to each of the five 3-D blocks</li> </ul>
<b>5 Texture</b> <i>page 41</i>	<ul style="list-style-type: none"> <li>operationally define <i>texture</i></li> <li>describe and list various textures</li> <li>sort objects by texture</li> </ul>
<b>6 Weight</b> <i>page 47</i>	<ul style="list-style-type: none"> <li>predict the relative weights of different objects</li> <li>use an equal-arm balance to determine the relative weights of the objects</li> <li>arrange the objects in order of increasing relative weight</li> </ul>
<b>7 Properties of Solids</b> <i>page 53</i>	<ul style="list-style-type: none"> <li>describe properties of solids</li> <li>perform a simplified scratch test on various solids</li> <li>group objects according to how hard they are</li> <li>arrange a group of objects by increasing hardness</li> </ul>
<b>8 Properties of Liquids</b> <i>page 61</i>	<ul style="list-style-type: none"> <li>examine properties of water</li> <li>learn that water takes the shape of its container and pours easily</li> <li>operationally define <i>liquid</i></li> <li>describe the properties of liquids</li> </ul>
<b>9 Properties of Gases</b> <i>page 67</i>	<ul style="list-style-type: none"> <li>describe properties of air</li> <li>observe a demonstration that shows the physical presence of air</li> <li>infer properties of gases in general</li> </ul>
<b>10 Sink or Float?</b> <i>page 75</i>	<ul style="list-style-type: none"> <li>operationally define <i>sink</i> and <i>float</i></li> <li>predict and observe whether various objects sink or float</li> <li>sort objects as sinkers or floaters</li> <li>modify the shape of a sinker to make it a floater</li> </ul>
<b>11 Magnetism</b> <i>page 81</i>	<ul style="list-style-type: none"> <li>operationally define <i>magnetism</i></li> <li>predict and observe whether objects are attracted to a magnet</li> <li>sort various objects as magnetic or not magnetic</li> </ul>
<b>12 Comparing Materials</b> <i>page 87</i>	<ul style="list-style-type: none"> <li>observe properties of different materials</li> <li>classify objects as being made of metal, plastic, or wood</li> <li>discover that objects can be made of more than one material</li> <li>sort objects into made-of-one-material and made-of-more-than-one-material groups</li> </ul>
<b>13 Guess My Property</b> <i>page 95</i>	<ul style="list-style-type: none"> <li>examine and classify a collection of buttons</li> <li>sort the buttons by a property of their choice</li> <li>guess their partner's sorting criteria</li> </ul>
<b>Assessment</b> <i>page 101</i>	<ul style="list-style-type: none"> <li>See page 101.</li> </ul>

Process Skills	Vocabulary	Delta Science Reader
classify, define based on observations	<b>property</b>	pages 3, 4, 6, 7, 14
observe, communicate, make and use models, classify	<b>classify</b>	pages 3, 14
communicate, classify	<b>color, size, sort</b>	page 3
observe, communicate, classify	<b>shape</b>	pages 3, 4, 5, 9, 12
define based on observations, communicate, classify	<b>texture</b>	pages 4, 7
predict, make and use models, display data	<b>equal-arm balance, weight</b>	page 6
communicate, experiment, classify, display data	<b>solid</b>	pages 5, 15
observe, interpret data, define based on observations, communicate	<b>liquid</b>	pages 9, 15
communicate, observe, infer	<b>gas</b>	pages 12, 13, 15
define based on observations, predict, classify, make and use models	<b>float, sink</b>	page 11
define based on observations, predict, classify	<b>magnet, magnetic</b>	page 8
observe, classify, infer	<b>material</b>	
observe, classify		

See the following page for the Delta Science Reader Overview Chart.

# Overview Chart for Delta Science Reader

## Properties

Selections	Vocabulary	Related Activity
<b>Think About...</b>		
<b>What Is Matter?</b> <i>page 2</i>	matter	
<b>What Are Properties?</b> <i>page 3</i>	properties	1, 2, 3, 4, 5, 6
<b>What Is a Solid?</b> <i>page 5</i>	balance, magnet, mass, senses, solid	7, 11
<b>What Is a Liquid?</b> <i>page 9</i>	float, liquid, sink	8, 10
<b>What Is a Gas?</b> <i>page 12</i>	gas	9
<b>People in Science</b>		
<b>A Geologist</b> <i>page 14</i>		12, 13
<b>Did You Know?</b>		
<b>Water Can Change</b> <i>page 15</i>		7, 8, 9

See pages 109–117 for teaching suggestions for the Delta Science Reader.

# MATERIALS LIST

## Properties

Quantity	Description	Quantity	Description
16	bags, paper*	17	trays, sorting
8	balances, equal-arm	8	vials, plastic
2	balloons, p/12	16	washers, small
8	blocks, assorted, p/16	8	wire pieces, insulated, with stripped ends
1	bottle, plastic	1	wood samples, p/16
1	buttons, assorted, 0.5 lb	1	Teacher's Guide
2	candles, birthday, p/12	8	Delta Science Readers
16	cardboard, corrugated, 12 cm × 12 cm	1	Delta Science Reader Big Book
1	chart, Describing Properties		
1	chart, Property Words*		
1	chart, What Am I?*		
1	Circle Patterns		
4	clay, 0.25 lb*		
16	containers, fluted, 1-pt		
20	corks		
16	cups, foam		
8	cups, plastic, 1-oz		
8	cups, plastic, 8-oz		
16	feathers		
2	foam pieces, p/10		
1	foam shapes, three-dimensional, p/5		
1	food coloring, red*		
1	funnel, plastic		
8	magnets		
1	marbles, p/24		
1	metal samples, p/16		
1	paper clips, large, p/100		
1	paper, construction, assorted, p/30*		
16	pencil erasers, rubber		
4	petri dishes		
1	plastic samples, p/16		
3	rocks, rough, p/6		
3	rocks, smooth, p/6		
1	rubber bands, p/60		
1	sandpaper, coarse, p/16		
1	sandpaper, fine, p/16		
1	shells, 0.5 lb		
16	sponges		
16	spoons, plastic		
1	squares, paper, assorted, p/192		
1	tape, masking*		

  

<b>TEACHER-PROVIDED ITEMS</b>	
-	aluminum foil
4	bags, plastic, resealable
16	chalk
-	crayons
1	knife, dull
-	markers, felt-tip
-	oil, vegetable
-	paper towels
-	paper, scrap
1	paper, tissue
11	paste, jars
16	pen caps, plastic
32	pencils
1	pitcher
11	scissors
1	sneaker
1	tack, metal
-	water, tap
-	waxed paper

  

* = consumable item	† = in separate box
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# ACTIVITY SUMMARY

**This Delta Science Module introduces students to some of the properties that distinguish one object from another. It then teaches students how to classify and sort familiar objects by particular properties.**

**ACTIVITY 1** Students compare and contrast various objects and gain experience describing objects by their attributes.

**ACTIVITY 2** Students learn that they can describe objects according to certain common properties. The purpose of this activity is to build students' vocabulary for describing various properties, including color, shape, size, weight, and texture.

**ACTIVITY 3** Students are challenged to sort a collection of assorted squares by size and color. Students learn that all members of a group must have a shared property. When students, as a class, explain how they sorted their squares, they begin to understand that objects can be grouped in many different ways.

**ACTIVITY 4** Students examine a variety of geometric block shapes and then sort the blocks into groups of similar shapes. Students examine three-dimensional (3-D) foam shapes and then are challenged to draw pictures of objects in the real world that have similar shapes.

**ACTIVITY 5** Students experiment with the sense of touch and are asked to sort a variety of objects by texture. Students then describe the various textures.

**ACTIVITY 6** Students sort objects by relative weight. Using an equal-arm balance, they compare the relative weights of a variety of objects and then arrange these objects according to increasing weight.

**ACTIVITY 7** Students are introduced to the properties of solids. After examining a wood block, students draw up a list of properties that describe the block. Students test the relative hardness of an assortment of solid objects and then infer the properties of solids in general.

**ACTIVITY 8** Students are introduced to the properties of liquids. After examining water, students identify some of its properties and then infer the properties of liquids in general.

**ACTIVITY 9** Students learn that although they cannot see air, it is all around them. They experiment with air and list some of its properties. Using this list, students infer the properties of gases in general.

**ACTIVITY 10** Students observe that some objects float in water while others sink. They predict which of the objects will sink and which will float and then test their predictions. The objects they test are then classified as either sinkers or floaters.

**ACTIVITY 11** Students observe that some objects are attracted to a magnet while others are not. They predict which will be attracted to a magnet and then test their predictions. They then classify the objects as magnetic or not magnetic.

**ACTIVITY 12** Students examine a collection of metal, wood, and plastic pieces. Students then discover that some objects are made of more than one material. They examine a variety of objects and then make a list of those objects made from a single material and those made from more than one material.

**ACTIVITY 13** Teams are presented with an assortment of buttons and told to use what they have learned in the previous activities to sort the buttons according to some property of their choice. Students then take turns guessing their partner's sorting criteria.