

How do we learn?

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About **How do we learn?**

DeltaScienceModules, THIRD EDITION

Students begin their hands-on investigations by using their five senses to learn about their surroundings. They observe, describe, and compare various objects, focusing on properties such as color, shape, texture, and size. Next, students learn how tools can be used to extend their senses and gather information about the world. They explore and discuss the purposes of everyday tools from the classroom, home, and workshop. In the process, they build an operational definition of a *tool* as something that helps people make, fix, move, or build things; compare objects; or do work. Students then use a magnifier as a tool to describe and compare objects.

Students conduct a series of investigations using nonstandard units of measure—their feet, paper clips, adding machine tape, and a growth chart—to describe and compare objects. They create a measuring tool, a spoon ruler, and find out about different types of measurement: length, width, distance, and height. Class members then discover the difference between standard and nonstandard units of measure. They compare standard units of measure with nonstandard units and infer that standard units produce more consistent results than nonstandard units, allowing information to be shared. Finally, students conduct a Measurement Roundup. They assemble a variety of measuring tools and create a measuring center for ongoing exploration and reporting of measuring information.

In the Delta Science First Reader *How do we learn?* students read about the five senses, which help us find out about our world. They also discover other ways to learn besides using our senses: asking questions, reading, observing, comparing, sorting, using tools, and measuring. They read about ways that people share information, including talking, drawing, writing, and showing in charts and graphs.

Overview Chart for Hands-on Activities

Hands-on Activity	Student Objectives
1 The Five Senses <i>page 13</i>	<ul style="list-style-type: none"> • observe objects using the five senses • name the body part used for each sense
2 Comparing Objects: Alike and Different <i>page 23</i>	<ul style="list-style-type: none"> • use descriptive vocabulary • use the word <i>properties</i> in discussing color, shape, and texture • compare, sort, and group objects by one physical attribute
3 Comparing Objects by Size <i>page 31</i>	<ul style="list-style-type: none"> • use descriptive vocabulary • use the word <i>property</i> in discussing sizes of objects • compare, sort, and group objects by size
4 Observing Everyday Tools <i>page 37</i>	<ul style="list-style-type: none"> • use the word <i>tool</i> in discussing an object that helps us make, move, build, or fix things, or do work • use descriptive vocabulary
5 Using a Magnifier <i>page 43</i>	<ul style="list-style-type: none"> • use magnifiers to observe a variety of objects • describe and compare the normal and magnified views of an object • describe how a magnifier can be used to make comparisons • employ magnifiers to gather information and extend the senses
6 Using Our Feet to Measure <i>page 51</i>	<ul style="list-style-type: none"> • observe, measure, and compare lengths using the nonstandard unit of the human foot • discover that a measurement includes a number of units (counting) and the name of the unit counted (labeling) • solve an imaginary problem involving measuring and comparing lengths
7 Using Paper Clips to Measure <i>page 59</i>	<ul style="list-style-type: none"> • observe, measure, and describe lengths using a nonstandard unit (paper clip) • create a measuring device using a consistent unit of measure • recognize and discuss the advantage of a measuring device with consistent units
8 Using Adding Machine Tape to Measure <i>page 65</i>	<ul style="list-style-type: none"> • observe, measure, and compare their heights using a nonstandard unit (adding machine tape) • use simple equipment to gather data and make comparisons • create a graph to describe and compare student heights • compare student heights to heights of animals on a Growth Chart
9 Making a Measuring Tool <i>page 73</i>	<ul style="list-style-type: none"> • use nonstandard units to make a measuring tool • predict measurements of classroom objects in nonstandard units (spoon lengths) • use a measuring tool to gather data and make comparisons
10 Comparing Nonstandard and Standard Units of Measure <i>page 81</i>	<ul style="list-style-type: none"> • predict their heights in nonstandard units • use a measuring tool with nonstandard units to measure and describe their heights • use standard units on a measuring tool • compare measurements in standard units • discuss the advantages of using standard instead of nonstandard units of measure
11 Sharing Information Using Standard Units of Measure <i>page 87</i>	<ul style="list-style-type: none"> • observe a demonstration of measuring height in standard units • record their heights in standard units • read units of measure on a chart to describe and compare objects • measure and compare objects using standard units of measure • share measurement information with other students
12 Measurement Roundup <i>page 95</i>	<ul style="list-style-type: none"> • observe and describe measuring tools from the kit, classroom, and home • discuss books about measuring and objects to measure • collect and display measurement data gathered during free-time exploration using measuring tools of their choice
Assessment <i>page 103</i>	<ul style="list-style-type: none"> • See page 103.

How do we learn?

Process Skills	Vocabulary	Delta Science First Reader
observe, communicate, infer	ear, eye, hear, nose, object, see, sense, skin, smell, taste, tongue, touch	pages 2–6
observe, compare, communicate, classify	alike, compare, describe, different, property	pages 10–11
observe, compare, communicate, classify	size, sort	pages 10–11
observe, define based on observations	observe, tool	pages 9, 12–13, 15
observe, compare, communicate	magnifier, magnify	pages 9–10, 12–13
observe, measure, compare, infer	distance, length, measure, unit	pages 7, 13–14
measure, compare, infer	width	pages 12–14
use numbers, measure, compare, make and use models	height, model	pages 10, 12–16
predict, use numbers, measure, compare	predict, ruler	pages 12–13, 15
predict, use numbers, measure, compare	centimeter, inch, standard unit	pages 7–9, 13–15
measure, record and display data, communicate, compare	share	pages 7–16
observe; communicate; infer; measure; collect, record, display, or interpret data		pages 8–9, 12–16

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

Overview Chart for Delta Science First Reader

How do we learn?

Selections	Vocabulary	Related Activity
<p>We use our senses. <i>page 2</i></p>	<p>senses</p>	<p>Activity 1</p>
<p>We find out. <i>page 7</i></p>	<p>compare, measure, observe, sort</p>	<p>Activities 2–11</p>
<p>We share. <i>page 14</i></p>	<p>(optional) learn</p>	<p>Activities 8–12</p>

See pages 111–118 for teaching suggestions for the Delta Science First Reader.

MATERIALS LIST

How do we learn?

Quantity	Description	Quantity	Description
1	blocks, parquetry, p/48	TEACHER-PROVIDED ITEMS	
16	boxes, odor, with lids	–	assorted classroom, kitchen, workshop tools (optional)
2	cards, index, p/100*	–	assorted classroom objects to measure
1	chips, counting, p/200	–	assorted pairs of large/small objects
2	cotton balls, p/50*	–	assorted small objects to observe
33	cups, paper, 5-oz	–	assorted spoons, various sizes
1	Discovery Guide, <i>Body and Senses</i>	2	bags, paper, small
4	eye droppers	1	block, wooden
4	eye droppers, marked with units of measure	–	books about tools and measurement
17	feathers, peacock	1	box, cardboard, large
33	feathers, pheasant	33	crackers*
1	Growth Chart	–	crayons, primary
32	magnifiers	3	food extracts, such as mint, lemon, banana, or vanilla*
16	markers, washable, blue	33	fruit, pieces*
1	marker, washable, green	1	hammer
1	marker, washable, red	1	magnifier, large, on a stand
17	meter sticks, blank†	–	measuring tools
1	notes, sticky*	1	nail
1	paper, construction, p/6	–	newsprint*
4	paper clips, jumbo, p/100	–	objects to observe with a magnifier
1	paper clips, small, p/100	–	objects to sort by color, shape, texture
24	pennies	–	pencils
34	pine cones, large	16	pencils, new, unsharpened
17	pine cones, small	–	perfume or shampoo, floral-scented*
1	poster, <i>Body and Senses</i>	33	plates, paper, small*
18	rocks, granite	1	rug or mat, 60 cm x 90 cm (2 ft x 3 ft)
2	rocks, pumice	32	scissors, blunt-tip
17	rulers, primary	16	stickers, small (optional)*
33	sandpaper		
1	sand timer		
33	spoons, plastic		
2	tape, adding machine*		
1	tape, masking*		
1	tape, transparent*		
1	thermometer		
17	trays, plastic		
1	Teacher's Guide		
8	Delta Science First Readers: <i>How do we learn?</i>		
1	Delta Science First Reader Big Book: <i>How do we learn?</i>		
1	Delta Science First Reader Big Book: <i>About Me</i>		

* = consumable item

† = in separate box

To order consumable items or refill kits, please call 1-800-442-5444.

ACTIVITY SUMMARY

The hands-on activities in this module introduce students to important science process skills: comparing objects, using tools, and measuring length, width, and height using nonstandard and standard units of measure.

ACTIVITY 1 Students observe that the five senses allow us to take in and respond to information in order to learn about our world. They use the senses of sight, hearing, touch, smell, and taste to explore objects, and they identify the body part—or sense organ—associated with each sense.

ACTIVITY 2 Students use their senses to gather information about the colors, shapes, and textures of objects. They discuss these properties of objects using descriptive vocabulary and compare objects by shape, color, and texture.

ACTIVITY 3 Students use their senses to compare big and little pine cones, feathers, paper clips, and other objects to investigate the property of size. Then they sort and group objects by size.

ACTIVITY 4 Students expand their understanding of tools to include any object that helps people make, build, move, or fix things, compare objects, or do work. They also match tools with their uses.

ACTIVITY 5 Students use magnifiers to observe objects such as rocks, feathers, pine cones, and pennies. They compare magnified and unmagnified views of objects to discover that a magnifier is a type of tool that can extend their sense of sight.

ACTIVITY 6 Students begin to explore measuring by using a nonstandard unit, their own feet, to measure length. They solve an imaginary problem involving measuring and comparing lengths, and they discover how to record a measurement using a number and a unit label.

ACTIVITY 7 Students use another nonstandard unit—a large paper clip—to measure and record the length and width of an object. They discover the advantages of using same-sized units for measuring.

ACTIVITY 8 Students explore another type of linear measure by using adding machine tape to measure their heights. They create a Class Height Chart on a classroom wall that is a model of the students themselves lined up in order of height.

ACTIVITY 9 Students turn blank meter sticks into measuring tools calibrated in same-sized but nonstandard units: plastic spoons. They use their spoon rulers to measure classroom objects and, after gaining measuring experience, make predictions about the sizes of other objects.

ACTIVITY 10 Students observe and discuss the disadvantages of using nonstandard units of measure, such as spoons and paper clips. They are introduced to standard units of measure as shown on a Growth Chart.

ACTIVITY 11 Students record their heights in standard units. They practice reading a primary ruler by measuring classroom objects. They record measurement information and share it with teammates and the class. Consistent results show students the advantage of using standard units of measure.

ACTIVITY 12 Students review measuring tools and processes by means of a Measurement Roundup, in which they present and describe measuring tools from home or the classroom. To facilitate ongoing exploration, they create a measuring center with measuring tools, books, supplies, and a place to record, display, and share measuring information.