

Overview Chart for Hands-on Activities – Quarter 2

Hands-on Activity	Student Objectives
11 A Compass in a Circuit <i>page 139</i>	<ul style="list-style-type: none"> • construct a circuit • observe the interaction between electric current flowing in a circuit and a compass • conclude that the flow of electric current in a circuit creates an electromagnetic field • conclude that a compass can be used to test a circuit for the presence of current
12&13 Plants and Solar Energy <i>page 147</i>	<ul style="list-style-type: none"> • discuss photosynthesis • plant two terrariums with grass seed and place one in the sun and one in the dark • compare the rate of growth in the two terrariums • conclude that solar energy is necessary for the growth and good health of plants
14 Transferring Solar Energy <i>page 155</i>	<ul style="list-style-type: none"> • discuss the Sun as an energy source • observe evidence of the transfer of solar energy • measure the change in water temperature in covered and uncovered solar collectors • conclude that a covered solar collector retains more heat than an uncovered solar collector • graph their results
15 Solar Energy and Tray Color <i>page 165</i>	<ul style="list-style-type: none"> • measure the change in water temperature in black and white solar collectors • conclude that the darker the collector, the more energy it absorbs; the lighter the collector, the more energy it reflects • graph their results
16 Solar Energy and Water Volume <i>page 173</i>	<ul style="list-style-type: none"> • measure the change in temperature of different volumes of water exposed to the sun for the same length of time • conclude that the smaller the volume of water, the more quickly it heats up • graph their results
17 Solar Energy and Exposure Time <i>page 181</i>	<ul style="list-style-type: none"> • measure the change in water temperature in a solar collector over the course of 45 minutes • conclude that the longer the collector is exposed to the sun, the more solar energy the water will absorb • graph their results
18 Solar Energy and Tray Angle <i>page 189</i>	<ul style="list-style-type: none"> • measure the change in water temperature in two solar trays placed at different angles to the sun • conclude that the tray most directly facing the sun will absorb the most energy • graph their results • discuss the connection between the tilt of Earth on its axis and the seasons
19 Designing a Solar Collector <i>page 199</i>	<ul style="list-style-type: none"> • design and build efficient solar collectors based on data from previous experiments • test the solar collectors to see which produces the greatest increase in temperature • review the winning design and the variables that made it efficient
20 Solar Cells <i>page 207</i>	<ul style="list-style-type: none"> • discuss solar cells and electric current • observe that a partially obscured solar cell produces less electrical energy than does a fully exposed solar cell

Process Skills	Vocabulary	Delta Science Reader
observe; compare; infer	circuit, electric current, electromagnetic field, energy, polarity	
collect and record data; interpret data; conclude	photosynthesis, terrarium	<i>Earth, Moon, and Sun, page 6; Plants in Our World, page 3</i>
experiment; compare; interpret data; make and use graphs	energy transfer, solar collector, solar energy	<i>Earth, Moon, and Sun, page 6</i>
experiment; record and analyze data; conclude; make and use graphs	absorb, reflect	<i>Earth, Moon, and Sun, page 6</i>
experiment; interpret data; conclude; make and use graphs		<i>Earth, Moon, and Sun, page 6</i>
measure; experiment; conclude; make and use graphs		<i>Earth, Moon, and Sun, page 6</i>
measure; experiment; make and use models; make and use graphs		<i>Earth, Moon, and Sun, pages 6, 11</i>
experiment; control variables; record and analyze data; conclude		
compare; interpret data; conclude	electrical energy, mechanical energy, nonrenewable resource, renewable resource, solar cell	