

FOCUS ON

Grades 5-8

MIDDLE SCHOOL



Teacher's Manual



Rebecca W. Keller, PhD



Materials at a Glance

Experiment 1	Experiment 2	Experiment 3	Experiment 4	Experiment 5
<p>pencil pen colored pencils small jar trowel binoculars (optional)</p>	<p>pencil pen colored pencils compass small jar or container with lid small items for treasure trowel</p>	<p>mineral samples: ² calcite quartz feldspar hematite several rocks collected by students penny steel nail unglazed white ceramic tile (streak plate) ¹ paper scissors marking pen tape vinegar or lemon juice (optional) dropper bottle (optional) ¹</p>	<p>various materials chosen by students to make model of Earth</p>	<p>ingredients to make brittle candy (see recipe in Chapter 5) 1 jar smooth peanut butter (or substitute whipped cream) 118 ml (1/2 cup) crushed graham crackers —OR— materials chosen by students to make a model volcano</p>
Experiment 6	Experiment 7	Experiment 8	Experiment 9	Experiment 10
<p>2 liter (2 quart) plastic bottle with cap, squeezable warm water matches</p>	<p>about 475 ml (2 cups) each: gravel ⁴ sand ⁴ dirt powdered pottery clay ³ water 6-8 Styrofoam cups, about 355 ml (12 ounce) size pencil marking pen measuring cup, graduated large bowl scissors stop watch or clock with a second hand (optional) tape (optional)</p>	<p>pencil pen colored pencils compass small backpack water bottle notebook or extra paper (optional)</p>	<p>steel needle bar magnet slice of cork (such as from a wine bottle) tape medium size bowl water 1 additional bar magnet (optional)</p>	<p>pencil pen colored pencils imagination</p>

Materials at a Glance

By Type

Equipment	Materials	Materials (cont.)
backpack, small binoculars (optional) bottle, dropper (optional) ¹ bottle, plastic with cap, 2 liter (2 quart), squeezable bottle, water bowl, large bowl, medium compass jar, small jar or container, small—with lid magnet, bar, 1-2 measuring cup, graduated nail, steel needle, steel penny scissors stop watch or clock with a second hand (optional) tile, unglazed white ceramic (streak plate) ¹ trowel	<i>Focus On Middle School Astronomy Laboratory Workbook</i> clay, powdered pottery, 475 ml (2 cups) ³ cork (such as wine bottle cork), one slice cups, 6-8 Styrofoam, about 355 ml (12 ounce) size dirt, 475 ml (2 cups) gravel, 475 ml (2 cups) ⁴ items, various small—for treasure matches mineral samples: ² calcite feldspar quartz hematite notebook (optional) paper pen pen, marking pencil pencils, colored rocks collected by students, several sand, 475 ml (2 cups) ⁴ tape vinegar or lemon juice, small quantity (optional) water water, warm	Experiment 4 various materials chosen by students to make model of Earth Experiment 5 ingredients to make brittle candy (see recipe in Chapter 5) 1 jar smooth peanut butter (whipped cream can be substituted in the case of allergy to peanuts) 118 ml (1/2 cup) crushed graham crackers —OR— materials chosen by students to make a model volcano
		Locations
		backyard and/or park library and/or internet neighborhood

¹ www.hometrainingtools.com — RM-TESTKIT, Mineral Test Kit (contains streak plate, dropper bottle, glass plate, & more)

² Obtain mineral samples from a local rock and mineral shop or
www.hometrainingtools.com — RM-HARDNES, set of 9 minerals to go with Mohs scale of mineral hardness (hematite not included)

³ Powdered clay — from art or hobby store. Can substitute wet clay if powdered clay can't be found.

⁴ Gravel and sand — from your yard or a store that sells aquarium supplies

Note: Suppliers may discontinue items from time to time. For Materials List updates, go to www.gravitaspublications.com, click on the *Services* tab, and then the *Resources* link.