5. Collecting

Kids of all ages love to collect, and most rockhounds are pack rats at heart. We like nothing better than to assemble an assortment of rocks found on our journeys, traded with fellow collectors, or purchased at gem shows and rock shops. A proper collection, however, is more than a bunch of rocks and/or fossils tossed into a box. The value of a collection lies in its "curation," or in the information included with your specimens: what it is, where it came from, who collected it, and other unique information. The collection also should be properly organized and stored so individual specimens can be cared for and retrieved easily. Curating your treasures provides an opportunity to learn about the specimens you've collected while improving both the scientific and economic value of your collection. Here are some activities toward these goals:

Activity 5.1: Building a collection.
Build a rock, mineral, fossil, and/or lapidary art collection with at least 10 to 20 specimens. A collection can focus on just one sort of thing (a collection of minerals, a collection of fossils, a collection of jewelry), or it can be a mixture of all these things. Some people get very specialized, collecting, for instance, different kinds of shark teeth or different forms of quartz. Ultimately, a collection reflects the interests of the collector.

Activity 5.2: Cataloging and labeling your collection.
Take care to curate your collection. Number your specimens and, for each one, include a label and keep a logbook or catalog with key information. For rocks and minerals, this includes what it is and where it came from. For fossils, you should include both those facts as well as information about the age of the fossil. Labels for a lapidary project might include what it is, what it's made from, when it was made, and who made it.

Activity 5.3: Storing a collection.
Store your collection. Each specimen should be in its own small box or baggie. The small boxes might then be kept in trays, shoe boxes, cigar boxes, shallow shelves, soda flats, or whatever works best for you and the space you have to store your collection.

Activity 5.4: Displaying your collection.
Prepare a display to exhibit to your fellow pebble pups at a club meeting or to show to the public in a club show. In this display, you should include not just your specimens but also labels to tell your viewers what it is they're seeing. (See Badge 6: Showmanship.)

Activity 5.5: Reporting about your collection.
Give a presentation or write an article for your club newsletter or a report for your youth leader about your collection. For instance, what do you like to collect and why? Do you have any special stories to tell about 2 or 3 of the specimens in your collection? If you have a mineral collection, what's your most valuable mineral and why? If you have a fossil collection, what's your oldest fossil? Youngest? Most interesting? If you have a collection of lapidary arts, describe how a particular piece was made. (See Badge 7: Communication.)

5. Collecting

□ 5.1 Building a collection

□ 5.2 Cataloging and labeling your collection

□ 5.3 Storing a collection

□ 5.4 Displaying your collection

□ 5.5 Reporting about your collection

To earn your Collecting badge, you need to complete at least 3 of the 5 activities. Check off all the activities you've completed. When you have earned your badge, sign below and have your FRA leader sign and forward this sheet to the AFMS Juniors Program chair.

_____
Date completed

_____ _____
My signature Youth leader's signature

_____
Name of my club

Leader's preferred mailing address for receiving badge:

_____

_____

_____

Back-up page 5.1: Building a collection.

Collections come in many sorts. Some people try to collect as many different minerals or fossils as possible to create a "reference or species collection." Because it's nearly impossible to collect a sample of every mineral of fossil in existence, most choose to specialize with a "specialty collection" focusing on just one or more areas, for instance, fluorescent minerals, trilobites, agates, ore minerals, etc. Then there's a "locality collection" with specimens from just one area or country, or even just one quarry. Some opt for a "self-collected collection" of minerals or fossils they have personally found on field trips. A "gem collection" consists of precious and semi-precious stones that are used for jewelry. There are also historical collections, native element collections, type locality collections, systematic or Dana collections, and more. The collection, ultimately, reflects the interests of the collector. A couple nice reference books are Krause's *Mineral Collector's Handbook,* 1996, and Currier's *About Mineral Collecting*, 2008/2009.

To help illustrate the range of collectibles, have adult members of your club bring in examples from their collections. For instance, in my own club we have one member who specializes in trilobites and has a collection of literally thousands of the little bugs. Another member loves petrified wood and has assembled a collection of beautifully polished rounds from around the world. Yet another only self-collects and has an array of natural mineral specimens he's found in the deserts of California and Nevada. Yet another member loves to self-collect agates and jasper in their many forms and to craft what he finds into cabochons; he's got a great collection of cabs in all the colors of the rainbow along with samples of the rough from which they were made. Still others have colorful collections of polished banded agates, personally faceted gemstones, an assortment of fossil insects, and so on.

Adult members sharing samples from their collections will illustrate to kids the range of possibilities for creating their own collections. It's also neat for kids to hear stories from adults of their adventures as kids (especially any funny stories and misadventures) and what got them started in collecting the things they do.

In encouraging kids to collect, also teach responsibility. For instance, discourage "over-collecting" in the field. We should take only what we need and can reasonably use and leave some for those who might follow us. We should respect private property and protected items and report any rare or especially unusual items to a museum or other authority. Federal and state laws protect some items, for instance, vertebrate fossils or Native American artifacts. Refer kids to the AFMS Code of Ethics included with Back-up page 8.1. Finally, kids should strive to learn about the items they collect and should record observations and notes about what they've collected (see Activity 5.2) to turn the activity of collecting into an educational opportunity.

Note: *Because several other badges involve building a collection, kids can work toward earning their Collecting badge and other badges simultaneously. For instance, see Activities 1.3 and 1.4 (Rocks & Minerals), 2.3 (Earth Resources), 3.4 (Fossils), 10.1, 10.3, 10.4, and 10.5 (Earth Processes), 11.4 and 11.5 (Earth in Space), 12.6 (Gold Panning & Prospecting), 14.1 (Stone Age Tools & Art), 16.1 through 16.7 (The World in Miniature), and 18.3 (Fluorescent Minerals).*

Back-up page 5.2: Cataloging and labeling your collection.

Properly caring for, or curating, a collection greatly improves both its scientific and economic value. Kids should be taught how best to curate the rocks, minerals, and fossils they collect and the lapidary works they create. Detailed information about the collection as a whole and the specimens contained within it should be kept in a logbook or catalog using 3X5 or 5X7 notecards, a notebook, a loose-leaf binder, etc., or in an electronic database. Then, for each specimen, a label should be created.

The Logbook or Catalog.

A logbook or catalog provides a systematic resource for recording and retrieving information about the contents of a collection. Collectors are generally encouraged to number their specimens, placing a dab of white paint or typist's correction fluid in an inconspicuous spot that won't show if the specimen is exhibited, and writing a specimen number in black India ink. Sometimes you can write directly on the specimen without the use of paint. Once the ink has dried, you might coat it with clear nail polish.

There's no one, universal way to number a collection, and each collector must choose a system that works best for his or her collection and preferences. The simplest method is starting with the first specimen you've collected and consecutively numbering each subsequent specimen: 1, 2, 3, 4, etc. However, it's more useful to use a number system that incorporates descriptive information. For instance, I've organized my fossil collection by geological period or epoch and then by locality. So I have trays for the Eocene Epoch that are subdivided by localities. All fossils collected from the Eocene Epoch are given a number starting with "E" for Eocene. Then they're given a locality designation: "O" for Ojai, California, "P" for Pender County, North Carolina, "K" for Kemmerer, Wyoming. Then each fossil from a specific locality is numbered starting with "1." Thus, my Eocene fossils from Kemmerer, Wyoming, are numbered EK1, EK2, EK3, etc., and my Eocene fossils from Ojai, California are numbered EO1, EO2, etc.

A mineral collection might be numbered by a specific locality, county, state, or country. Thus, all your minerals from Brazil might be labeled B1, B2, B3, etc., with "B" standing for Brazil. Or you might choose to number by type of mineral. Thus, all your quartz specimens might be numbered Q1, Q2, Q3, etc., where "Q" stands for quartz, while your fluorite specimens are numbered F1, F2, F3, etc.

A collection of lapidary arts might be numbered by the sort of artwork (grouping all cabs together under "C," all faceted stones under "F," etc. Whether the simple system of just 1, 2, 3, 4, 5, etc., or a more complex system incorporating locality and age information, the important things are to pick a system that proves most useful to you and that records essential information that it's all-too-easy to forget years down the road.

Once you've settled on a system and have begun to attach numbers to your specimens, the number for each should be recorded in the logbook or catalog along with other key information. For rocks and minerals, this includes what it is and where it came from. If

the specimen is self-collected, you should record detailed information about the collecting site, including written directions and a map for how to get to it. If you purchase a specimen, you should get as much information as you can from the dealer about where the mineral came from, including, if possible, a specific location or mine. (This is one way to separate truly excellent dealers who are interested in the scientific value of minerals from those who are in it just to make a buck and who don't take the care to record and keep such information.) You might also record when you collected or purchased the specimen.

A complete catalog entry for a mineral might include the following fields:

- Specimen number assigned to the mineral.
- Common name of the mineral, along with variety.
- Locality where the mineral was found.
- An indication as to whether it was self-collected, traded, purchased, or a gift.
- Name of the person who collected it.
- Date it was collected, purchased, traded, or given as a gift.
- If purchased, name of the dealer and the price and any info about previous owners.
- Miscellaneous notes, including directions and map to the locality if self-collected, and notes about the collecting site.

For fossils, you should include all of the above as well as information about the scientific name of the fossil and its geological age:

- Specimen number assigned to the fossil.
- Common name of the fossil.
- Taxonomic information, including the scientific name of the fossil. (You may get as detailed as you like with this, but most include at least the Genus and Species.)
- Age of the fossil. (The more detail, the better. At the very least, you should record the geological Period or Epoch; at best, you should include the Formation and even the specific horizon within a Formation.)
- Locality where the fossil was found.
- Name of the person who collected it.
- Date it was collected or purchased.
- If purchased, name of the dealer and the purchase price.
- Miscellaneous notes, including directions and map to the locality if self-collected, and notes about the collecting site.

An entry for a lapidary project might include a specimen number, what it is, what it's made from (and the purchase price of the individual components, or information about where you collected or purchased the rough material to use in your project), when it was made, who made it, and estimated value. You might also include notes about any special techniques and equipment used to create your project.

It is seldom that any of us are compulsive enough to record all the information I've indicated, but the effort is worth it for enhancing the ultimate value of a collection, and you should encourage kids to make cataloging a routine part of their collecting activity.

Labels.

A label is simply an abbreviated version of the full catalog entry, capturing only a few key points that will fit on a card small enough to store with a specimen or to show alongside a specimen in a display. For a mineral, at the least you should include the common name of the mineral and its locality. For a fossil, you should include the common name, scientific name (Genus and Species), locality, and age (period or epoch). For a lapidary project, you might include what it is, what it's composed of, and who made it (e.g., a Jade Vase, created by Jane Doe.) While the above may be fine for most purposes, if entering competition in an AFMS or a regional federation show, you'll find specific requirements for labeling contained within the AFMS Uniform Rules, which should be consulted for different categories of displays: www.amfed.org/rules/rules.htm.

Electronic Data Keeping.

As a collection grows, it can become increasingly difficult to remember and keep track of your specimens, even if recorded in a handwritten logbook. Also, a handwritten logbook can prove inflexible to use. One invaluable alternative is the computer. You can use the database or spreadsheet functions that come packaged with most computers to create your own electronic catalog, or you can turn to commercially available software. For instance The Fredrick Group sells "TFGCollector" custom-made software for cataloging facts about a rock or fossil collection. (The Fredrick Group, Inc., P.O. Box 1698, Cumming, GA 30028, phone 866-679-9284, www.fredrickgroup.com.) Also, Carles Millan has created free software for cataloguing mineral collections that can be downloaded at http://carlesmillan.cat/min/main.php.

Advantages of a computerized database are the ability to easily edit information and to quickly and easily pull up information about a specific desired field. For instance, if you have a quartz collection from around the world, you might want to pull up the records for just your amethyst specimens. Or perhaps you're putting together a display of quartz specimens from a single country or region. A computerized database makes it relatively easy to pull up related files like these. With digital photography, some collectors even incorporate photos of collecting sites and their individual specimens into their databases to make it even easier to match an entry in a catalog with a specimen in a drawer.

Cataloging and Labeling Group Activity.

Turn cataloging and labeling into a group activity! Have kids bring parts of their collections to a meeting and work with them to devise numbering systems. Then work further to identify, label, and store specimens, thus giving them hands-on experience before going home to catalog and label the rest of their collections.

Note: *Kids who create an electronic catalog can use this activity to satisfy requirements for earning the Rocking on the Computer badge simultaneously (Activity 15.4).*

Back-up page 5.3: Storing a collection.

Just as there are many individual ways to catalog a collection depending upon the nature of the collection and the preferences of the collector, so there are different sorts of storage methods and containers. The methods and containers tend to evolve with a collection, progressing from cardboard boxes to fine cabinetry with shallow trays and drawers.

As young children, many of us began with simple egg cartons, which are actually perfect for holding and sorting small specimens. Individual cups separate each mineral or fossil. And that's the main thing in choosing a storage method: keeping individual specimens separate from one another so that labels don't get mixed up. Actually, this isn't a problem if you've affixed a number to each specimen and have kept a record of that number in a catalog, but you still want to make sure minerals or fossils don't rub against one another, causing unwanted scratches, chips, or dings. So you want a system like an egg carton with its individual cups. A similar, sturdier option is the plastic box with hinged lid and square compartments sold in crafts stores for beads or with fishing tackle.

Lapidary supply houses and dealers at some shows sell fold-up cardboard boxes in a variety of sizes. You should also collect small cardboard containers whenever you can. For instance, the cardboard boxes that hold greeting cards, match boxes, or even the cut-off bottoms of milk cartons make great specimen containers. You might also store specimens in small plastic baggies. Your boxes or baggies with individual specimens and their labels can then be organized and stored in cardboard soda flats to hold a whole collection. Get soda flats of two slightly different sizes so that one can serve as a top to protect a collection from dust and so that you can stack a collection as you fill more and more boxes. Shoeboxes and cigar boxes also work well for holding various specimens. Also, boxes that hold reams of typing paper can make great flats by trimming the bottom down to match the top to create a perfect storage box with lid.

A nice container for both storing and displaying a collection is a Riker mount. This consists of a sturdy cardboard bottom filled with cotton. Specimens are arranged in the cotton. Then a top with glass is fitted over and held in place with pins.

The most sophisticated and permanent way of storing a collection is in a unit of wooden shelves or trays kept in a cabinet. I've built several of my own and found it to be a lot easier than I initially imagined. Or, if you can afford it, you can buy shallow shelves meant for storing maps or art supplies or wooden or metal shelves built for mineral and fossil collections from scientific supply houses, like Ward's. But such professionally produced units can easily run into the thousands of dollars—not an option for the budget of 99.9 percent of the kids I've ever worked with!

As an activity, bring in a variety of shoeboxes, cigar boxes, cardboard flats with lids, plastic fishing tackle and crafts boxes, and small boxes and baggies to talk about organizing a collection with hands-on examples. Follow this up at your next meeting by having kids bring in examples of how they've decided to store their collections.

Back-up page 5.4: Displaying your collection.

Back-up pages for Badge 6 on Showmanship provide information on where and how to display. You should refer to those back-up pages for reference in assisting kids in satisfying Activity 5.4.

Note: *Kids can use this activity to satisfy requirements toward earning the Showmanship badge simultaneously (Activity 6.4).*

Back-up page 5.5: Reporting about your collection.

Back-up pages for Badge 7 on Communication provide information on preparing an oral or written report. You should refer to those back-up pages for reference in assisting kids in satisfying Activity 5.5.

Note: *Kids can use this activity toward satisfying requirements for the Communication badge simultaneously (Activities 7.1 and 7.2).*