

**THE EARTH**

*It is not enough for the teacher to restrict herself to loving and understanding the child; she must first love and understand the universe.*

— Maria Montessori, MD

Interest in and love for the study of astronomy, earth, ecology, physics, and

chemistry can all begin now when the child is the most interested in new experiences, when she literally absorbs everything in the environment.

The first lessons about Earth come from nature—experiences of the sun and wind, playing in sand and water and mud, seeing the sun rise and set, watching the stars at night, visiting the seashore, and from the child's own collections of rocks and minerals.

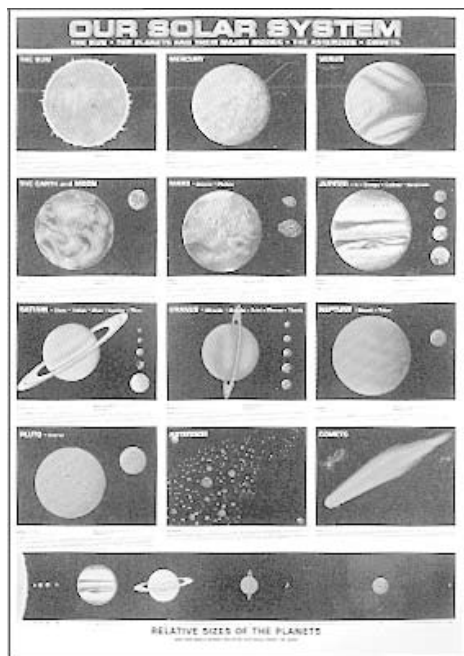
Father and son, discovering a bay first hand (San Francisco)



**EARTH/PHYSICS CURRICULUM FOR THE 3-6 CHILD,**

See page 100 for information.

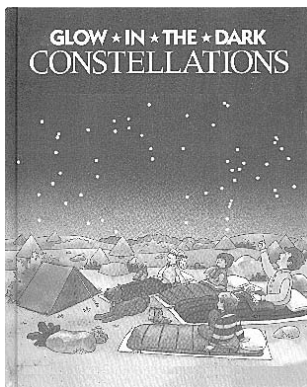
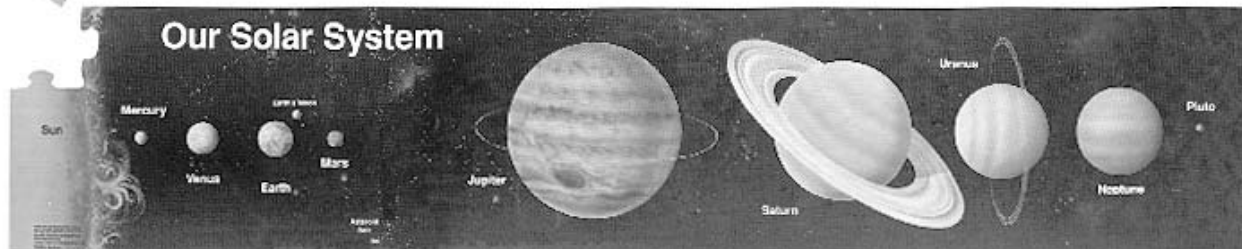
**GB70 \$5.00**



**SOLAR SYSTEM POSTER**

A decoration for a child's room or classroom, which reinforces what he is learning about the solar system. It is very simple and attractive, 22 x 28 inches, in full color. Nine planets are shown, in relative size, on a black background. The distance from the sun of each is given.

**DE38 \$11.50**



**GLOW IN THE DARK CONSTELLATIONS**

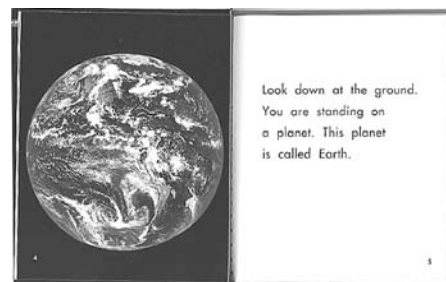
Imagine a child sitting in a dark closet studying the constellations from this book—and then finding them in the night sky. Inside this handy beginner's guide there are glow-in-the-dark illustrations of major constellations, step-by-step directions for finding more than 30 stars and star groups, brief re-tellings of the legends behind the names of the constellations, and eight simple glowing sky maps. Softcover, 8" x 10", color, 28 pages.

**DE080 \$9.00**

**SOLAR SYSTEM FLOOR PUZZLE**

This five-foot long floor puzzle has been a favorite of 3-6 classes for a long time, and it has just been reissued. At the left of the puzzle is a representation of the edge of the sun. The planets—Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto—are then pictured in their relative sizes and order from the sun. This enjoyable piece of work makes a strong sensorial impression of the planets and their sizes and relationship to the sun. The puzzle is in full color, 48 large pieces made of heavy cardboard.

**DE190 \$15.00**



**FIRST "OUT IN SPACE" BOOKS**

These four library-bound hardcover books form the basis of the astronomy library. The informative text that accompanies the clear colored pictures is presented in the best "first reading" format. Each book begins with a clear, first, "Table of Contents," and ends with a short glossary, internet site and book recommendations, and a very short and usable first Index. They will be used for a wide age range of beginning readers. Hardcover, 6" x 7", color, 24 pages.

- DE105 The Moon \$13.95**
- DE106 The Planets \$13.95**
- DE107 The Stars \$13.95**
- DE108 The Sun \$13.95**
- DE110 Space Books Set/4 \$55.00**

**MOTOR-SENSORIAL EXPERIENCES**

We do not give long verbal explanations since the child is at the motor sensorial period of life. Not until the age of six or seven when the imagination reaches beyond the limits of the senses, does the child prefer explanations over hands-on experiences.

At this age we give what are called *sensorial keys*—such as rocks, globes, puzzle maps, landforms, pictures of the sun, moon, planets, and a few constellations and

cloud formations (and only the most simple commentary) to go along with the experience of these materials.

It is not until the age of six and beyond, when the child has a different kind of mental approach to learning, which is centered around the imagination, that we give explanations and details about subjects which must be studied with the imagination, such as the history of the solar system, and the inside of the earth, and so forth.



Carefully painting the ocean around Australia

**CONSTELLATION OVERLAYS**

These materials are the perfect introduction to the idea that the collection of stars in a constellation represents a

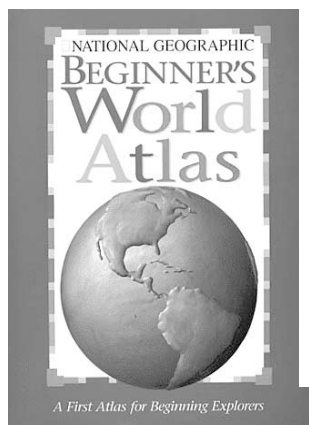
figure from the world's mythology. There are 6 plastic "star" cards (showing only the stars) and 6 plastic overlays that show a matching figure for each collection of stars: Canis Major, Orion, Cygnus the Swan, Big and Little Dipper, Cepheus, and Cassiopeia constellations. All cards are 4" square.

DE050

\$24.00

**BEGINNER'S WORLD ATLAS**

The best first atlas we have seen. The book begins with mapping of a child's house, street, neighborhood, with an explanation of a compass for reading this and then other maps. It goes on to explain map projections and the terms *physical* and *political* maps. There is a section for each continent—land regions, water, climate, plants and animals, countries, cities, people, languages, and products, everything presented in a wonderfully clear way. Contents: 10 illustrated physical maps, 10 full-color political maps, 130+ color images, glossary and pronunciation guide, index. Hardcover, 10.5" x 14", color, 63 pages.



DE115

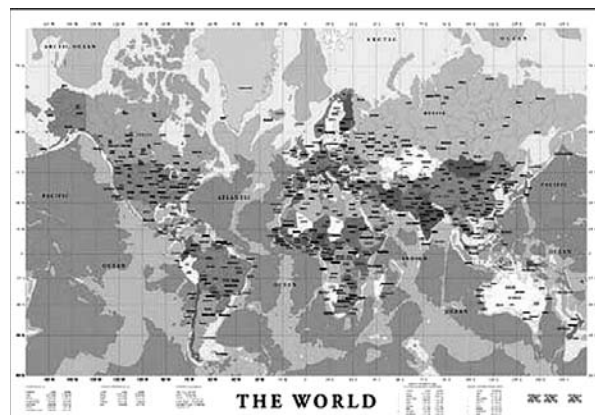
\$17.95

**WORLD MAP POSTER**

There is no substitute for a good, up-to-date world map hanging on the wall of the home or classroom, for easy reference. This one, from Italy, is lovely to look at, and shows both the physical and political elements of the world. It is 36" x 24", large enough to find what one is looking for.

EH260

\$11.50

**FLOOR or TABLE GLOBE**

A good globe is essential for every home and classroom, for both children and adults. To the delight of our children, and not-so-tall visitors, we have used a globe like this floor model for many years in our home. It is easy to place anywhere, on the floor or next to a desk or table. Its height makes it very easy for very young children to look at, and it turns so that it can be seen from any angle. The table model is also a perennial favorite in homes and schools.

We recommend this globe, each country a different color, for constant use in the home or school—adults and older children can help even the youngest child find any geographical element which comes up in conversation, nursery rhymes, stories, the news, letters from friends, songs. Look up oceans, the equator, mountains, and rivers, as well as continents, countries and cities. In this way geography becomes fun at an early age. 12" globe is painted in muted, attractive colors. Floor model height is 31".

DE240 Globe, Floor Model \$75.00

DE230 Globe, Table Model \$59.00



**THE SOLAR SYSTEM**

Because the most logical way to present information is from the general to the specific, we give the child at this age a sensorial experience of the solar system with simple mobiles and puzzles, then of the earth with globes, puzzle maps, pictures, and books. Even in the bedrooms and classrooms of the very youngest children we find solar mobiles and rock collections.

**GLOBES AND PUZZLE MAPS**

A globe is probably one of the most important pieces of material to have in the home. The past and present meet when we look for countries where plants or literature originated (the tulips from the mountains of Asia by way of Holland, the Bible from the Middle East, for example).

A globe can be referred to in a moment when friends send a postcard

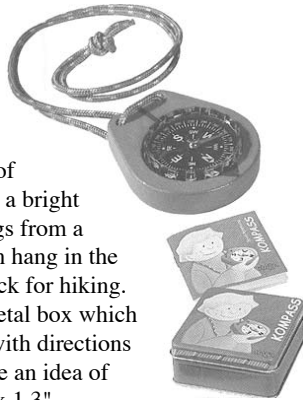
during a trip, or when different countries are in the news. When we eat rice with chopsticks, or tacos, or hear Irish music on the radio, we can show the child where these things came from.

Puzzle maps give practice in recognizing the shapes of continents and oceans. They combine the child's need for movement and shape recognition with developing awareness of the earth.

**KOMPASS**

From Germany, this is an excellent first compass for children. The sturdy plastic *pin* compass (direction pointer rests on a pin in the center of the compass) is mounted in a bright red wooden frame and hangs from a brightly colored cord. It can hang in the classroom or around the neck for hiking. The *kompass* comes in a metal box which also contains a little book with directions on using a compass. To give an idea of the size, the box is 3" x 3" x 1.3".

**DE815 \$17.00**



**CONTINENT CHARTS, SET OF SEVEN**

Moving from the general, the overview, to the specific details, we give the child the world in this order (1) globe and all continents, (2) the child's continent, (3) the child's country, (4) the child's state, then county, and town or city, (5) continents, countries, and cities from continents other than the child's own. These seven charts present a topographical view of the great land masses of the world, mountains and lakes clearly visible. On each chart there is a view of the world with the continent blacked out so the child can see where it is on the Earth. There is one paragraph of information.

We recommend putting one at a time up on the wall at school or at home when something important is happening in that continent (a visitor? a trip? a news event?). The charts: Asia, Africa, North America, South America, Australia, Europe, and Antarctica. They are 9" x 12", full color. Sold only as a set of seven.

**DG210 \$9.00**

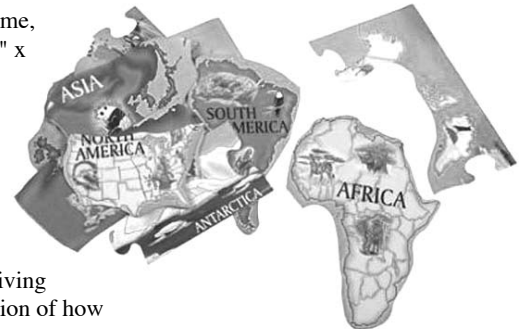
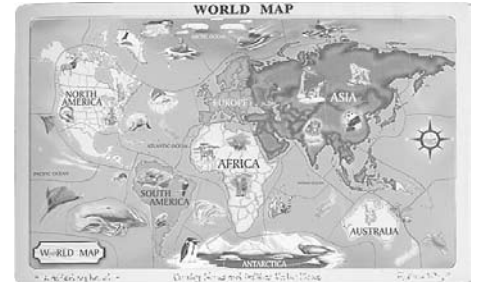


**33-PIECE JIGSAW PUZZLE MAPS OF THE WORLD**

These 33-piece world puzzle maps have several elements that recommend them for the home or classroom: each continent is a different color, and several animals are pictured in their natural home. *Frame puzzle*: the names of countries are printed beneath the wooden puzzle pieces, and countries and capitals are listed on the back of the frame. The puzzle can be worked inside the frame, and eventually outside. 18.5" x 11.5".

*Floor puzzle*: the 33 cardboard pieces of the puzzle are thick and sturdy with an easy-to-clean surface. The completed puzzle is 2 x 3 feet! This is very good for giving a young child a first impression of how large the earth is.

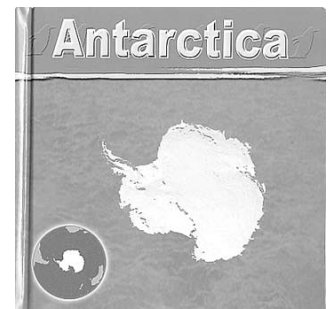
**DE800 Earth Puzzle, in Frame \$17.00**  
**DE150 Earth Puzzle, floor \$13.00**



**FIRST CONTINENT BOOKS**

For the home and the school. These seven library-bound hardcover books form the basis of the geography library and are usually kept next to the world and continent puzzle maps. The informative text that accompanies the clear colored pictures is presented in the best "first reading" format. Each book illustrates the continent on a world map on the cover. The focus is on physical maps and the child can easily point out islands, lakes, capes, bays, etc. which are also part of the early geography curriculum. They will be used for a wide age range of beginning readers.

Hardcover, 6" x 7", color, 24 pages.  
**DE500 Africa \$16.95**  
**DE501 Antarctica \$16.95**  
**DE502 Asia \$16.95**  
**DE503 Australia \$16.95**  
**DE504 Europe \$16.95**  
**DE505 North America \$16.95**  
**DE506 South America \$16.95**  
**DE507 1st Continent Books Set/7 \$118.00**



**LAND FORMS**

Children love to dig and pile sand—forming islands, lakes, peninsulas, capes, and other land and water forms, at the beach, out of sand or mud. In class they form clay land and water forms in small pie pans. They enjoy knowing the names and pouring water and maybe floating little homemade walnut-shell boats on the water.

**ECOLOGY**

This is not the age for focusing on all of the problems that are besetting Earth. Children at this age naturally feel a oneness with all of creation and it can cause pain or a shutting-down to tell them of problems too early. Instead we focus on their love—of beauty, and of caring for objects and of knowledge and language. We give them the sensorial experiences of rocks, land forms, oceans,

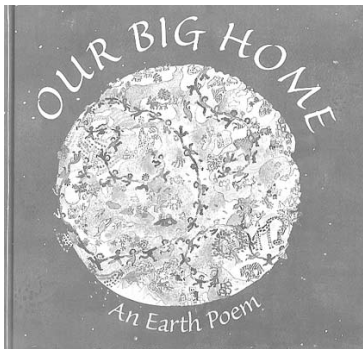
clouds, stars, lakes, and the visual and tactile possibilities to work with them by means of puzzle maps. And then we give the names. All of this experience and knowledge leads to a natural concern and responsibility at a later age because children "love what they know."

**SCIENCE EXPERIMENTS**

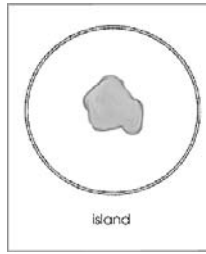
The earth was formed by principles inherent in simple physics and chemistry

**OUR BIG HOME**

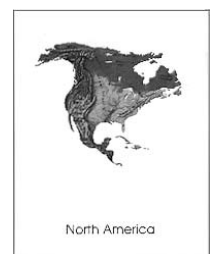
This is a beautiful poem that gently leads children toward the all-important understanding of caring for our environment, shared not only by people but all the plants and animals. The vibrant childlike art



takes us to an African plain, a Caribbean island, a south American mountain, and around the world. Softcover, 9" x 9.5", color, 21 pages. **DE808 \$7.95**



An island is a tract of land surrounded by water, whether of the sea, a river, or a lake. It is not as large as a continent.  
*(Middle English: island - islanda)*

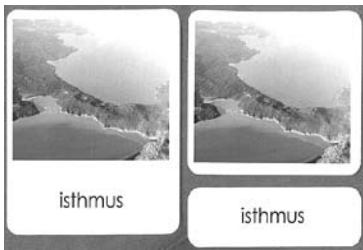


**LAND FORM AND CONTINENT CARDS, 3 SETS IN ONE!**

(1) land and water forms, (2) definitions of land and water forms (3) continent cards and labels. These are the first cards used in geography study: There are 8 labeled illustrations and eight definitions of the first four pairs of land and water forms taught in 3-6 classes— island/lake, cape/bay, isthmus/strait, peninsula/gulf. Each land or water form is enclosed in a circle to inspire the child to make his own land and water forms in the small pie pans below. A labeled picture of each of the seven continents—Antarctica, Asia, Africa, North America, South America, Australia, and Europe is included—and the names of these continents to be cut into seven small labels of each continent. The 4" x 5.5" cards are printed in black on white cardstock. For use as three-part cards, please order two sets. **DE636 \$8.00**

**LAND AND WATER FORMS, PHOTOGRAPHS**

When the child has experienced making the land and water forms, pouring water into them, and seeing the representation on the cards, she is ready for photographs and then finding them on maps.



These sets of land and water forms are made from actual photographs in color. For each subject there is a picture card with a label, a picture card without a label, and a separate label. The cards will last a long time because they are protected by heavy laminate and the corners rounded.

*Land & Water I* contains the complimentary pairs taught in every 3-6 class: island, lake, cape, bay, isthmus, strait, peninsula, and gulf plus archipelago and system of lakes. Two cards and one label for each.

*Land & Water II* contains more a advanced selection: mesa, canyon, reservoir, spit, desert, lagoon, glacier, and volcano.

- The large, labeled, card is 3.6" x 4.3."
- DE180 Land and Water Forms, Set I \$17.95**
- DE181 Land and Water Forms, Set II \$16.95**
- DE185 Land and Water Forms, Sets I & II \$33.00**

**LAND FORM PANS AND CLAY**

The best way to learn about

water and land forms is to make them with clay in small metal pans—first the island in one pan and the lake in another, showing how they are complements of each other. After one child makes these and leaves them on the shelf another can change them, seeing that islands and lakes come in many different shapes.



These two easily turn into cape and bay, then peninsula and gulf, and then isthmus and strait. Land form cards and definitions and then a geography book will really make sense to a child who has had this experience. For the classroom, we recommend a set of eight of the nonstick pans (5" x 1.25") and 2 pounds of the earth tones plastalina clay.



- DE710 Land Form Pans, Set/8 \$18.00**
- DE220 Land Form Plastalina, 1 pound \$4.50**
- DE727 Land Form Pans/Plastalina Set \$22.00**

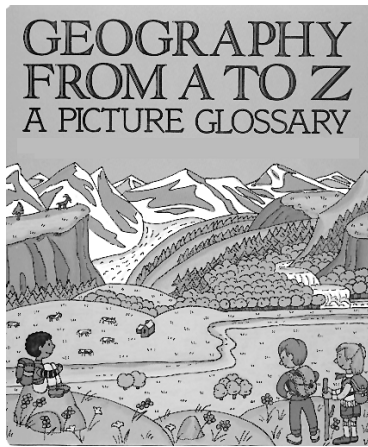
experiments. We give these experiments to children now in a motor-sensorial way. This is not the time for a lot of words and explanations. Instead we place in the environment simple science materials for the child to play/work with as much as she desires, in that way absorbing the basic principles that will lead to later interest and study of earth sciences. Children at this age love working with water, magnets, batteries, candles, and

other *real* physics materials, each a *key* to a basic physical law.

One experiment usually found in 3-6 classrooms is called simply "sink and float." For this experiment, we have a tray containing a box of objects, a vinyl mat or small towel to work on, a clear glass bowl, a pitcher for bringing water to fill the bowl, a bucket for taking the water to the sink when the work is finished, and a small cloth for drying everything

when the experiment is finished. We show the child how to carefully place one object into the water, and to observe if it sinks or floats. We make one group, on one side of the bowl of those objects which sink and another, on the other side, objects which float.

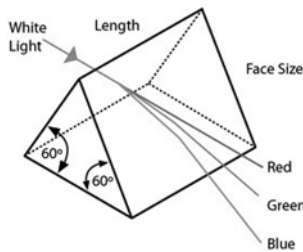
We do not talk or explain this phenomenon from an adult point of view, we give no labels or language, but let the child ponder, and repeat the experiment



**GEOGRAPHY FROM A TO Z**

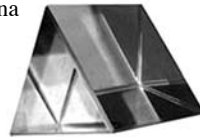
Following the child's work in creating her own land and water forms, pictures and books are presented. In this favorite volume there are sixty-three entries which clearly illustrate and define the earth's features—cape, bay, lake, island, isthmus, marsh, mountain, river, and so forth—with a clear and simple picture and one or two sentences. Softcover, 8" x 9.5", color, 46 pages.

**DE131 \$8.00**



**GLASS PRISM**

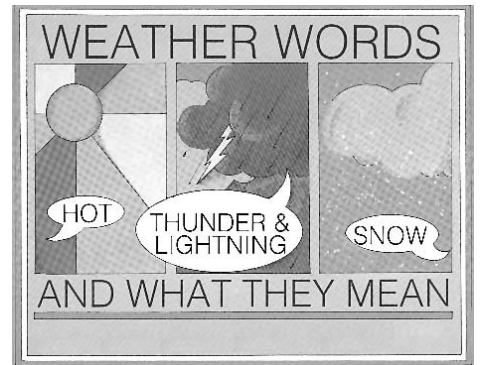
What a fun way to explore light on a sunny day! A real glass prism will do more than anything to introduce the physics phenomena of light from the sun, the bending of light, and color.



In the room of the very young child, simply put it in the window and the rainbow will lead the children to its discovery.

It is also very interesting to have both the 2" long, and the 4" long prism next to each other to see what happens. GLASS: PROVIDE ADULT SUPERVISION.

**DE686 2-inch Prism \$5.25**  
**DE690 4-inch Prism \$7.50**



**WEATHER WORDS**

A first picture/reference book which gives the child the language and simple explanations for everyday experiences, and makes her more interested in knowing about weather. This is important basic information for later studies in the areas of geography and ecology.

Even many adults will learn something, and become more aware of the changing weather, because of these clear pictures and definitions, such as *air pressure*, *cirrocumulus*, *air mass*, *front*, etc. Hard and softcover, 6" x 10", color, 30 pages.

**DE48 Weather Words, softcover \$6.95**  
**DE490 Weather Words, hardcover \$17.95**



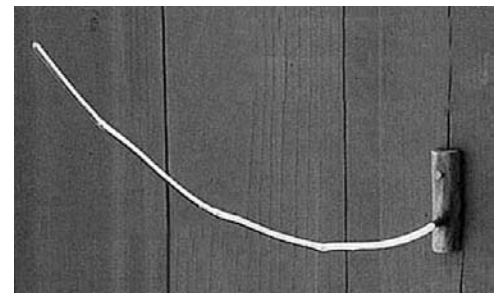
**OCEAN BINGO**

This game is good for a large age span. The youngest child will use it as simply a vocabulary exercise and will enjoy hearing the nonfiction "stories" about each picture read from the back.

The teacher can laminate the "caller" cards to use as vocabulary cards.

Later the child can learn to play bingo and scan the cards to find the picture that has been called, and can practice reading the stories he has heard on the back of the cards. There are six 8.5" x 11" cardstock bingo boards, 43 information or caller cards, and plastic chips for the game.

**DE820 \$16.50**



**WEATHER STICK**

We first bought this rustic weather predictor from the backwoods of New England, at a garden shop as a joke, certain that it wouldn't work—but it does! Simply nail the 16" stick to a tree or building. When the stick bends up, as in this picture, fair weather (dry weather) is on its way. Children love this *magic*.

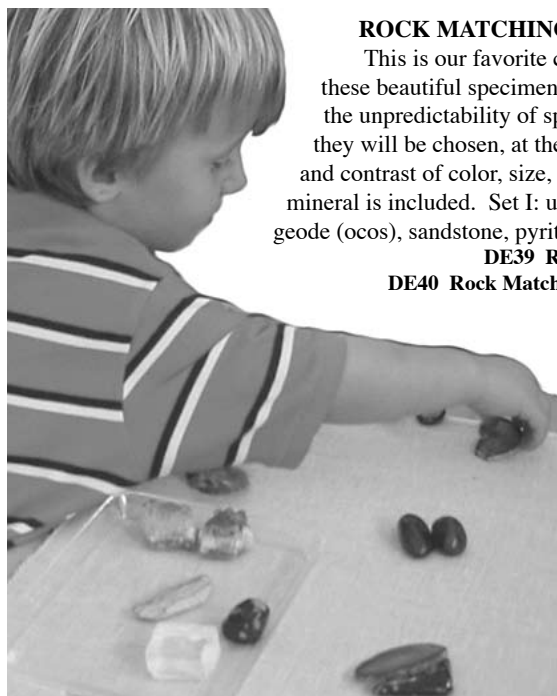
**DE075 \$7.00**

whenever she is interested. It is not uncommon for the child to carry out the activity, carefully dry everything, repeat and repeat these steps, as a deep and private understanding of the physics principle grows in her. It is only after the child has had some experience that we introduce the terms "sink" and "float" if the child does not know them yet.

### LESSONS

Although videos and television have their place, they are not the best way to learn at this age. Imagine the difference between standing on a hill, with the wind in your face, watching the sun go down at the end of the day—and watching a sunset on a TV screen. Young children are learning with all of their senses, and experiences that are multi-sensorial stay with them for a lifetime.

Successful lessons consist in a quiet demonstration of a piece of material—a puzzle, an experiment, which can be carried out by the child at will as many times as there is interest. Modern brain research shows that young children use the visual and auditory parts of the brain at different times. Demonstrating and explaining an activity at the same time interrupts the ability to concentrate and focus. Dr. Montessori did not know of this brain research, but she observed



### ROCK MATCHING SET, ROCKS, MINERALS & CRYSTALS

This is our favorite children's gift. Everyone loves to feel, examine with a magnifying glass, and pair up these beautiful specimens. Each set contains two each of five specimens and information about each. Because of the unpredictability of specimen availability (after all, these are dug out of the earth, not produced by a machine!) they will be chosen, at the time you order, from five possibilities. The sets are always composed with beauty, and contrast of color, size, and texture in mind. Each piece is between 1" - 2", and information about each rock or mineral is included. Set I: usually contains agate slice, gypsum, amethyst, quartz, and jasper. Set II: usually contains geode (ocos), sandstone, pyrite, rose quartz, and hematite.

**DE39 Rock Matching, Set I/10 pcs \$13.50**  
**DE40 Rock Matching, Set 2/10 pcs \$13.50**

### LOUPE MAGNIFIER

A "loupe" (pronounced *loop*) is a small magnifying glass usually set in an eyepiece and used chiefly by watchmakers and jewelers.

The magnification, 30mm, is incredible. We use it to examine the colored dots when proofing the color of a Michael Olaf catalogue each year—and a child will find it just as fascinating to look at magazine or book text or color. For example what the naked eye sees as green, will be seen up close as a mixture of blue, red, yellow, black, etc., depending on the shade of green. It can also be used of course to examine salt, sand, many objects from nature.

This loupe is 2" across and 1.5" tall, the glass surrounded and supported by a black plastic tripod.

**DE810 \$6.00**



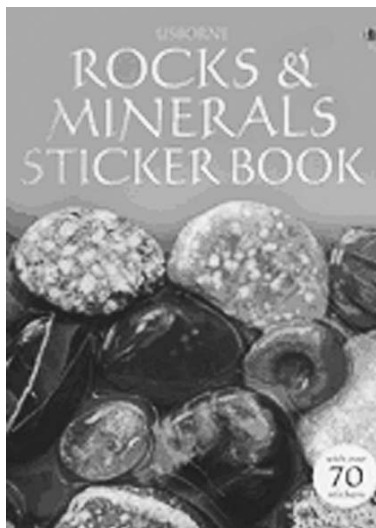
### ROCKS AND MINERALS STICKER BOOK

This sticker book is interesting to children of a wide age range, and is very successful at awakening an interest in rock, and the details of color and shape.

It is the book most preferred by teachers for making the language cards of rocks and minerals for the classroom. It provides the picture, simple label, and definition. There are over seventy full color, clear illustrations of individual rocks and minerals. Several can be matched to real specimens in the classroom and on field trips to museums.

In the home, each illustration can be peeled off the sticker page and attached to the correct definition spot. Next to the place to put the sticker is (1) the name of the rock or mineral, (2) a definition or description, and (3) a place to write the date and place where an original specimen was found. The book is 9.2" x 12", color.

**DE755 \$8.99**



### EARTH'S TREASURES

After the child has had experience in examining rocks in the two rock matching sets on this page, she is ready for a further step. Earth's Treasures is a bag of 16 large (1-2 inches) specimens of minerals, rocks and gems, each in its own bag with an information card.

The child can examine them with a magnifying glass or loupe magnifier and compare them to the illustrations in the Rocks and Minerals sticker book, or, in class, match them to cards that the teacher has made from the sticker book. At this point she will really appreciate finding rocks in nature and seeing them in a museum. The set often contain obsidian, pumice, quartz, sulfur, or pyrite.

**EE24 \$10.00**



over and over the difference between the attention of a child who is being shown a lesson silently, and one who was being asked to listen and watch at the same time.

### SCIENCE ART AND LANGUAGE

One of the most important elements of the learning process is the ability to express what one has begun to understand through art, music, language, or in some other tangible way.

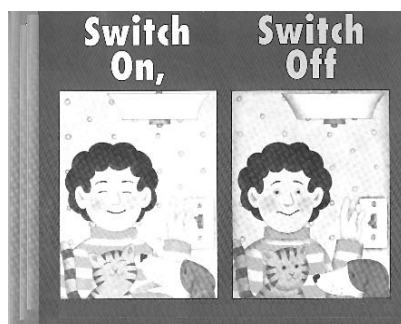
Children love to create original art connected to puzzle maps, and the easiest time to learn the names of colors, shapes, continents, oceans, rivers, etc. is before age six, when a child wants to handle everything and learn what everything in his environment is called.

Many of us have been astounded at the young child's ability to learn the names of continents, countries, flags, land forms, kinds of dinosaurs, kinds of dogs,

etc. This is not surprising as the child under the age of six is in the strongest "sensitive period" for learning language he will ever experience. This child will learn thousands of words if he has a sensorial experience for them.

*I live in heaven. My home is a sphere that turns around the sun. It is called Earth.*

—Dr. Maria Montessori

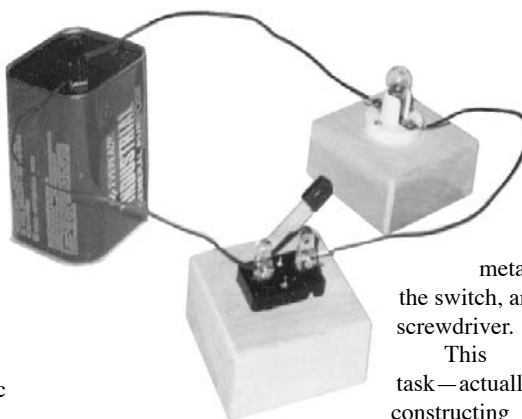


### SWITCH ON, SWITCH OFF

This is a perfect book to go with the electric circuit. Flip a switch and a light goes on; flip it again and the light goes off. It seems like magic, but really it is electricity. Read and find out just what electricity is, how it is used, and how it is made. A lot of advanced information is given in a clear and simple way that children can relate to. It gives directions for experiments—such as generating electricity with a magnet, and making a compass. This beginning physics book is interesting to the young child and older child both. It can be also a beginning reading book. Softcover, 8.5" x 7", color, 32 pages.

DE761

\$6.00



metal wires, and fastens them firmly to the light, the switch, and the battery, with fingers and the little screwdriver.

This task—actually constructing

the circuit—is the most important part of the work. She will learn that when all pieces are connected there is a complete "circuit" or circle of electricity, and a switch, or any other disconnection breaks the circuit. A simple and very important discovery made through experimentation.

The *electric circuit set* contains a small plastic light bulb holder and bulb, a tiny switch (each mounted on a hardwood base), a 4" tall 6-volt battery, three connecting wires, and a screwdriver.

DE606

\$35.00

### MICHAEL OLAF ELECTRIC CIRCUIT SET

The discovery of an electric circuit is an important part of the Montessori 3-6 physics curriculum, recommended by the AMI training course in London, England. Since we could not find one, we had it made.

The child twists the ends of the coated



### WHAT MAKES A MAGNET?

A first magnet picture book that inspires a child to sort objects with a magnet, to explore, and to make a simple magnet and a simple compass from a needle! Full of interesting facts about the history and science of magnets. Softcover, 10" x 8", color, 32 pages.

DE630

\$6.00

### MAGNETS

Magnets are endlessly fascinating to children, and there are several different magnet activities in the 3-6 physics curriculum. Here is a good selection of different sized, good-quality magnets, a 1" piece of lodestone (magnetic rock), and a vial of iron filings, for these and other experiments. The Set/2 1-inch magnets also contains little bits of metal for experiments.

The *magnet set* includes: a 6-inch metal English horseshoe magnet; a 2-inch heavy English horseshoe magnet; a set of two 1.2" heavy English horseshoe magnets, two 1.3" bar magnets, and a collection of tiny metal pieces, in a plastic case; one piece of lodestone and a 12 oz. vial of iron filings. Suggestions for use can be found in *the Earth/Physics Curriculum*, page 84.

DE525 6-inch Light Magnet

\$10.00

DE536 2-inch Heavy Magnet

\$7.50

DE535 Two 1-inch Magnets and Metal Pieces

\$6.00

DE526 Lodestone

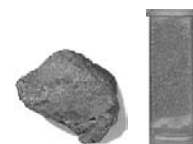
\$1.00

DE534 Vial of Iron Filings

\$6.00

DE541 Magnet Set/all above

\$30.00



lodestone iron filings