

EARTH

Subjects in the elementary class are not taught in isolation; all of the work is interrelated and a child's interest and developing passion in one area of study gradually leads her to all the rest.

The teacher does not require specific work, but guides the children as individuals or self-formed small groups in doing research following their own interests, in creating and finishing research projects, and in finding a way to express them. The teacher gives the basic lessons repeatedly, but never knows what each child's research will be. This is as exciting for the teacher as for the children.

ASTRONOMY TO GEOLOGY COSMIC TASKS

There is now a movement to bring the spiritual view of life and sciences back together. We can help by giving lessons that show the child that:

(1) All of the rules of physics and chemistry (e.g. gravity) follow an order dictated by God, or a creative force.

(2) Each element, from the tiniest atom to the human being, has an important role to play, a *cosmic task*, in this scheme of life. The term *cosmic task* is used often in the elementary class. *Cosmos* is the opposite of *chaos*, and implies some kind of a logical order to reality, and children at this age are fascinated by attempts to figure it out.

Dr. Montessori pointed out that every element in our world has some important task to perform, a task that will fulfill a need for itself, and in the process—contribute to the need of others. She took the common mollusk as an example. As it draws calcium carbonate out of the seas to build its protective coating, its *house* or shell, it at the same time reduces the level of this substance from sea water. If the level of this mineral were high enough it would poison all life on earth. This work

is the *cosmic task* of the mollusk.

The lowly common fly, as another example, lays its eggs on dead creatures and its offspring devour the tissues, feeding themselves, and at the same time ridding the environment of dead matter, that would otherwise pile up and pollute the earth: the *cosmic task* of the fly.

An artist, in fulfilling an inner command to express through paints a feeling that must get out and can be expressed in no other way, brings beauty and/or meaning to others sometimes throughout generations. This is the *cosmic task* of the artist. We can all discover a cosmic task if we try.

Children explore first the cosmic task of the elements found on Earth and active during the formation of the Earth's crust, then the way living creatures provide for their own needs as they contribute to the well-being of others, and finally humans. As a result of this process a child realizes that he or she also has an important part to play in life.

**THE BLACK STRIP**

Dr. Montessori used a similar teaching aid to show children in India that history did not begin 10,000 years ago in their country. This black strip—almost 100 feet in length!—is handwoven in Thailand. It is unrolled slowly as one tells the story of the creation of the earth, the formation of the crust, the erupting volcanoes, the plants, animals, and at the very last 1/3" white strip, is the time that humans have been on earth, the Chinese, Indians, Greeks, all of us. What a lesson in humility. 97" x 3.5".

EE601

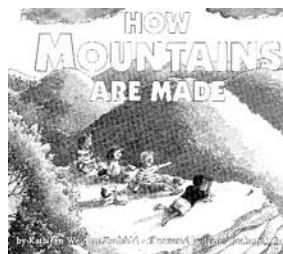
\$50.00

HOW MOUNTAINS ARE MADE

This beginning reader contains many of the lessons given in the elementary class about earth. These include the work of wind and water, the formation of fossil layers, plates, the interior of the earth, and the formation of mountains by the processes of folding, fault-block, domes, and volcanoes. It is told through discoveries of a group of children climbing a mountain. Softcover, color, 8" x 9.5", 32 pages.

EE420

\$6.00

**ERUPTING VOLCANO MODEL**

This working model of a volcano can be used with the black strip, lighting it as one nears the end of the story of the creation of earth. Or it can be used anytime as a chemistry experiment.

It is not toxic, using the old-fashioned vinegar baking soda. What an impression! Then pull the volcano into 2 parts to see the cutaway illustrations of the parts of a volcano. Sturdy, bright colored plastic, 11" tall.

EE200

\$40.00

**THE STARS:****A NEW WAY TO SEE THEM**

This book is meant for people who want to know just enough about the stars to be able to go out at night and find the major constellations, for the mere pleasure of it. The unique contribution of this book is in the way that it connects the stars to represent the constellations. In many books constellations are drawn representing random or geometric patterns. H. A. Rey remedies this situation by representing the stars in a pattern that links the stars to the name: *Cetus*, The Whale, actually looks like a whale, and *Ursa Major*, The Great Bear looks like a bear. *The Stars* is full of interesting and well presented information on the heavens. It has been translated into many languages and has been a favorite for many years. Softcover, 8.5" x 11", 158 pages.

EE022

\$12.00

**FROM THE GENERAL TO THE SPECIFIC,
FROM THE SIMPLE TO THE COMPLEX**

As in all areas of the elementary curriculum, *Earth Sciences*—physics, chemistry, etc., begin with the overview and progress to details. The child learns the functioning of the galaxies, the universe, then solar systems, the formation of Earth, seasons, natural wonders, the weather, rocks and minerals, etc. As he learns about the discoveries in the past he participates in present discovery by means of experiments and research in all areas.

Beginning at age six, physics, chemistry, geography, and so on are introduced and continue until the end of the elementary class at age twelve.

Older children often come to lessons given to the younger children, and younger children are welcome at lessons given to their elders. Each year the child sees more interrelatedness between these areas because lessons and experiments are going on all the time at all levels.

This annual repetition leads to deeper understanding as the child incorporates his own experience each time.

Because the child at this age has an active imagination, we give him the mythology of the world by which humans have explained natural laws. Language skills are developed through written expression of this work, and math and geometry come alive as tools to measure these discoveries.

LAB MANUALS

Children can keep records, each in her own way, of the work in this area. The scientific method of recording experiments follows a traditional format: selecting an experiment, gathering materials, following the steps to test the hypothesis, observing, and recording the results.

TIMELINES

Timelines are used in all areas of the elementary curriculum. For an

interesting timeline, make a long strip of cloth or paper, marking the years in the billions, millions, thousands—like the markings on a ruler—from the beginning of earth's creation to the present.

Next figure out for how long there have been plants and animals and color this part of the timeline one color. Then mark, with another color, the length of time humans have been here. This is a powerful image for children, or adults. Timelines can be made for all different subjects, tracing the history of the natural world, the development of the mapping of the earth, the discovery of elements, and so forth.

THE ARTS

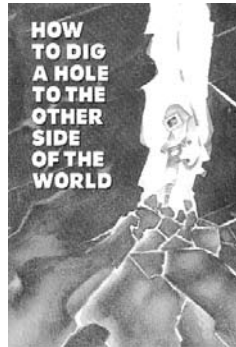
The arts play a large part of every area of the elementary studies. Models, plays enacting historical dramas such as the measurement of the earth, songs, artwork, there is no end to the possibilities.

**HOW TO DIG A HOLE
TO THE OTHER SIDE
OF THE WORLD**

A comical fantasy and early reader about a child digging his way through the earth to the other side. On the way a lot of factual scientific information is given. A popular geology book for children since it was first published in 1979. Softcover, 6.5" x 10", color, 32 pages. A beginning reader.

EE130

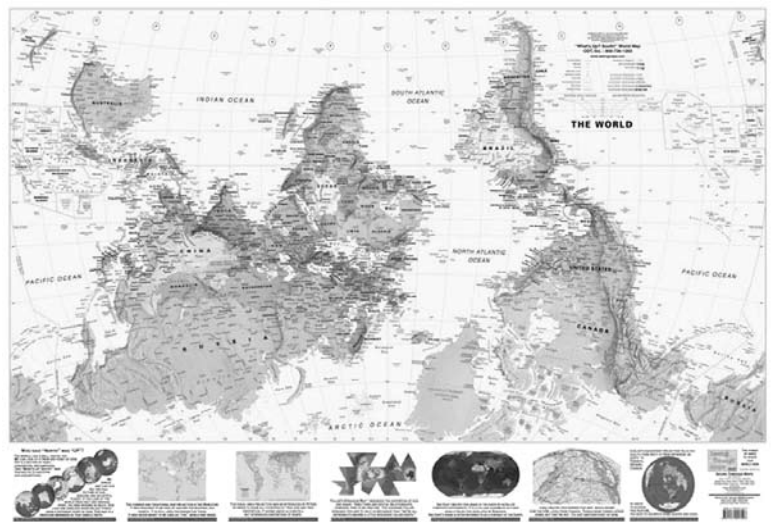
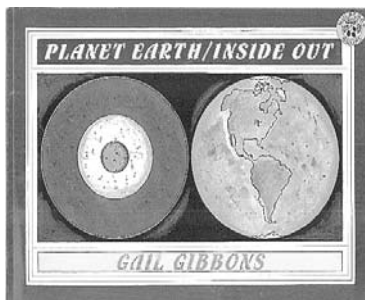
\$7.00

**PLANET EARTH / INSIDE OUT**

An early reader of the earth—tracing its formation from the very beginning, from the continent of Pangaea to the present. It includes a description of the inner and outer core, the mantle and crust, the plates, what happens at their edges to form earthquakes and volcanoes, and more. Softcover, 11" x 8.5", color, 30 pages. A beginning reader.

EE455

\$7.00

**WHAT'S UP? SOUTH! WORLD MAP**

This is our very favorite map. There is no reason, except convention, that we position the map of the world the way we do. Realizing this opens the mind and both adults and children start examining the map in detail, making many new discoveries. It also leads to interesting discussions as some argue for the old way. Yes, this is a very important map.

There is no reason but tradition to picture the Earth with *north up*. What's Up? South? has us looking in a new way and shows the true relationships between countries, and many more concepts. This very large map, 56" wide, comes laminated and ready to hang and to inspire geography discussion and research. Vibrant color, with several Earth projections studied at this age pictured at the bottom.

EH060

\$32.00