

## A Lesson Plan for Geometry and Geography



### The Cut-out Shapes:

[Cube](#)

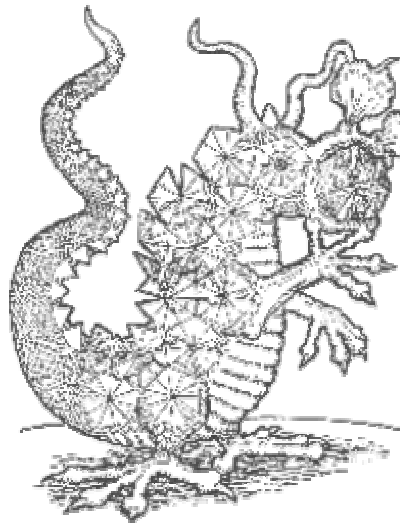
[Dodecahedron, Part 1](#)

[Dodecahedron, Part 2](#)

[Tetrahedron & Octahedron](#)

[Icosahedron](#)

[Etruscan dodecahedron](#)



### The Coloring Sheets:

[Dragon](#)

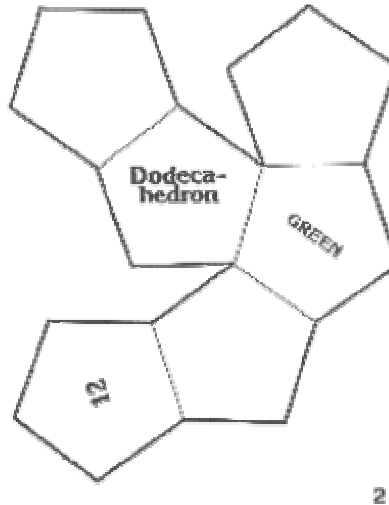
[Zodiac](#)

[Various Spheres](#)

[Two Spheres](#)

[Planetary Grid: Yang, Yin, and Bananced points](#)

[More fold up patterns, from Bruce Rawles](#)



### Patterns & Handouts - "Geometric Shapes & Mapping" Guide to Constructing the Shapes

When using the "Cardboard Crystals" as a classroom exercise, refer to the handout titled "Earthstar." This sheet gives the history of symbolism for each of the crystals and how they relate to the planetary energy grid we have proposed.

Explaining how to assemble the figures is a little like a first attempt at putting together toys on Christmas Eve: These are not that difficult.

ALWAYS CUT ON THE DARK LINE, SCORE (partially cut, with a knife or razor blade) ON THE LIGHT LINES.

The CUBE is simply folder up into a box and taped.

The DODECAHEDRON is a 12-sided figure. Each page can be taped into a kind of half-sphere, and then the two halves are taped together.

The TETRAHEDRON is a 4-sided figure. By folding up the three scored edges, it is taped into a three-sided pyramid.

The OCTAHEDRON is an 8-sided figure. It will have eight triangular faces. There are two pieces to be cut out for the octahedron, both identical. Cut out each of them. Score, and tape each half together. This will give you two four-sided pyramids. Join the two to create the octahedron. **SAVE THE TWO SMALL TRIANGLES YOU CUT OUT OF THE OCTAHEDRON SHEET, YOU WILL BE USING THEM FOR THE ICOSAHEDRON!**

The ICOSAHEDRON is a 20-sided figure. It is the most difficult figure and drives people crazy. You will feel a tremendous sense of accomplishment when you've finished it -- or it will be easy all along! Cutting and scoring as described above, join together the sides of the figure so that each "corner" is a meeting of five triangles. Between top and bottom is a "middle" string of 10 triangles. Always remember you are creating a roundish-object. Fold all scores in the same way -- i.e., don't bend any "out."

When finished, we like to paint the crystals that colors they were assigned by Pythagoras and the ancient Greeks. They can be stacked on top of each other to form an interesting and decorative column/totem pole!



### EarthStar Map Explanation

**Is the Earth a living organism, one with crystal energy properties? Are we coming full-circle to knowledge already well-developed among ancient Greeks, Egyptians, Mayans and Chinese? Once you've assembled EarthStar, you may never think of our planet in the same way again.**

Almost as an offhand remark, as an aside so obvious that it hardly needed be stated, Plato described the Earth as "a ball, sewn together from twelve pieces of skin" -- 500 years before Christ! The Greeks, in turn, had developed their geometry (the art of "earth measuring") from even more ancient Egyptian and Oriental sources. Those ancient cultures -- Atlantean perhaps? or some other highly advanced society that was destroyed in catastrophic earth changes that occurred around 10,000 B.C. -- understood all like in terms of crystals.

Apparently five crystals were recognized. Crystals are ideal energy receptors, and ancient cultures were aware of this capacity. When light or other electromagnetic energy is directed at a crystal, that energy is "processed" in regular ways -- along the faces to concentrate in edges and points. We use this knowledge in everything from crystal radios and prisms to computer chips and solar cells. Ancient cultures seem to have developed an entire system of knowledge based upon crystal phenomena. We find the shapes of five crystals, and the colors traditionally assigned to them, in the art and mythology of people everywhere. They are used to illustrate the physical and spiritual link between the human body and Earth's body -- and emphasize our species' role in accumulating, using, and dispersing energy coming in to Earth. Mystical literature throughout the world refers to us as "light beings." and many cultures have attempted to develop medical technologies such as acupuncture which recognize human crystal properties. Each of the crystals below can be thought of as a kind of skeleton for different aspects of human or Earth energies.

The tetrahedron, which symbolized "fire" and was given the color "red", was the primary crystal -- the cosmic shape of intense creative energy. Scientists have recently discovered that clay exhibits the crystalline properties of the tetrahedron; perhaps Genesis represents far more literal information about the creation of our species than had previously been imagined.

The cube, which symbolized "earth" and was given the color "yellow", was the first physical dimension of the Earth's incarnation as a living physical body.

Curiously, salt is a cubic crystal -- and we retain this ancient thinking in our references to compassionate people as "the salt of the Earth."

The octahedron, symbolizing "air" and given the color "white", was a kind of cosmic umbilical cord. Its structure, a four-sided pyramid atop an inverted four-sided pyramid, is biologically analogous to a plant and its root structure. In the process of photosynthesis, carbon dioxide is "consumed" in the presence of sunlight, and oxygen is released as the plant grows. The Great Pyramid in Egypt may represent a technological application of this like-giving octahedral energy. Researchers are slowly uncovering evidence that an inverted pyramid may be found beneath the Great Pyramid -- making the structure an octahedron. One can only speculate as to the uses of energies akin to photosynthesis that might have been generated within the different pyramid chambers! More importantly, though, the Pyramid as a crystal technology represents a system of science based upon principles of life energy rather than those we employ -- which create energy by destroying matter.

The icosahedron, which symbolized "water" and was assigned the color "black", was the organism -- "individual life" conceptually distinguished within the context of a greater body. We are, of course, commonly referred to as "bags of water." More startling, though, is that the most primitive life form we recognize -- the virus -- takes the form of an icosahedron! It cannot exist alone, but lives only within the cells of a host organism. When we think of our Earth as existing within the heavenly host, we mythically restate this same knowledge of the interconnection of all life.

Finally, the dodecahedron -- Plato's twelve-sided ball -- was given the color "green" and represented "Gaia." Gaia is the life of the planet, the framework that organizes all the other crystals dimensions. Curiously, by "nesting" an icosahedron inside a dodecahedron, we create a geometrically symmetrical structure -- and one of great beauty, the union of individual faces; and each "point" of the dodecahedral crystal falls at the center of one of the twenty icosahedral faces. This creates a larger crystal with 120 faces and 62 points -- the basic triangles and intersections of EarthStar.

EarthStar is an attempt to reapply the vast storehouse of ancient knowledge in the way it was originally formulated -- as geometry.

The ancients had discovered that theoretically -- etherically -- each of the five crystals could be nested inside each other and that their "points" would all fall among those 62 "points" created by nesting icosahedron and dodecahedron. This idea of nesting crystals has resurfaced again and again throughout our history, most notably in the work of Johannes Kepler and more recently in that of R. Buckminster Fuller (inventor of the geodesic dome).

What if the crystal formed by nesting all five forms were located at the center of the Earth, and what if the energies from the various edges and points somehow radiated up to the surface. Would these energies create surface phenomena that mirrored the crystal "skeleton" below? This is the idea of contemporary researchers in what has come to be called "earth energy grid" studies. The illustrations below show how the edges and points of the various crystals are "translated" onto the found form of Earth.

Following the lead of contemporary Soviet researchers, the crystal is positioned on the earth by placing two icosahedral points at the north and south axial poles -- and one edge of the dodecahedron running through the great pyramid at Gizeh in Egypt. The result is fascinating. We see the Earth's energy skeleton fleshed out -- with rivers, mountains, and seismic zones running along its edges; and wind and ocean currents broadly circling its points. We begin to see a Living Earth.

### **Patterns & Handouts - "Geometric Shapes & Mapping"** **COLORING SHEETS: A Guide**

The four coloring sheets we offer have been used in classes at Governors State University and in our Conservative Technology workshops.

Our idea has been that they provide a relatively easy introduction into the worlds of geometry, metaphysics, and ancient cultures. The images seem to help people relax into the symbolism of other cultures -- and they appear to stimulate a desire to actually do in-depth reading about them.

- The Conservative Technology Dragon. When we designed our logo, during the first year of our earth energies research, we seemed unable to escape the symbols of a cosmic egg, dragon, meander, spiral, crystal, serpent, bull, and worldwide catastrophe. Interesting research projects that might accompany a coloring exercise include: Serpent Mound in Ohio; Ouroboros (the mythic snake that bites its own tail); "living water" and dowsing; Gaia, Ge, and St. George and the Dragon; Quetzalcoatl.
- The Zodiac. Our zodiac is reproduced from an 1890s astrology book and is used every term for Cultural Anthropology at Governors State. The jumble of mythical animals and figures that characterizes the uncolored zodiac is quickly transformed into a readily understandable cast of characters once colored. We have found this process a good analogy to what happens to the night sky once one has learned how to "see" it. The exercise provides an introduction to major characters that appear in myths around the world (e.g. Sirius [nose of Canis Major]. identified with the Inca end of the world; major astrology signs) as well as to the cycle of precession (note the small dashed-line circle in the center of the drawing that indicated the path of the earth's pole over a cycle of 25,920 years). Research projects might include procession of the equinoxes; the ecliptic; Platonic "months" and "year"; the "ages" of the traditional zodiac.
- Double Hemisphere World UVG Spheres. The "grid" on the earth is what we think of as having its living energy skeleton. Every "line" is actually a "great circle" -- an equator that divides the earth precisely in half. The lines in dark black are the framework originally proposed by Russian and American researchers based on the position of odd areas like the bermuda triangle and the mid-ocean ridges. The smaller lines were added by us -- and are paths of energy predicted for a sphere by the late geometer-philosopher R. Buckminster Fuller. There are three types of major intersections on the grid -- where two great circles cross; where three great circles cross; and where five great circles cross. An interesting

exercise for students is to have them color similar intersections uniformly -- and then to see if they detect any characteristics of earth that are similar for similar intersections.

- Grid Images and Symbols in Culture and Nature. The patterns of the earth energy grid allow for almost endless speculation -- once one sees them, they seem to be everywhere. Our coloring sheet is really only a beginning to get people to start looking.

In the center of the sheet is our "armillary sphere," a device we propose was probably used in ancient times in the same way newer armillary spheres were used during the renaissance. By placing the device in the sun, a replica is created of how energies might be focused upon the earth (or "captured sphere") within the grid-cage.

(Beginning from the Christian cross and proceeding around to the right)

1. The Christian cross of the precise proportion of the grid.
2. Man also fits the proportions of the grid, in the figure reminiscent of Leonardo da Vinci's.
3. The caduceus, staff carried by the messenger of the gods Hermes (sometimes called Mercury). Many researchers feel the entwined serpents actually represent earth energies -- or even DNA! This is also the symbol of the American Medical Association.
4. The Star of David. This figure appears in artwork that is thousands of years old, and was proposed by James Churchward as a symbol of a lost civilization he called Mu.
5. Mars and its "canals." While we don't know what the lines are, they bear a striking resemblance to what we have proposed for the earth. Similar "lines" are visible on Venus, also. These lines are not capable of being photographed but are seen consistently by about 20% of astronomers.
6. Band widths of frequency tunability proposed for earth by R. Buckminster Fuller.
7. The Reed Sphere, a ritual object found all over southeast Asia.
8. Our "UVG" earth sphere, with grid lines emphasized that appear to replicate both the patterns of nos. 7 and 8.
9. Our UVG sphere with grid lines emphasized that appear to replicate no. 10.
10. Contemporary model of a virus! One of the primary patterns a virus takes is the icosahedron.
11. Energy patterns for a sphere proposed by R. Buckminster Fuller.

## LESSON PLAN

### OVERVIEW

The lesson can introduce shapes and the construction of the five platonic solids. It also relates how a 3-dimensional surface is represented through a 2-dimensional surface such as in maps and the distortions that can occur.

**GRADES**

Elementary 5 - 6 and secondary 7 - 12.

**INQUIRY QUESTION**

How does nature shape the things that we see? How can we take a 3-dimensional object and make a map out of it?

**STANDARDS**

★ #1 How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

★ #7 The physical processes that shape the patterns of Earth's surface.

**TIME**

45 minutes.

**MATERIALS**

- Patterns & Handouts
- tape
- scissors
- string
- tacks
- map pieces from Global Pursuit

**OBJECTIVES**

★ A. Students will be able to create 3-dimensional shapes of the platonic figures using the paper patterns.

★ B. Students will be able to realize the way maps represent 3-D space and the distortions that occur on a flat surface.

★ C. Students will be able to understand the physical earth and the shape that it makes in space.

**PROCEDURES**

★ 1. Break the students into groups and give them a packet with instructions on steps to follow. Each person should be able to create one of the figures and they can help each other out to complete the figures.

★ 2. While working in groups give them puzzle pieces to fit together from the

game, Global Pursuit. Have them pass these around from group to group when completed. Also pass around several different types of maps.

★ 3. When the figures are completed, have the students tape the 5 figures on a string like a totem pole and hang them up in the room.

★ 4. Discuss the properties of the various shapes and relate the problems that maps have in representing a 3-D object on a flat 2-D surface.

## ASSESSMENT

Informal - The teacher will observe the students working in groups.

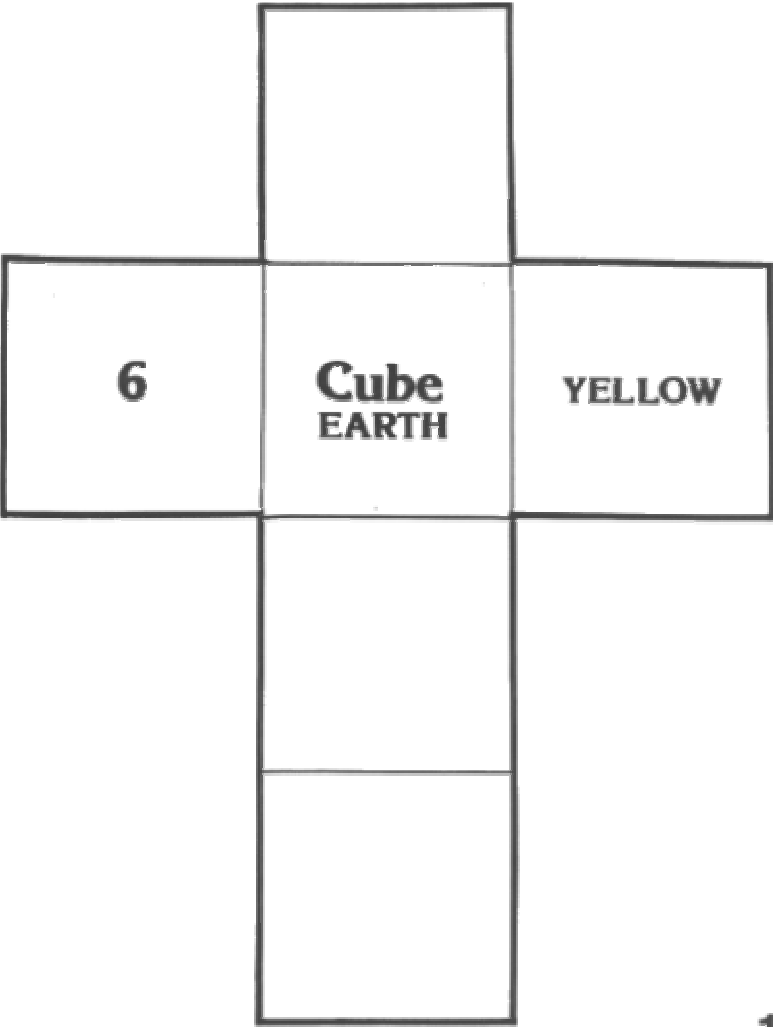
## EXTENSIONS

★ 1. Have students color the Earth dragon or zodiac.

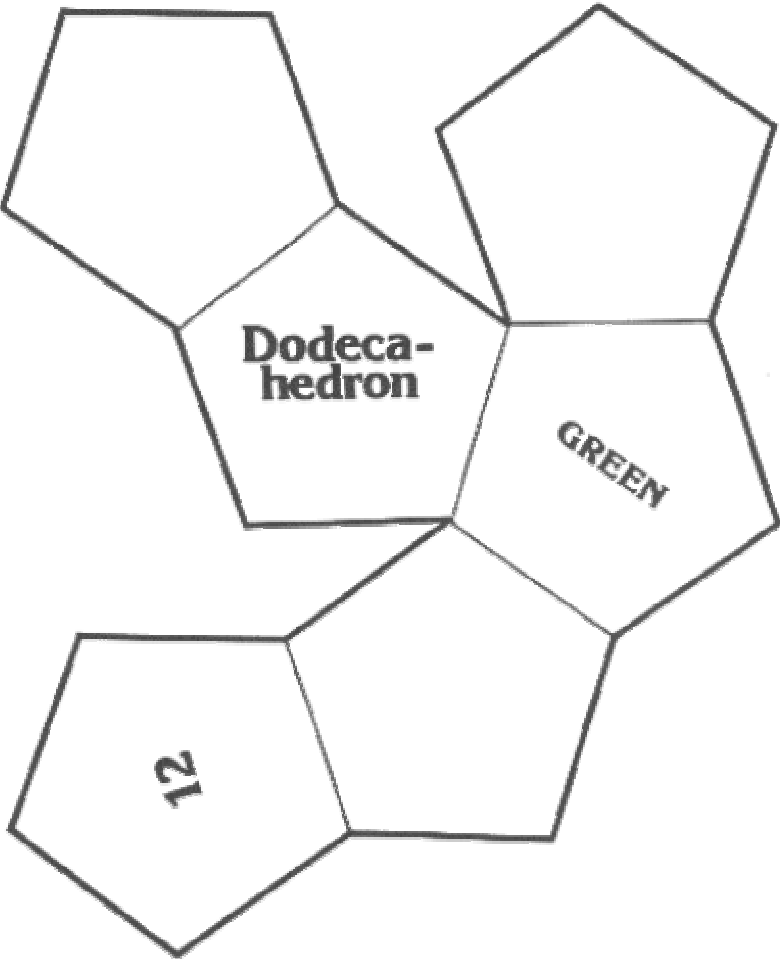
★ 2. Plot, map, or identify locations of various ancient monuments and see how they relate to the planetary grid.

★ 3. Create imaginary maps from the various solids such as a cube world or dodecahedron world.

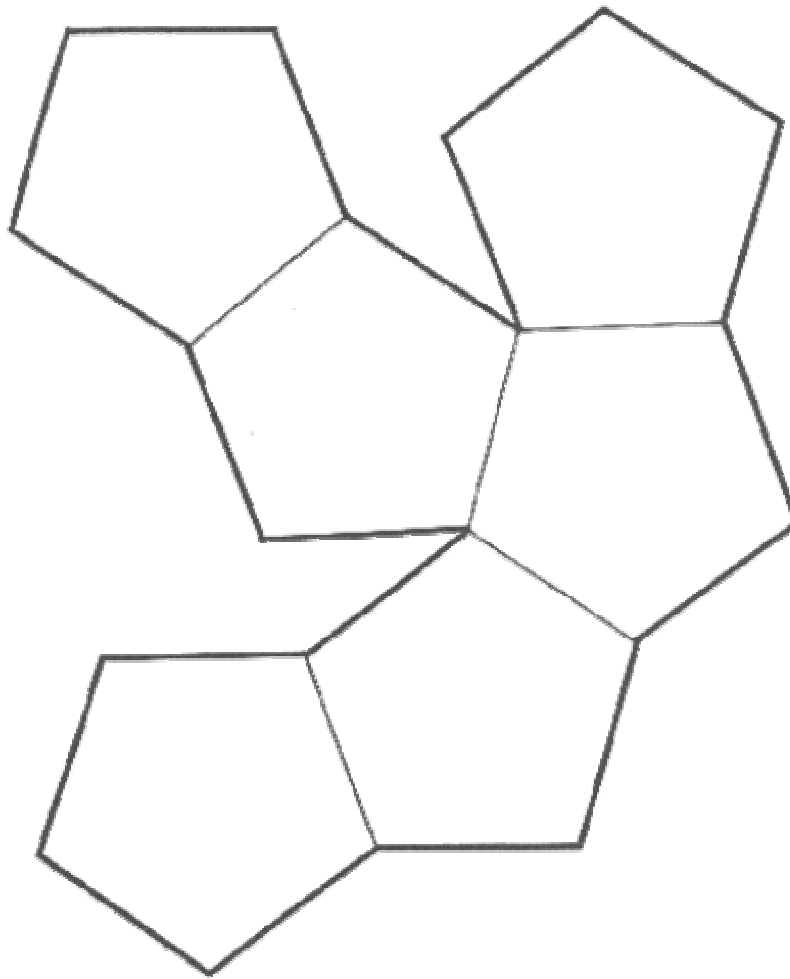




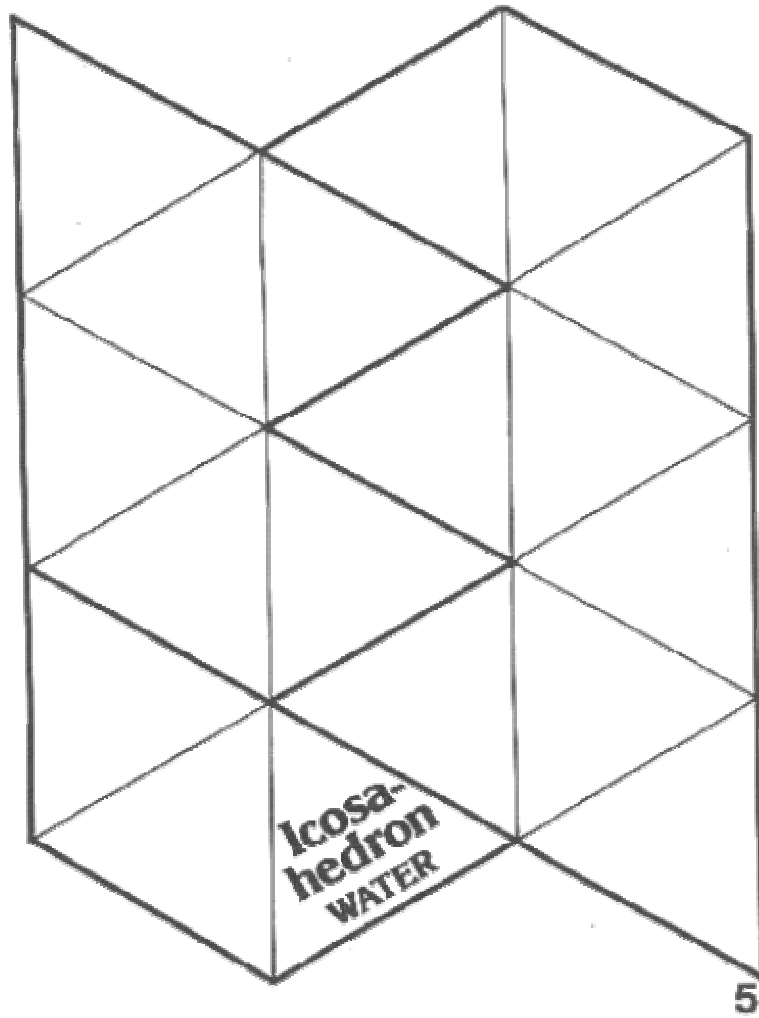
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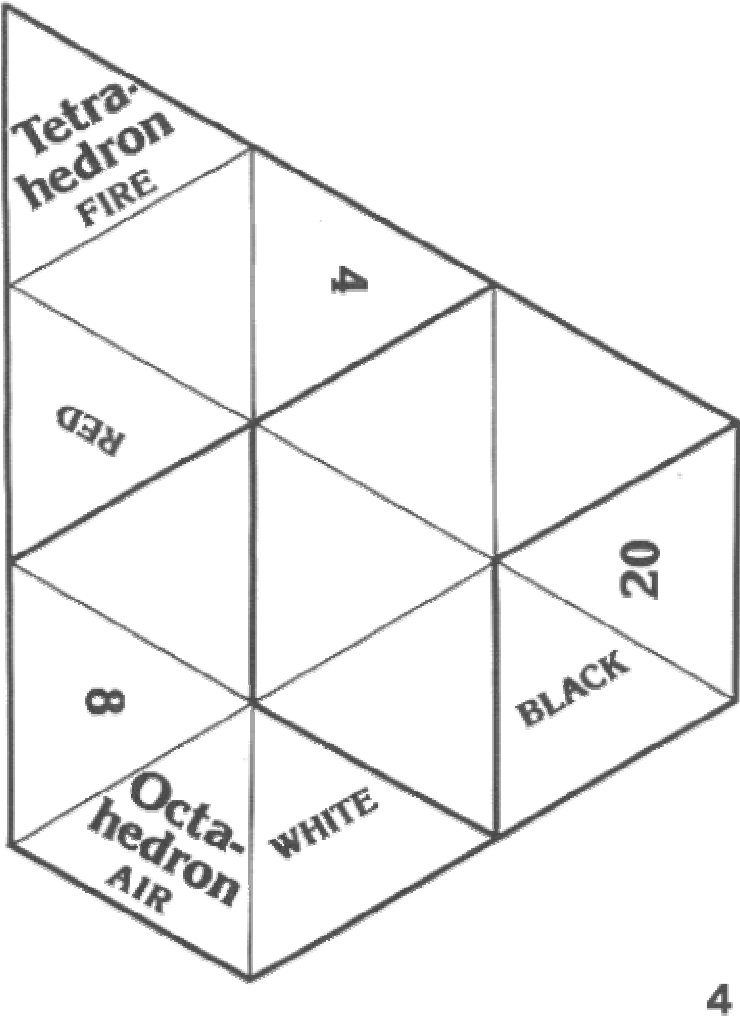


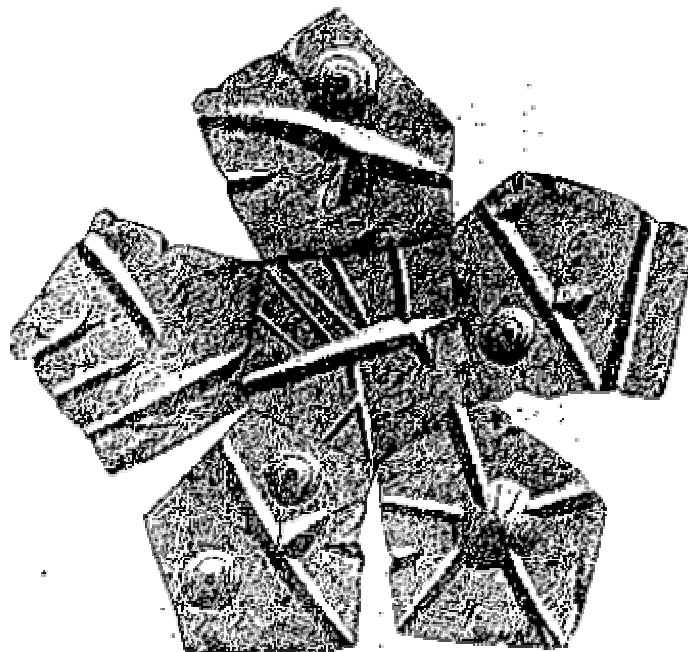
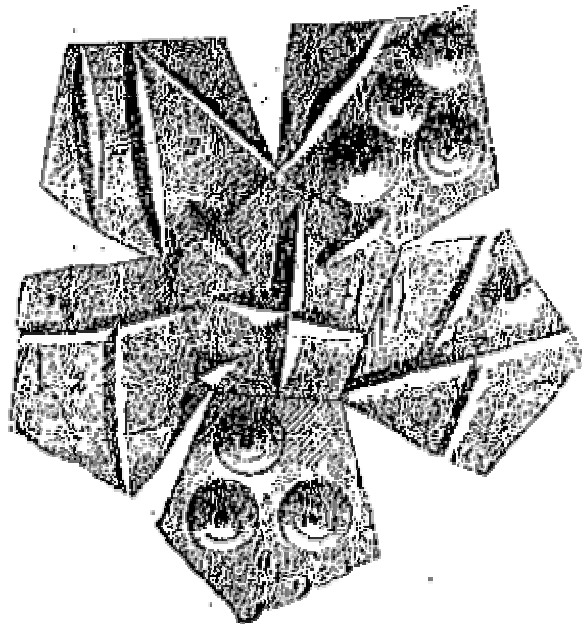
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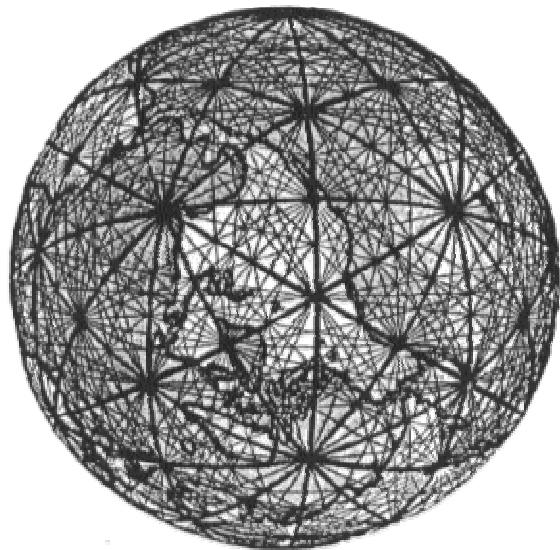
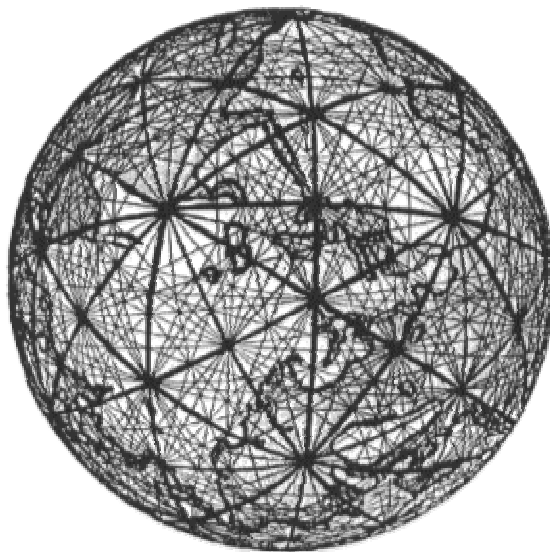
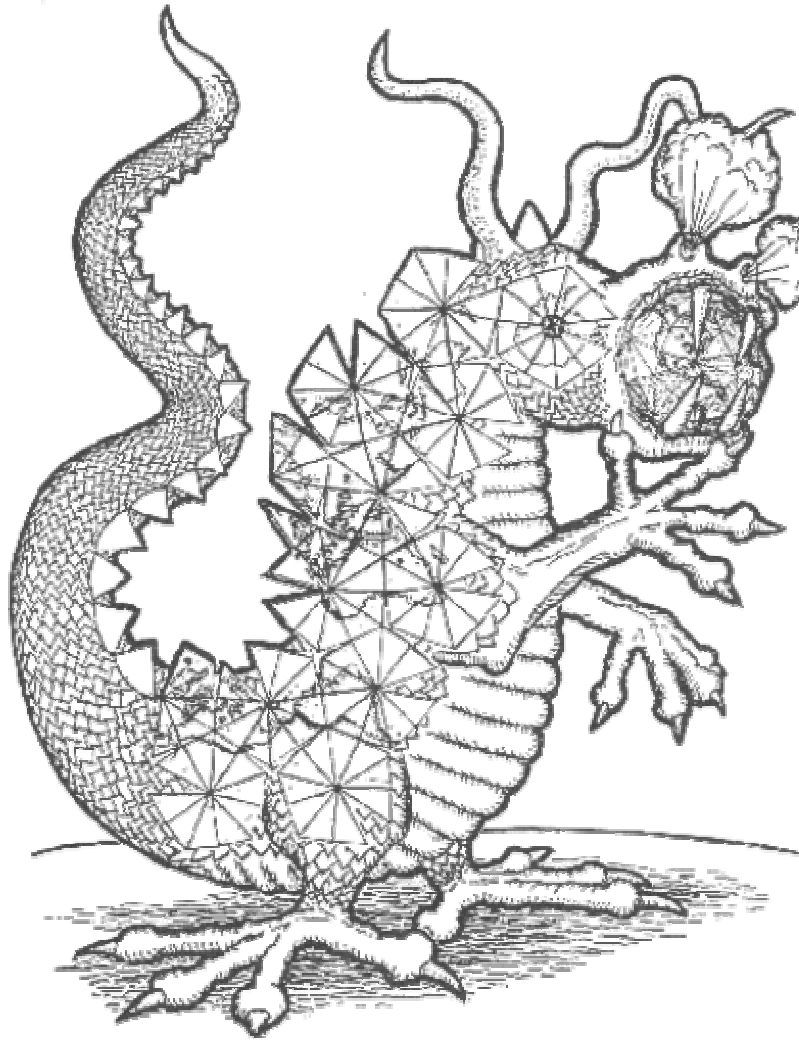
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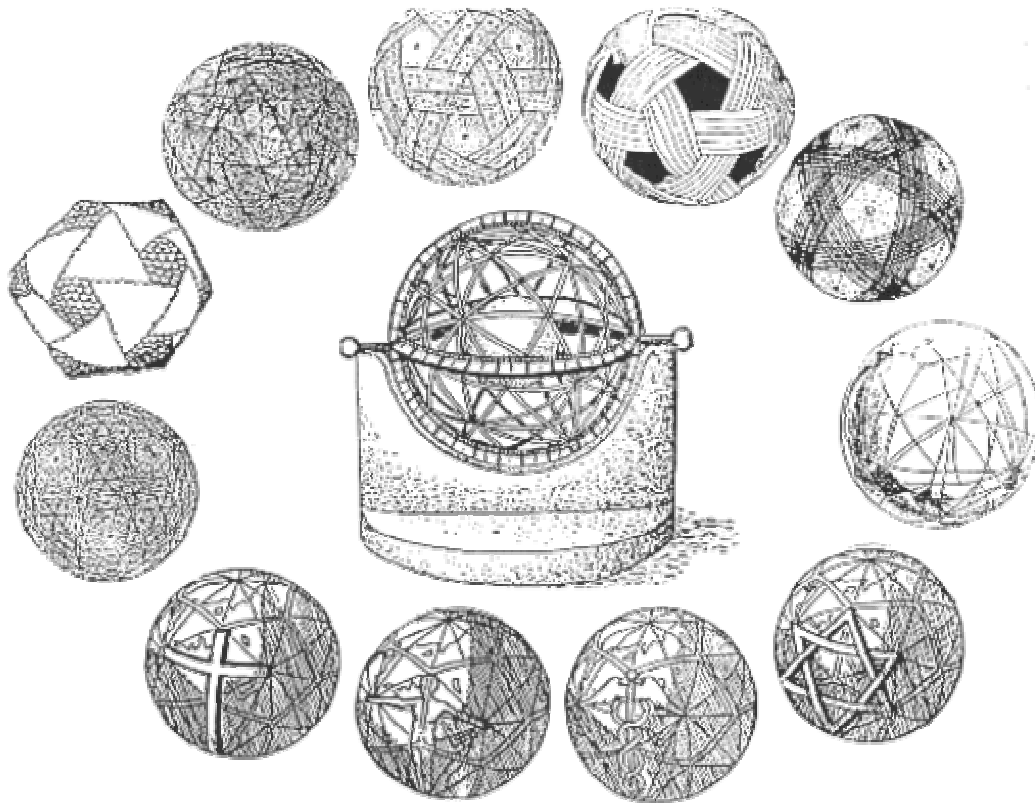






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<http://www.vortexmaps.com/lesson.php>