BOOK 2

5 PLATONIC SOLIDS
IN NATURE AND AROUND US

SACRED SHAPES EVERYWHERE

3 DIMENSIONAL
GEOMETRY
WORKBOOK

LEARN ✦ OBSERVE ✦ CREATE

Discover the sacred geometry of life.
From the smallest plankton to the tallest mountains.

Children's Joy
childrensjoy.io

WHAT IS GEOMETRY?

- Geometry is the study of shapes, patterns, sizes, and space.
- It helps us understand the world around us by exploring how objects are formed and how they fit together.
- From tiny crystals and flowers to mountains, planets, and even living cells, geometry can be found everywhere in nature.
- Artists use geometry to create beautiful designs, architects use it to build strong structures, and scientists use it to understand the natural world and the universe.
- By learning geometry, we learn to see the hidden patterns that connect nature, science, art, and life.

THE FIVE PLATONIC SOLIDS AND THE ANCIENT ELEMENTS

More than 2,000 years ago, the ancient Greek philosopher **Plato** taught that the universe was built from **five** perfect geometric shapes known today as the **Platonic Solids.** Each shape was linked to one of the five classical elements.

अग्नि
FIRE

1. TETRAHEDRON – FIRE

The tetrahedron has four triangular faces that meet at a point. Its sharp, upward shape represents the energy, transformation, and rising movement of fire.

पृथ्वी
EARTH

2. CUBE (HEXAHEDRON) – EARTH

The cube has six square faces and is stable on all sides. It represents stability, strength, and the solid nature of the Earth.

वायु
AIR

3. OCTAHEDRON – AIR

The octahedron has eight triangular faces. Its balanced and light form represents the movement, freedom, and unseen nature of air.

जल
WATER

4. ICOSAHEDRON – WATER

The icosahedron has twenty triangular faces. Its flowing, rounded shape represents the fluidity, adaptability, and life-giving nature of water.

आकाश
ETHER
(AKASHA)

5. DODECAHEDRON – ETHER (AKASHA)

The dodecahedron has twelve pentagonal faces. It represents the universe, harmony, and the subtle space (Akasha) that holds everything together.

CHAPTER 1

अग्नि
FIRE

TETRAHEDRON

The Pyramid of Fire

The tetrahedron is one of the five Platonic Solids.
It has 4 triangular faces, 6 edges and 4 vertices.
Its shape is strong, balanced and full of energy.
Ancient sages linked it with the element of **Fire**
because of its sharp, upward movement
and transformative power.

Linked Element
FIRE

Fire transforms, rises upward, and brings light, energy and life.

TETRAHEDRON FACTS

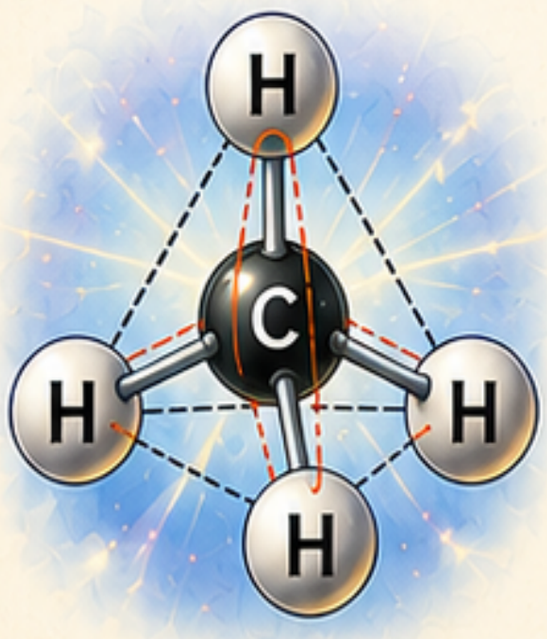
- 4 Faces (all triangles)
- 6 Edges
- 4 Vertices
- Strongest structure for its size

IN NATURE I APPEAR IN:

CRYSTAL FORMATIONS

Many crystals grow in tetrahedral shapes, like quartz and calcite.

MOLECULES SUCH AS METHANE



Methane (CH_4) has a tetrahedral molecular shape, perfect for balance and stability.

PYRAMIDAL MOUNTAINS

Many mountains have pyramidal forms, reaching upward toward the sky.

ENERGY FLOW MODELS

The tetrahedron is used in sacred geometry and energy models to represent flow, transformation and balance.

AROUND US, I APPEAR IN:

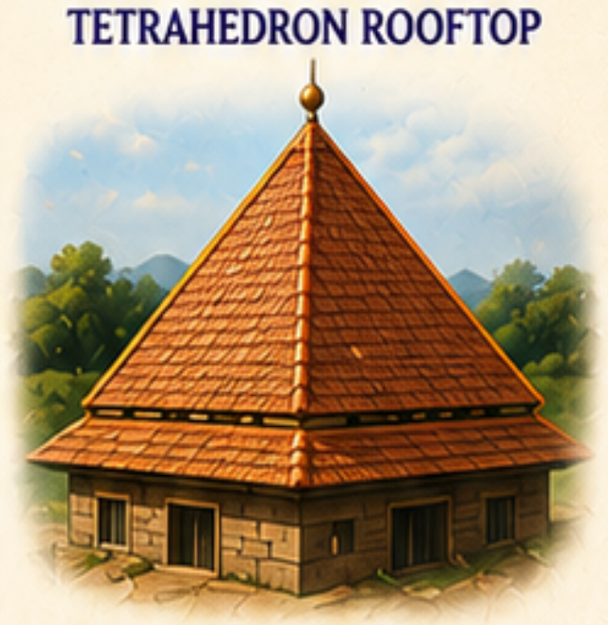
PYRAMIDS

The Great Pyramids are famous examples of tetrahedral (pyramidal) structures built by humans.

TEA PYRAMID BAGS

Some tea bags are shaped like tetrahedrons to allow better space for tea leaves to expand.

TETRAHEDRON ROOFTOP



Many rooftops and canopies use pyramid (tetrahedral) designs for strength, drainage and beauty.

UNHULLED BUCKWHEAT SEEDS

Buckwheat seeds have natural tetrahedral shapes that are strong, compact and efficient in nature.

As above, so below. As inside, so outside.
The shape of Fire is the shape of spirit rising.

CHAPTER 1 ACTIVITY

TETRAHEDRON

THE SHAPE OF FIRE

The tetrahedron is one of the five Platonic Solids
and is linked with the element of Fire.

अग्नि
(AGNI)

ACTIVITY 1: TRIANGLE HUNT

Find and draw 3 triangular shapes around you.

I found: _____ I found: _____ I found: _____

ACTIVITY 2: MENTAL ACTIVITY – FIRE CONNECTIONS

The tetrahedron is linked to the element of Fire because its shape points upward like a flame.
Think of 3 things related to fire.

Here are some examples to inspire you:

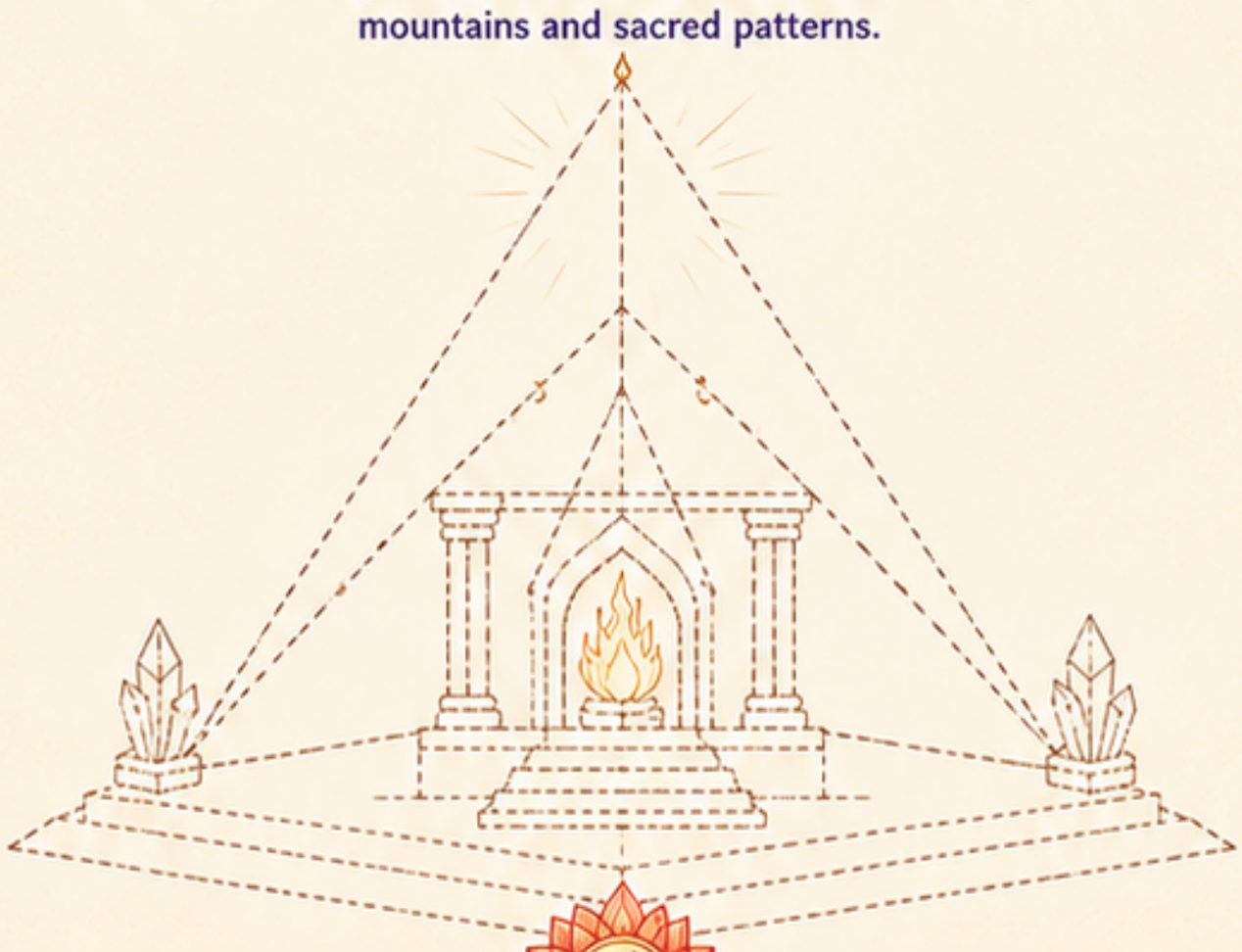
CAMPFIRE

CANDLE

SUN

CREATIVE CHALLENGE

Imagine a Magic Fire Crystal Temple built from giant tetrahedrons.
Draw your design below and decorate it with flames, crystals,
mountains and sacred patterns.



CHAPTER 2

पृथ्वी
EARTH

CUBE OR HEXAHEDRON

The Foundation of Earth

The cube (hexahedron) is one of the five Platonic Solids. It has 6 square faces, 12 edges and 8 vertices. Its shape is stable, strong and balanced in all directions. Ancient sages linked it with the element of Earth because it represents solid ground, support, and the material world we live in.

Linked Element
EARTH

Earth gives us stability, nourishment, and structure. The cube represents solidity, foundation and the physical world.

CUBE FACTS

- 6 Faces (all squares)
- 12 Edges
- 8 Vertices
- Strongest structure for its size

IN NATURE I APPEAR IN:

CRYSTAL FORMATIONS

Salt (halite) crystals naturally grow in perfect cube shapes.

MINERAL CRYSTALS SUCH AS PYRITE

Pyrite (Fool's Gold) often forms cubes, showing the Earth element in minerals.

ROCKS AND BUILDING MATERIALS

Many stones and building blocks are cut into cubes for strength and stability.

ORGANIC STRUCTURES

Some plant cells and natural structures grow in cube-like forms for support and organization.

AROUND US, I APPEAR IN:

BUILDINGS AND ROOMS

Rooms, houses and many buildings are shaped like cubes for strength, space and balance.

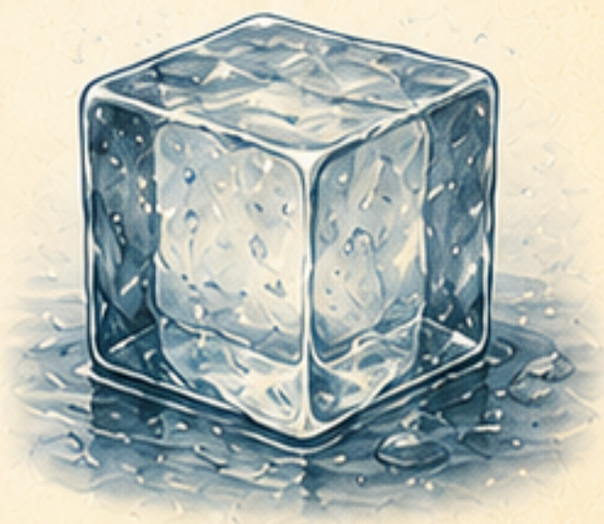
DICE (GAMING CUBE)

A standard dice is a cube with 6 faces, used in many games and learning activities.

CUBE BOXES

Many boxes, containers and packages are cube shaped to hold and protect objects.

ICE CUBES



Water freezes into cubes in some conditions, showing Earth's geometric magic.

As above, so below. As inside, so outside.
The shape of Earth is the shape of stability.

CHAPTER 2 ACTIVITY

पृथ्वी
EARTH

CUBE OR HEXAHEDRON

THE FOUNDATION OF EARTH

The cube (hexahedron) is one of the five Platonic Solids
and is linked with the element of Earth.

पृथ्वी
(PRITHVI)

ACTIVITY 1: SQUARE HUNT

Find and draw 3 square shapes around you.

I found: _____ I found: _____ I found: _____

CREATIVE CHALLENGE: THE RUBIK'S EARTH CUBE

Imagine a Rubik's Cube that represents our Earth!
Each small cube shows a part of Earth's surface —
land, mountains, oceans, rivers, forests, deserts, and more.
Design your own Rubik's Earth Cube below.
Be creative! Show the beauty and diversity of our planet.

FORESTS & RIVERS

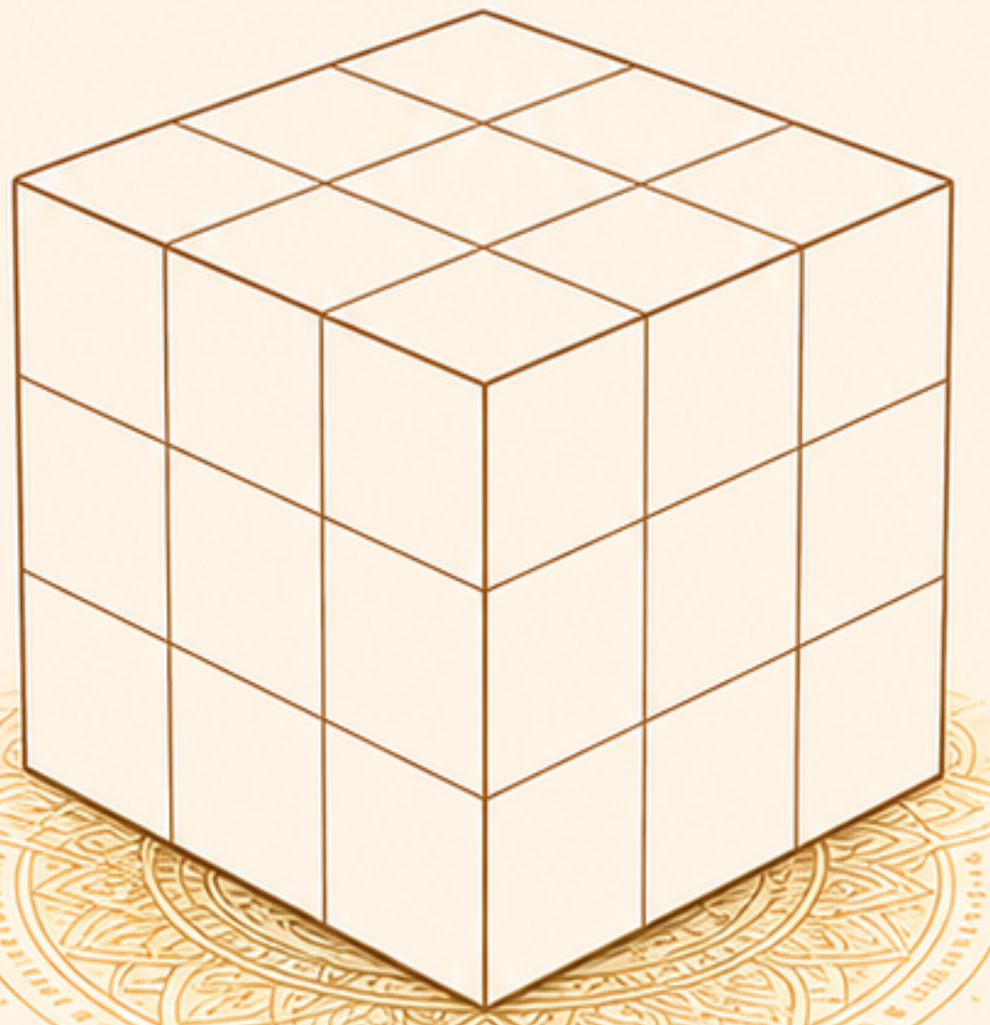
MOUNTAINS

OCEANS & SEAS

GRASSLANDS & FIELDS

DESERTS & LANDS

CITIES & PEOPLE



As above, so below. As inside, so outside.
The shape of Earth is the shape of stability.

CHAPTER 3

OCTAHEDRON

The Shape of Balance

The octahedron is one of the five Platonic Solids. It has 8 triangular faces, 12 edges and 6 vertices. Its shape is perfectly balanced in all directions. Ancient sages linked it with the element of Air because it represents harmony, equilibrium and movement.

LINKED ELEMENT
AIR

Air is invisible yet everywhere. It moves freely, balances all things, and connects life. The octahedron represents the harmony, flow and balance of the air element.

OCTAHEDRON FACTS

- 8 Faces (all triangles)
- 12 Edges
- 6 Vertices
- Represents balance and harmony
- Strong in all directions

IN NATURE I APPEAR IN:

CRYSTAL FORMATIONS

Many crystals, like fluorite and diamond rough, naturally grow in octahedral shapes.

MINERAL CRYSTALS SUCH AS FLUORITE

Fluorite often forms beautiful octahedrons, reflecting light and clarity.

SALT CRYSTALS

Some salt crystals grow in octahedral forms, showing nature's geometric order.

STRUCTURES & ORGANISMS

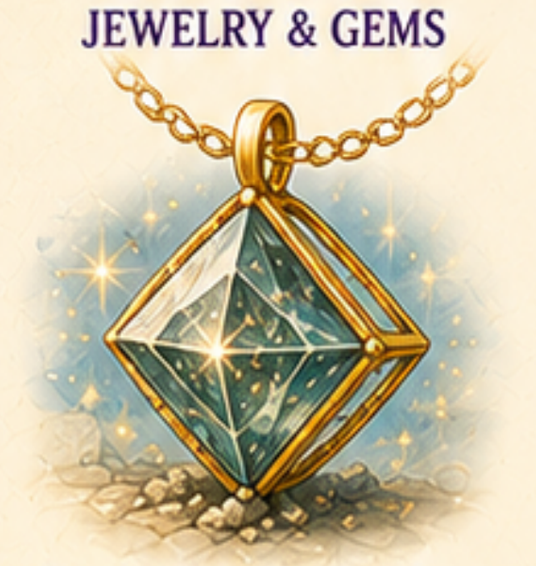
Certain diatoms and microscopic life forms show octahedral symmetry.

AROUND US, I APPEAR IN:

KITES

Many traditional kites have octahedral frames for perfect balance and smooth flight.

JEWELRY & GEMS



Octahedral cuts and shapes are used in jewelry to reflect light in all directions.

ARCHITECTURE & DESIGN

Octahedral structures are used in sacred architecture and modern design for balance and strength.

TOYS & GAMES

Some puzzles and toys use octahedral shapes for fun, learning and balance.

As above, so below. As inside, so outside.
The octahedron reminds us to stay balanced, light, free and in harmony with all.

CHAPTER 3 ACTIVITY

वायु
AIR

OCTAHEDRON

The Shape of Balance

The octahedron is one of the five Platonic Solids and is linked with the element of Air.

ACTIVITY 1: BE INSIDE THE OCTAHEDRON

Draw an octahedron and imagine **yourself** inside it.

Why imagine yourself inside an octahedron?

- It forms an energetic shield around you.
- It repels negative forces and negativity.
- It creates a protective energy field.
- It brings balance, harmony and peace to your mind and body.
- It helps you stay calm, centered and full of positive energy.

CREATIVE CHALLENGE: DESIGN YOUR OWN KITE

Design your own kite inspired by the octahedron.
Make it colorful, creative and full of balance!

Imagine where on Earth you would like to fly your kite and why?

As above, so below. As inside, so outside.
The octahedron reminds us to stay balanced, light, free and in harmony with all.

CHAPTER 4

ICOSAHEDRON

The Shape of Wholeness

The icosahedron is one of the five Platonic Solids. It has 20 triangular faces, 30 edges and 12 vertices. Its many faces are arranged with perfect symmetry, symbolizing wholeness, unity and the flow of life.

LINKED ELEMENT
WATER

Water is the source of life, flowing everywhere, nourishing all beings. The icosahedron represents the flow of life, adaptability, purity and the deep interconnection of all existence.

ICOSAHEDRON FACTS

- 20 Faces (all triangles)
- 30 Edges
- 12 Vertices
- Represents unity and interconnectedness
- Found in nature and sacred geometry

IN NATURE I APPEAR IN:

CRYSTAL FORMATIONS

Certain crystals, like garnet and pyrite, naturally form in icosahedral shapes.

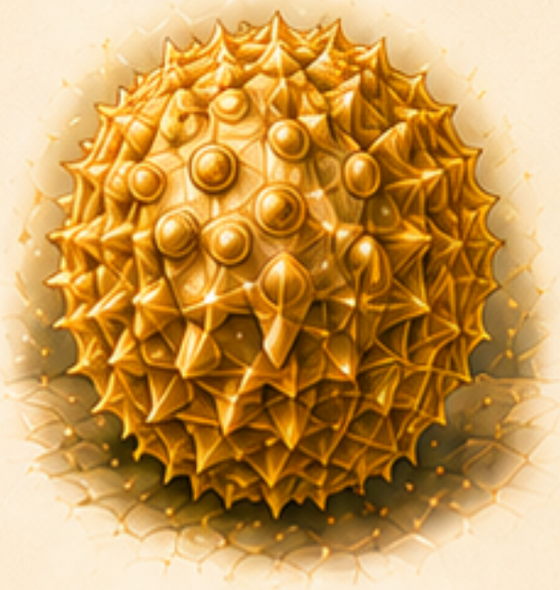
MARINE LIFE

Sea urchins and some marine organisms have icosahedral structures in their skeletons.

VIRUSES

Many viruses, including adenoviruses, have icosahedral capsids.

POLLEN GRAINS



Some pollen grains have icosahedral symmetry, helping them float and travel with the wind.

AROUND US, I APPEAR IN:

SPORTS

The classic football pattern is based on an icosahedral structure.

FOOD

The perfect symmetry in a pizza, cut into 10 equal slices, reflects the icosahedron's dual form – the pentagram.

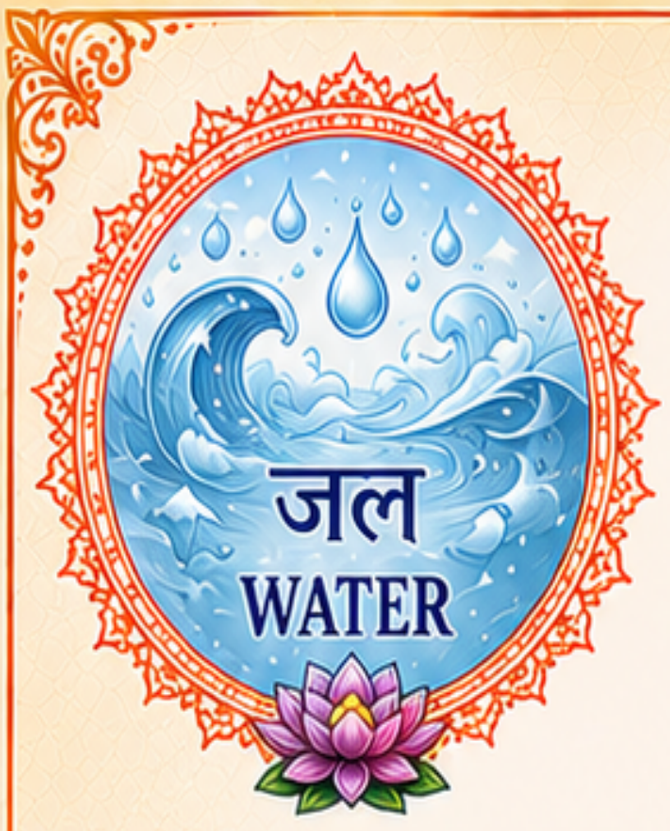
SPIRITUALITY

The icosahedron is used in sacred geometry to represent wholeness, soul awakening and universal connection.

EDUCATION & TOYS

Many learning tools and puzzles are based on icosahedral shapes to teach structure and symmetry.

As above, so below. As inside, so outside.
The icosahedron reminds us that we are all part of one whole – connected, balanced and dive.



CHAPTER 4 ACTIVITY

ICOSAHEDRON

The Shape of Wholeness

The icosahedron is linked to Water –
the source of life, flow, and deep connection.

ACTIVITY 1: CIRCLE YOUR FAVORITE FORM OF WATER

Look at the different forms of water below.

Circle the one that is your favorite.

RIVER

ICE

WATERFALL

RAIN

SNOW

OCEAN

Think about it...

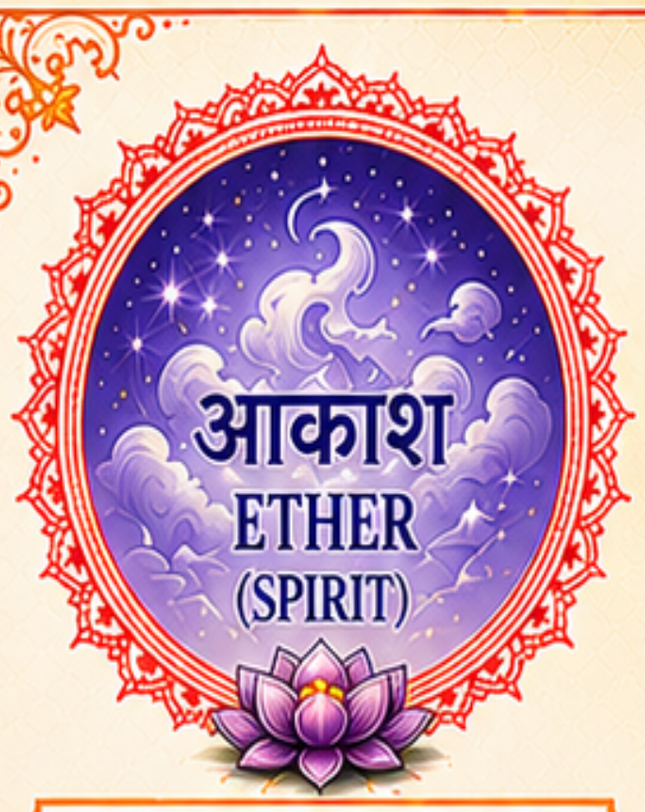
Why is this your favorite form of water?

_____

_____

_____

CHAPTER 5



DODECAHEDRON

The Shape of the Spirit

The dodecahedron is one of the five Platonic Solids. It has 12 pentagonal faces, 30 edges and 20 vertices. Its faces are arranged with perfect symmetry, symbolizing the harmony of the cosmos, the flow of spirit and the connection to higher realms.

LINKED ELEMENT
ETHER (SPIRIT)

Ether is the subtle essence that pervades all space. It is the element of spirit, consciousness and divine connection. The dodecahedron represents the movement of spirit, wisdom and the unseen forces that unite all things.

DODECAHEDRON FACTS

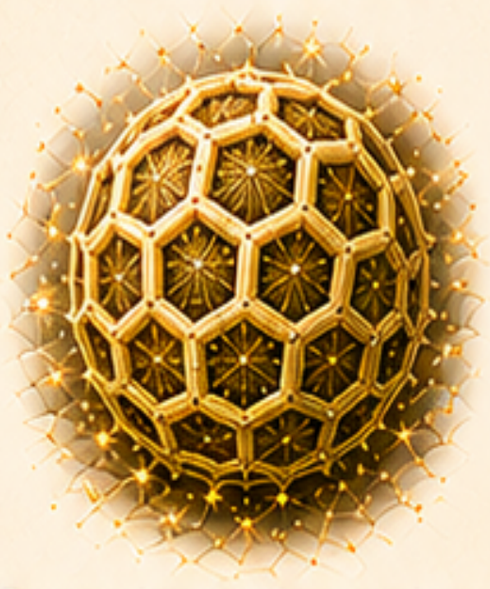
- 12 Faces (all pentagons)
- 30 Edges
- 20 Vertices
- Represents the universe and higher consciousness
- Found in nature and sacred geometry

IN NATURE I APPEAR IN:

CRYSTAL FORMATIONS

Certain crystals, like pyrite and almandine garnet, naturally form dodecahedral shapes.

MICROORGANISMS



Some microscopic organisms, such as certain radiolarians and foraminifera, have dodecahedral shells.

FRUITS & PLANTS

Some fruits and seed pods, like certain varieties of squash and the sacred lotus seed head, reflect dodecahedral geometry.

COSMIC STRUCTURES

The structure of the universe, star clusters and patterns in space reflect the sacred geometry of the dodecahedron.

AROUND US, I APPEAR IN:

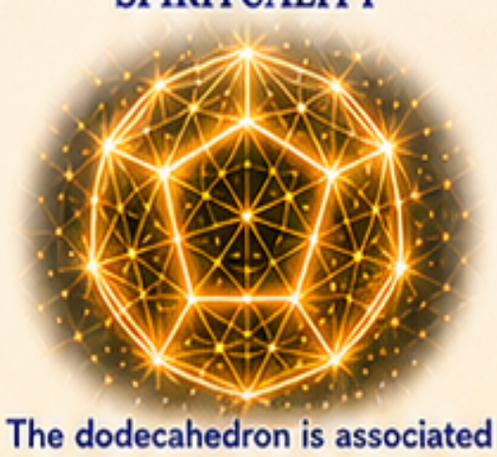
ARCHITECTURE

Some domes and buildings use dodecahedral forms for strength, harmony and energy flow.

SOAP BUBBLE

When you blow a soap bubble using a straw, it naturally forms a shape made of pentagonal faces, like a dodecahedron!

SPIRITUALITY



The dodecahedron is associated with the etheric body, higher guidance, spiritual awakening and the flow of universal energy.

POLLEN GRAINS

Many pollen grains, seen under a microscope, have a dodecahedral shape that helps protect and nourish the life within.

As above, so below. As inside, so outside.
The dodecahedron reminds us that we are connected to the infinite, guided by spirit and wisdom.

CHAPTER 5 ACTIVITY

आकाश
ETHER
(SPIRIT)

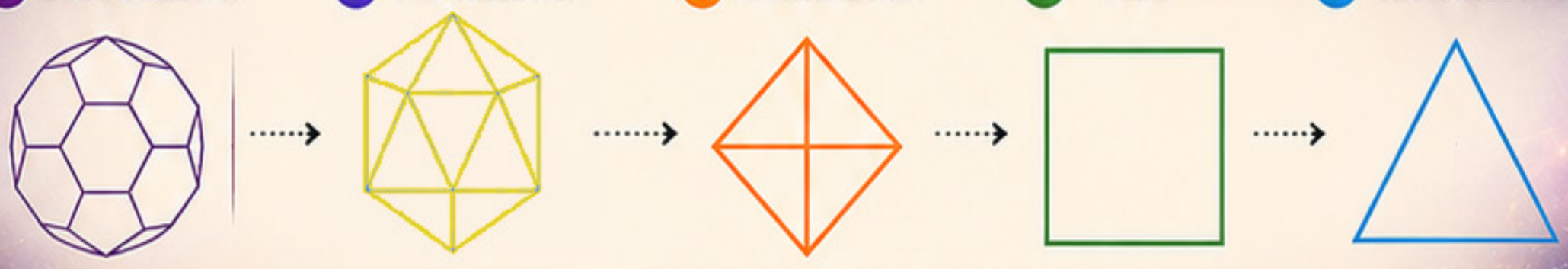
DODECAHEDRON

The Shape of the Spirit

Draw inside the big circle all 5 Platonic Solids.
Start from the outside and move inward.

SUGGESTED ORDER (FROM OUTSIDE TO INSIDE):

1. DODECAHEDRON
2. ICOSAHEDRON
3. OCTAHEDRON
4. CUBE
5. TETRAHEDRON



The nesting of the 5 Platonic Solids is the key to all atomic structure and the blueprint of life. One shape within the other in various combinations.