MARKHOR JUNIOR CONTEST

SCIENCE COURSE OUTLINE

TODDLER LEVEL

(Applicable to Nursery, Prep & KG)

Chapter No.	Chapter Title	Topic No.	Topic Title	Concept Description
01	Thinking Like a Scientist	1	**Careful Observation**	Looking closely at objects and events to notice details such as colour, size, shape, texture and movement. Includes simple tools such as a magnifying glass.
		2	**Asking Questions and Making Predictions**	Asking what, why and what if questions about the world, and making a simple guess about what will happen before trying something.
		3	**Comparing and Classifying**	Finding what is the same and what is different between objects, and sorting them into groups by features such as colour, size, shape, material or living/non-living.
		4	**Patterns and Sequences**	Recognising repeating patterns in nature (stripes, spots, petals, leaf shapes) and putting events in the correct order (seed → plant, morning → night).
		5	**Cause and Effect**	Understanding that one action leads to a result, such as a push making a ball roll or the sun melting ice. Includes drawing a simple conclusion from what was observed.
		6	**Being Safe While Exploring**	Safe habits during exploration: never tasting unknown things, handling objects gently, staying away from heat and sharp objects, and washing hands afterwards.
02	Living and Non-Living Things	1	**What Makes Something Living?**	Living things grow, breathe, need food and water, move by themselves and produce young of their own kind.
		2	**Non-Living Things**	Non-living things do not grow, breathe or need food. They can be natural (rocks, water, sand) or human-made (toys, chairs, cars).
		3	**Needs of Living Things**	All living things need air, water and food to survive. Animals also need shelter, and plants also need sunlight.
03	My Amazing Body	1	**Major Body Parts**	Names and uses of the head, neck, chest, tummy, arms, hands, fingers, legs, feet and toes, and how they work together.
		2	**Bones and Muscles**	The skeleton gives the body its shape, holds it up and protects soft parts. Muscles pull on bones so we can move, bend and lift.
		3	**Heart, Lungs and Breathing**	The heart pumps blood around the body, and the lungs take in air when we breathe. Both beat or breathe faster after running and playing.

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		4	**Growing and Changing**	Humans change from baby to child to adult. We grow taller and heavier, and milk teeth are replaced by permanent teeth.
04	**Our Five Senses**	1	**Eyes and Seeing**	Eyes help us see colours, shapes, sizes and movement, and need light to see. Includes caring for our eyes.
		2	**Ears and Hearing**	Ears help us hear sounds that are loud or soft and near or far. Includes protecting ears from very loud noise.
		3	**Nose and Smelling**	The nose detects pleasant and unpleasant smells. Smell can warn us of danger, such as smoke or spoiled food.
		4	**Tongue and Tasting**	The tongue identifies sweet, salty, sour and bitter tastes. Taste and smell work together when we eat.
		5	**Skin and Touching**	Skin lets us feel whether things are rough or smooth, hard or soft, hot or cold, and wet or dry.
05	**Healthy Living**	1	**Healthy Food Groups**	Energy-giving foods (rice, bread), body-building foods (milk, eggs, pulses) and protective foods (fruits, vegetables), and why a balanced meal matters.
		2	**Water for Our Body**	The body needs clean water every day to stay healthy and active. Water is a better choice than sugary drinks.
		3	**Personal Hygiene and Germs**	Germs are tiny living things that can make us ill. Handwashing, bathing, brushing teeth and trimming nails keep them away.
		4	**Rest, Sleep and Exercise**	The body needs enough sleep to rest and grow, and regular play and exercise to keep the heart and muscles strong.
06	**Animals Around Us**	1	**Animal Groups**	A simple introduction to mammals, birds, fish, reptiles, amphibians and insects, with one or two easy features of each group.
		2	**Animal Body Coverings**	Fur, hair, feathers, scales and shells, and how each covering protects an animal or keeps it warm or dry.
		3	**How Animals Move**	Animals walk, run, hop, fly, swim, crawl or slither, using body parts such as legs, wings, fins or the whole body.
		4	**What Animals Eat**	Plant-eaters (cow, rabbit), meat-eaters (lion, eagle) and animals that eat both (bear, crow).
		5	**Animal Homes and Habitats**	Animal homes (nest, burrow, den, hive, web, stable) and the larger places animals live, such as forests, deserts, oceans and polar regions.
		6	**Domestic and Wild Animals**	The difference between animals living with people (pets and farm animals) and wild animals. Includes useful products from animals such as milk, eggs and wool.

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		7	**Animal Babies and Life Cycles**	Some young animals look like their parents (puppy, calf), while others change as they grow (caterpillar → butterfly, tadpole → frog). Some animals lay eggs and some give birth to live young.
		8	**Animals Suited to Their Homes**	Body features that help animals survive where they live, such as the camel's hump and wide feet, the polar bear's thick fur and the duck's webbed feet.
07	**Plants Around Us**	1	**Parts of a Plant**	Roots, stem, leaves, flowers, fruits and seeds, and the main job of each part.
		2	**Seeds and Germination**	Seeds contain a tiny new plant. With water, air and warmth, a seed sprouts and begins to grow.
		3	**What Plants Need to Grow**	Plants need sunlight, water, air and soil. Plants kept in the dark or without water become weak or die.
		4	**Plant Life Cycle**	The stages a plant goes through: seed → seedling → grown plant → flower → fruit → new seeds.
		5	**Kinds of Plants**	Trees, shrubs, herbs, climbers, creepers and water plants, compared by size, stem type and where they grow.
		6	**Plants We Use**	Plants give us food (fruits, vegetables, grains), cotton for cloth, wood, some medicines, and the oxygen we breathe.
08	**Materials and Matter**	1	**Natural and Human-Made Materials**	Natural materials (wood, stone, wool, cotton) compared with human-made materials (plastic, glass, paper, rubber).
		2	**Properties of Materials**	Describing materials as hard or soft, rough or smooth, bendy or stiff, see-through or not see-through, and waterproof or absorbent.
		3	**Choosing the Right Material**	Objects are made from materials that suit their job, such as waterproof umbrellas, see-through windows and strong wooden tables.
		4	**Solids, Liquids and Gases**	Solids keep their own shape, liquids flow and take the shape of their container, and gases spread out to fill a space.
		5	**Changing Shapes and Mixing**	Materials can be bent, stretched, squashed or twisted. Some changes can be undone (squashed clay) and some cannot (a cooked egg).
09	**Water and Air**	1	**Properties of Water**	Water flows, takes the shape of its container and dissolves some materials (sugar, salt) but not others (sand, stones).
		2	**Heating and Cooling Water**	Cooling turns water into ice (freezing). Heating melts ice and turns water into water vapour (evaporation). Cooling vapour forms water drops (condensation).

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		3	**Floating and Sinking**	Some objects float and some sink. This depends on what the object is made of and on its shape; for example, a lump of clay sinks but a boat-shaped piece can float.
		4	**Air Around Us**	Air is all around us. We cannot see it, but it takes up space, fills balloons and tyres, and is needed for breathing.
		5	**Wind: Moving Air**	Wind is moving air. It can be gentle or strong, and it moves kites, sailboats and windmills and helps wet clothes dry.
10	**Light, Sound and Heat**	1	**Sources of Light**	Natural light sources (the Sun) and human-made ones (bulb, torch, candle). Darkness is the absence of light.
		2	**Light and Shadows**	A shadow forms when an object blocks light. Shadows change in size and position as the object or the light source moves.
		3	**Sounds and Vibrations**	Sounds are made when things vibrate (shake quickly). Sounds can be loud or soft and high or low.
		4	**Hot and Cold**	Sources of heat (Sun, fire, stove), how hot things cool down and cold things warm up, and how a thermometer measures temperature.
11	**Forces, Motion and Magnets**	1	**Pushes and Pulls**	A push or a pull is a force. Forces make objects start moving, stop, speed up, slow down, change direction or change shape.
		2	**Ways Things Move**	Objects move fast or slow and in straight lines, curves, circles or zigzags. Round objects roll, while flat objects slide.
		3	**Rough and Smooth Surfaces**	Objects move more easily on smooth surfaces (tiles, ice) than on rough ones (carpet, grass), because rough surfaces slow movement more.
		4	**Wheels and Simple Helpers**	Wheels make heavy things easier to move. Simple tools such as a see-saw or a ramp help us lift or move loads.
		5	**Magnets**	Magnets attract objects made of iron or steel but not wood, plastic, paper or glass. Two magnets can pull together or push apart.
12	**Our Earth**	1	**Earth: Our Home**	Earth is a round planet covered with land and water, with more water than land. It is the only planet known to support life.
		2	**Landforms**	Mountains, hills, plains, valleys, deserts and islands, and the main features of each.
		3	**Water on Earth**	Oceans and seas hold salty water, while rivers, lakes and ponds usually hold fresh water.
		4	**Rocks and Soil**	Rocks differ in colour, size and hardness. Soil is made of tiny bits of rock mixed with rotted plant and animal matter, and plants grow in it.

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		5	**Natural Resources**	Air, water, soil, sunlight, plants, animals and minerals are gifts of nature that we use every day and must use wisely.
13	**Weather and Seasons**	1	**Kinds of Weather**	Sunny, cloudy, rainy, windy, stormy and snowy weather, and how weather affects what we wear and do.
		2	**Clouds and Rain**	The Sun warms water, which rises as vapour, forms clouds and falls back as rain. This is a simple introduction to the water cycle.
		3	**Seasons of the Year**	Summer, autumn, winter and spring, and how temperature, plants, animals and clothing change with each season.
		4	**Rainbows, Thunder and Lightning**	A rainbow appears when sunlight passes through raindrops. Thunder is the sound made by lightning. Includes basic storm safety.
14	**Sky and Space**	1	**The Sun**	The Sun is a star that gives Earth light and heat. We must never look directly at it.
		2	**Day and Night**	Earth spins. The side facing the Sun has day and the side facing away has night.
		3	**The Moon**	The Moon goes around Earth and shines by reflecting sunlight. Its shape seems to change over a month.
		4	**Stars and Planets**	Stars are very far away and shine with their own light, so they look tiny. Earth is one of several planets that travel around the Sun.
15	**Caring for Our Environment**	1	**Living Things Depend on Each Other**	Plants and animals in a place need one another. Food links such as grass → rabbit → fox show who eats whom.
		2	**Clean Air and Clean Water**	Living things need clean air and water to stay healthy. Smoke, rubbish and dirty water make them unsafe.
		3	**Pollution**	Air, water, land and noise pollution: what causes each type and how it harms people, plants and animals.
		4	**Saving Water and Energy**	Simple habits such as turning off taps and lights, and why water and electricity should not be wasted.
		5	**Reduce, Reuse, Recycle**	Producing less waste, reusing objects, sorting rubbish into the right bins, and recycling paper, plastic and glass.
		6	**Protecting Plants and Animals**	Planting trees, not harming animals and protecting their homes. Some animals, such as the markhor, need special care to survive.

CURRICULUM SUMMARY

- **Total Chapters:** 15
- **Total Topics:** 74
- **Life Science Coverage:** 30 topics (Chapters 02–07): living things, the human body, the senses, health, animals and plants.
- **Physical Science Coverage:** 19 topics (Chapters 08–11): materials, states of matter, water, air, light, sound, heat, forces and magnets.
- **Earth and Space Science Coverage:** 13 topics (Chapters 12–14): landforms, water bodies, rocks and soil, natural resources, weather, seasons, the Sun, the Moon and stars.
- **Environmental Science Coverage:** 6 topics (Chapter 15): interdependence, pollution, conservation, the 3Rs and protecting wildlife.
- **Scientific Exploration and Thinking Coverage:** 6 topics (Chapter 01). These skills are also built into later topics through comparing, sorting, predicting and cause-and-effect content.
- **Overall Academic Focus:** The outline focuses on concepts rather than recall. Children observe, name, compare and explain simple relationships using correct but simple scientific vocabulary.

PROGRESSION TO BEGINNER LEVEL

The Toddler Level builds the core vocabulary and thinking habits that later science depends on: observing, classifying and recognising cause and effect. It also introduces every major science domain at a foundation level. At the Beginner Level, the same areas can deepen without repetition. For example, the senses can lead to body systems, floating and sinking to simple investigations with variables, the Sun and day/night to Earth's movement and seasons, and pollution awareness to ecosystems and human impact.