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SCO INTERNATIONAL OLYMPIAD

CLASS 4 SCIENCE SYLLABUS

A comprehensive syllabus guide for schools, teachers, parents, and students

Designed from Class 4 science learning pathways and aligned with SCO's platform flow for guided preparation, practice, reporting, and future-ready scientific thinking.

- age-fit science guidance for Grade 4 / primary-level learners globally
- chapter-wise pathway across plant life, animals, digestion, materials, force, energy, environment, Earth, and universe
- preparation roadmap, classroom implementation ideas, and future-benefit framing for science enrichment

Maths	English	Science	Mental Ability	Finance Knowledge
AI	Entrepreneurship	GK	Coding	Life Skills

SCO INTERNATIONAL SCIENCE OLYMPIAD - CLASS 4 OFFICIAL SYLLABUS GUIDE

For students, teachers, schools, and parents

Purpose of this syllabus

This document gives a clear Class 4 Science Olympiad pathway for conceptual learning, observation, reasoning, and application. It supports students in understanding everyday science, helps teachers plan lessons and revision, and helps schools organize science enrichment in a structured and age-appropriate way.

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QUICK SYLLABUS SNAPSHOT

Chapter	Chapter Name	Subject	Primary Learning Focus
1	**Plant Life**	Science	Plant parts, seed growth, food, and useful plant products
2	**Animals**	Science	Animal groups, habitats, adaptation, and care
3	**Food and Digestion**	Science	Balanced food, digestive organs, and healthy habits
4	**Transport and Communications**	Science	Movement of people, goods, messages, and technology links
5	**Human Needs**	Science	Air, water, food, shelter, clothing, hygiene, and safety
6	**Matter and Materials**	Science	Solids, liquids, gases, properties, and simple changes
7	**Force, Work and Energy**	Science	Push, pull, motion, work, energy sources, and simple machines
8	**Our Environment**	Science	Pollution, waste management, conservation, and responsible living
9	**Earth and Universe**	Science	Earth, Moon, Sun, planets, day-night, seasons, and sky observation

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LEARNING PHILOSOPHY FOR CLASS 4 SCIENCE

Class 4 science learning is most powerful when it connects the natural world, the human body, materials, forces, environment, and Earth-space ideas with observation and simple investigation. Students are expected to look carefully, ask questions, compare evidence, explain cause and effect, and use science vocabulary in age-appropriate ways.

Observe	Explain	Apply
Notice patterns in plants, animals, materials, weather, motion, and the sky.	Use correct science words to explain what happens and why it happens.	Solve real-life questions about health, environment, transport, safety, and resources.

CHAPTER-WISE SYLLABUS NOTES AND LEARNING OUTCOMES

CH 1

Plant Life

Chapter note: Students explore plant parts, plant needs, seed germination, plant products, and the role of plants in everyday life. The chapter develops observation skills through leaves, roots, stems, flowers, fruits, and seeds.

Learning outcomes:

- Identify major parts of a plant and describe their functions.
- Explain simple needs of plants: sunlight, air, water, soil, and space.
- Understand seed germination and common ways seeds travel.
- Connect plants with food, medicine, fibres, oxygen, shelter, and environmental balance.

Suggested learning experiences: leaf observation chart, seed germination diary, plant-product sorting activity.

CH 2

Animals

Chapter note: Students learn how animals live, move, eat, protect themselves, and adapt to their surroundings. The chapter encourages kindness toward living things and careful comparison of animal features.

Learning outcomes:

- Classify animals by body covering, food habits, movement, and habitat.
- Recognize domestic, wild, aquatic, aerial, and amphibious animals.
- Describe simple adaptations such as beaks, claws, feet, camouflage, and hibernation.
- Explain basic animal care, food chains, and the need to protect habitats.

Suggested learning experiences: animal habitat cards, food-chain matching, adaptation picture talk.

CH 3

Food and Digestion

Chapter note: Students understand why food is needed, what balanced food means, and how the body changes food into usable nutrients. The chapter builds healthy-eating awareness and simple body-system vocabulary.

Learning outcomes:

- Identify food groups and their role in energy, growth, and protection.
- Name major digestive organs such as mouth, food pipe, stomach, small intestine, and large intestine.
- Explain that digestion breaks food into simpler substances for the body.
- Relate hygiene, clean water, chewing, and balanced diet to health.

Suggested learning experiences: balanced meal plate, digestive path flowchart, healthy habit checklist.

CH 4

Transport and Communications

Chapter note: Students connect transport and communication with daily life, safety, distance, goods, services, and technology. The chapter supports social awareness and scientific thinking about movement and messages.

Learning outcomes:

- Compare land, water, and air transport with suitable examples.
- Identify vehicles used for people, goods, emergency services, and rural/urban needs.

- Understand basic communication methods from letters to digital communication.
- Apply road-safety, transport-safety, and responsible communication rules.

Suggested learning experiences: transport sorting table, message timeline, road-sign activity.

CH 5

Human Needs

Chapter note: Students study basic human needs and how these are connected with health, safety, comfort, and environment. The chapter helps students distinguish needs from wants and understand responsible resource use.

Learning outcomes:

- Explain why humans need air, water, food, shelter, clothing, rest, and hygiene.
- Recognize safe and unsafe habits in school, home, road, and public spaces.
- Connect weather and place with clothing, houses, and lifestyle.
- Develop awareness about cleanliness, first aid, and community helpers.

Suggested learning experiences: needs-vs-wants chart, safety role play, weather-and-clothing matching.

CH 6

Matter and Materials

Chapter note: Students observe objects around them and learn that materials have properties. They compare solids, liquids, and gases and understand simple changes caused by heating, cooling, mixing, and force.

Learning outcomes:

- Identify matter as things that have mass and occupy space.
- Classify examples into solids, liquids, and gases.
- Describe properties such as hardness, flexibility, transparency, solubility, floating, and sinking.
- Recognize reversible and simple physical changes in everyday life.

Suggested learning experiences: material property hunt, sink-float test, state-of-matter sorting.

CH 7

Force, Work and Energy

Chapter note: Students learn that pushes and pulls can change motion, speed, direction, and shape. They also understand work and energy through everyday examples such as lifting, pushing, moving, heat, light, sound, and machines.

Learning outcomes:

- Identify force as a push or pull.
- Explain how force can start, stop, slow, speed up, or change direction of objects.
- Relate work to force causing movement over a distance.
- Recognize sources and forms of energy such as solar, wind, water, fuel, heat, light, sound, and muscular energy.

Suggested learning experiences: push-pull examples, simple machine observation, energy source matching.

CH 8

Our Environment

Chapter note: Students explore air, water, soil, living things, waste, pollution, and conservation. The chapter develops environmental responsibility through reduce, reuse, recycle, composting, and resource-saving actions.

Learning outcomes:

- Identify components of the environment: air, water, land, plants, animals, and humans.
- Explain common types of pollution and their effects on health and nature.
- Differentiate biodegradable and non-biodegradable waste.
- Practice responsible habits such as waste segregation, reuse, recycling, saving water, and planting trees.

Suggested learning experiences: waste segregation chart, pollution cause-effect map, school environment action plan.

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CH
9

Earth and Universe

Chapter note: Students develop curiosity about Earth, Moon, Sun, planets, day and night, shadows, and the sky. The chapter encourages observation of natural cycles and basic astronomy concepts.

Learning outcomes:

- Describe Earth as a planet in the Solar System.
- Identify the Sun as a star and the main source of light and heat for Earth.
- Explain day and night using Earth's rotation at an age-appropriate level.
- Recognize the Moon, stars, planets, phases of the Moon, and simple sky-observation patterns.

Suggested learning experiences: shadow observation, day-night model, moon diary.

ASSESSMENT BLUEPRINT FOR SCHOOLS AND TEACHERS

The Olympiad paper may assess knowledge, understanding, application, observation, reasoning, and everyday science problem-solving. The following blueprint supports preparation without encouraging rote memorization.

Skill Area	Question Focus	Suggested Weight	Preparation Method
Concept recall	Definitions, examples, organs, plant parts, materials, energy sources	25-30%	Flash cards, labelled diagrams, quick oral checks
Observation	Identify patterns, classify objects, compare features	20-25%	Real objects, picture cards, sorting activities
Application	Daily-life science: digestion, waste, transport, weather, safety	25-30%	Scenario questions and simple experiments
Reasoning	Cause-effect, what-if questions, data/picture interpretation	15-20%	Explain why, predict outcomes, justify choices

Achievers/HOTS	Multi-step reasoning across chapters	10-15%	Mixed-chapter practice and reflection notes

PREPARATION ROADMAP

Stage 1	Stage 2	Stage 3	Stage 4
Build Concepts	**Observe and Apply**	**Practice Reasoning**	**Olympiad Readiness**
Read chapter notes, make labelled diagrams, learn keywords.	Use home/school examples: plants, food, waste, materials, forces, sky.	Solve mixed MCQs, explain why options are correct or incorrect.	Attempt timed papers, review mistakes, revise weak chapters.
Weeks 1-2	**Weeks 3-4**	**Weeks 5-6**	**Weeks 7-8**

GUIDANCE FOR STUDENTS, TEACHERS, AND SCHOOLS

Students

- Observe science in daily life before memorizing facts.
- Use drawings, labelled diagrams, and example notebooks.
- Explain every answer in one sentence after practice.

Teachers

- Use hands-on demonstrations and picture-based reasoning.
- Connect chapters through common themes: health, resources, safety, and environment.
- Review wrong options to build scientific reasoning.

Schools

- Run short weekly science observation activities.
- Use Olympiad preparation to support regular classroom science.
- Promote environment clubs, science corners, and safe experiment culture.

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STUDENT SKILL CHECKLIST

Readiness Indicator	Self Check
Can identify plant parts and explain how seeds grow.	☐ Confident ☐ Revise
Can classify animals by habitat, food habit, movement, and body features.	☐ Confident ☐ Revise
Can describe the path of food through the digestive system at a simple level.	☐ Confident ☐ Revise
Can compare transport and communication methods with real-life uses.	☐ Confident ☐ Revise
Can distinguish needs from wants and explain hygiene and safety habits.	☐ Confident ☐ Revise
Can classify matter into solids, liquids, and gases using properties.	☐ Confident ☐ Revise
Can explain simple examples of force, work, and energy in daily life.	☐ Confident ☐ Revise
Can separate biodegradable and non-biodegradable waste and suggest responsible actions.	☐ Confident ☐ Revise
Can describe the Sun, Moon, Earth, planets, day-night, and basic sky observations.	☐ Confident ☐ Revise

GLOSSARY OF IMPORTANT TERMS

Term	Meaning for Class 4 learners
Adaptation	A body feature or behaviour that helps a living thing survive.
Biodegradable	A material that can break down naturally through microbes and environmental processes.
Digestion	The process of breaking food into simpler substances that the body can use.
Environment	The surroundings of living and non-living things, including air, water, soil, plants, animals, and people.
Force	A push or pull that can change the motion, shape, or direction of an object.
Germination	The process by which a seed begins to grow into a new plant.
Kinetic energy	The energy of a moving object.
Matter	Anything that has mass and occupies space.
Pollution	The addition of harmful substances or actions that damage air, water, land, or living things.
Solar System	The Sun and all the objects that move around it, including planets, moons, asteroids, and comets.

CURRICULUM ALIGNMENT NOTE

Global learning alignment

This syllabus supports curiosity, observation, scientific explanation, practical enquiry, health awareness, environmental responsibility, and Earth-space understanding. It is designed for age-fit Grade 4 learning and can be used with classroom teaching, guided practice, project work, and Olympiad-style reasoning.