SCERT Kerala · Class 11 · Geography

Geography

ORIGINAL STUDY COMPANION
PADIKAM
CLASS 11 | HUMANITIES
Physical Geography, India and
Practical Work
Kerala SCERT / prescribed NCERT core lessons
31 chapter lessons
Quick explanations, core points, exam practice and chapter-specific notation in one
consistent format.
Padikam explanations are independently written. Official textbooks are used as the coverage map, chapter sequence and terminology
reference.
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Study rhythm

Read the quick explanation, recall the core points aloud, then answer the prompts without looking back. Use the official textbook links for full prescribed readings, activities and diagrams.

Textbook and verification links

1. https://scert.kerala.gov.in/

2. https://samagra.kite.kerala.gov.in/
3. https://www.hsslive.in/2018/06/hss-plus-one-plus-two-text-book.html
4. https://ncert.nic.in/textbook.php
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CHAPTER 01
Physical Geography 1: Geography as a Discipline
Quick understanding
Understand geography as the study of spatial relationships among natural and human phenomena.
Core points Check your learning
Systematic geography studies themes; regional geography integrates them in places.
Physical and human geography are connected through environment and society.
Maps, field evidence and spatial data are central tools.
Classify questions by branch of geography.
Explain why geography is an integrating discipline.
One-line recall Systematic geography studies themes; regional geography integrates them in places.
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CHAPTER 02
Physical Geography 2: Origin and Evolution of the Earth
Quick understanding
Follow scientific explanations for the universe, solar system, early Earth and development of atmosphere and life.
Core points Check your learning
Evidence supports changing models of cosmic origin.
Accretion, differentiation and cooling shaped Earth.
The early atmosphere and hydrosphere evolved over immense time.
Sequence major stages of Earth formation.
Distinguish a scientific theory from a guess.
Timeline anchor
Earth formed about 4.6 billion years ago.
One-line recall Evidence supports changing models of cosmic origin.
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CHAPTER 03
Physical Geography 3: Interior of the Earth
Quick understanding
Infer Earth's layered interior from seismic waves, density, gravity and magnetic evidence.
Core points Check your learning
P waves travel through solids and liquids; S waves travel only through solids.
Interpret a seismic-wave diagram.
Compare oceanic and continental crust.
Crust, mantle and core differ in composition and physical state.
Shadow zones reveal internal boundaries.
One-line recall P waves travel through solids and liquids; S waves travel only through solids.
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CHAPTER 04
Physical Geography 4: Distribution of Oceans and Continents

Quick understanding
Use continental drift, sea-floor spreading and plate tectonics to explain global surface patterns.
Core points Check your learning
Lithospheric plates move over the asthenosphere. Identify a boundary from landforms and hazards.
Divergent, convergent and transform boundaries create different features. Explain how sea-floor spreading supports plate tectonics.
Fossils, rock belts and palaeomagnetism provide evidence.
Map focus
Major tectonic plates, ridges, trenches and collision zones.
One-line recall Lithospheric plates move over the asthenosphere.
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CHAPTER 05
Physical Geography 5: Minerals and Rocks
Quick understanding
Classify minerals and understand the rock cycle linking igneous, sedimentary and metamorphic rocks.
Core points Check your learning
Minerals have characteristic composition and properties.
Identify rock type from its formation.
Draw and explain the rock cycle.
Cooling, deposition and metamorphism create major rock groups.
Any rock can transform when conditions change.
One-line recall Minerals have characteristic composition and properties.
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CHAPTER 06
Physical Geography 6: Geomorphic Processes
Quick understanding
Connect endogenic uplift and volcanism with exogenic weathering, erosion, transport and deposition.
Core points Check your learning
Energy from Earth drives internal processes; solar energy and gravity drive many external ones.
Classify a process as endogenic or exogenic.
Weathering acts in place, while erosion moves material.
Explain factors controlling soil formation or mass movement.
Mass movement depends strongly on slope and saturation.
One-line recall Energy from Earth drives internal processes; solar energy and gravity drive many external ones.
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CHAPTER 07
Physical Geography 7: Landforms and Their Evolution
Quick understanding
Read landscapes as products of structure, process, material and time.
Core points Check your learning
Running water, groundwater, glaciers, waves and wind form distinct erosional and depositional features.
Identify an agent from a landform set.
Compare river and glacial valleys.
A single agent can both erode and deposit.
Landforms develop as process conditions change.

One-line recall Running water, groundwater, glaciers, waves and wind form distinct erosional and depositional features.
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CHAPTER 08
Physical Geography 8: Composition and
Structure of Atmosphere
Quick understanding
Study atmospheric gases, vertical layers and their importance for weather and life.
Core points Check your learning
Nitrogen and oxygen dominate dry air; water vapour Draw the thermal layers of the
varies greatly. atmosphere.
Temperature change with height defines major Explain the roles of water vapour and
layers. dust.
Ozone in the stratosphere absorbs harmful
ultraviolet radiation.
One-line recall Nitrogen and oxygen dominate dry air; water vapour varies greatly.
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CHAPTER 09
Physical Geography 9: Solar Radiation, Heat
Balance and Temperature
Quick understanding
Explain insolation, Earth's heat budget and spatial or seasonal temperature variation.
Core points Check your learning
Angle of incidence and day length control incoming Interpret an annual-temperature graph.
energy.
Explain temperature inversion.
Earth balances absorbed short-wave energy with
outgoing long-wave radiation.
Latitude, altitude, land-water contrast and currents
affect temperature.
One-line recall Angle of incidence and day length control incoming energy.
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CHAPTER 10
Physical Geography 10: Atmospheric Circulation
and Weather Systems
Quick understanding
Link pressure gradients, winds, global circulation, air masses, fronts and storms.
Core points Check your learning
Winds reflect pressure-gradient, Coriolis and Read an isobar map.
frictional forces.
Compare tropical and temperate
Planetary pressure belts shift seasonally. cyclones.
Cyclones organise rising air and fronts; anticyclones
favour subsidence.
One-line recall Winds reflect pressure-gradient, Coriolis and frictional forces.
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CHAPTER 11
Physical Geography 11: Water in the Atmosphere
Quick understanding
Trace humidity, condensation, clouds and precipitation through the atmospheric water cycle.
Core points Check your learning
Relative humidity depends on moisture and Explain cloud formation.

temperature.
Compare the three rainfall mechanisms.
Cooling to dew point allows condensation around
nuclei.
Rainfall may be convectional, orographic or cyclonic.
One-line recall Relative humidity depends on moisture and temperature.
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CHAPTER 12
Physical Geography 12: World Climate and
Climate Change
Quick understanding
Use climatic controls and classification to compare regions and understand long-term change.
Core points Check your learning
Climate summarises long-period weather patterns. Interpret a climograph.
Temperature and precipitation regimes support Explain evidence and impacts of climate
climatic types. change.
Natural forcing and human greenhouse-gas
emissions operate on different scales.
One-line recall Climate summarises long-period weather patterns.
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CHAPTER 13
Physical Geography 13: Water (Oceans)
Quick understanding
Study ocean-floor relief, temperature and salinity as foundations of marine circulation and ecosystems.
Core points Check your learning
Continental margins connect land and deep-ocean Draw an ocean-floor profile.
basins.
Explain a regional salinity contrast.
Ocean temperature generally decreases with depth.
Salinity varies with evaporation, precipitation, river
input and ice.
One-line recall Continental margins connect land and deep-ocean basins.
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CHAPTER 14
Physical Geography 14: Movements of Ocean
Water
Quick understanding
Explain waves, tides and currents and their effects on coasts, climate and navigation.
Core points Check your learning
Wind transfers energy to waves. Distinguish waves, tides and currents.
Tides arise mainly from lunar and solar gravitational Explain how a warm or cold current
effects. affects climate.
Currents reflect winds, density differences, Coriolis
force and basin shape.
Map focus
Major warm and cold ocean currents.
One-line recall Wind transfers energy to waves.
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CHAPTER 15
Physical Geography 15: Life on the Earth
Quick understanding

View the biosphere as interacting ecosystems with energy flow and nutrient cycling.
Core points Check your learning
Producers capture energy; consumers and Construct a food web.
decomposers transfer or recycle matter.
Explain energy flow and nutrient cycling.
Food webs show interdependence better than a
single chain.
Biomes reflect climate, soil and adaptation.
One-line recall Producers capture energy; consumers and decomposers transfer or recycle matter.
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CHAPTER 16
Physical Geography 16: Biodiversity and
Conservation
Quick understanding
Understand biodiversity at genetic, species and ecosystem levels and plan conservation.
Core points Check your learning
Biodiversity supports ecological stability and human Classify conservation measures.
livelihoods.
Design a local biodiversity action plan.
Habitat loss, overuse, invasive species, pollution and
climate change raise extinction risk.
In-situ and ex-situ conservation complement each
other.
One-line recall Biodiversity supports ecological stability and human livelihoods.
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CHAPTER 17
India 1: Location
Quick understanding
Use latitude, longitude, extent and neighbours to explain India's time, climate and strategic position.
Core points Check your learning
The mainland lies entirely in the Northern Calculate a longitude-based local-time
Hemisphere. difference.
Asingle standard meridian gives one national time. Explain the importance of India's
location.
The Indian Ocean location supports connections with
Asia, Africa and Europe.
Map focus
Extremes, Tropic of Cancer, Standard Meridian, neighbours and surrounding seas.
One-line recall The mainland lies entirely in the Northern Hemisphere.
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CHAPTER 18
India 2: Structure and Physiography
Quick understanding
Relate geological history to India's mountains, plains, plateaus, deserts, coasts and islands.
Core points Check your learning
The Peninsular block is ancient and stable relative to Compare Himalayan and Peninsular
the Himalayas. relief.
The Northern Plains were built by alluvial deposition. Locate major physiographic divisions.
Each physiographic division supports different
resources and hazards.
One-line recall The Peninsular block is ancient and stable relative to the Himalayas.
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CHAPTER 19
India 3: Drainage System
Quick understanding
Compare Himalayan and Peninsular rivers, drainage patterns, basins and water issues.
Core points Check your learning
Himalayan rivers are generally perennial and form Identify drainage patterns.
large basins.
Compare the Indus, Ganga and
Many Peninsular rivers follow older, more fixed Brahmaputra systems.
valleys.
River regimes reflect climate, relief, geology and
human use.
One-line recall Himalayan rivers are generally perennial and form large basins.
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CHAPTER 20
India 4: Climate
Quick understanding
Explain the Indian monsoon through pressure, winds, relief, ocean conditions and seasonal rhythm.
Core points Check your learning
India's climate is monsoonal but regionally varied. Explain the mechanism of the southwest
monsoon.
The Himalayas and surrounding seas strongly
influence temperature and rainfall. Interpret a regional rainfall pattern.
Monsoon onset, breaks and retreat shape
agriculture and hazards.
One-line recall India's climate is monsoonal but regionally varied.
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CHAPTER 21
India 5: Natural Vegetation
Quick understanding
Relate forest types to rainfall, temperature, altitude, soil and human influence.
Core points Check your learning
Evergreen, deciduous, thorn, montane and littoral Match vegetation type with climate.
vegetation occupy different settings.
Explain altitudinal zonation in the
Natural vegetation differs from planted crops or Himalayas.
managed stands.
Conservation protects biodiversity, soil, water and
livelihoods.
One-line recall Evergreen, deciduous, thorn, montane and littoral vegetation occupy different settings.
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CHAPTER 22
India 6: Soils
Quick understanding
Classify Indian soils by origin, properties and distribution and connect them with land use and
conservation.
Core points Check your learning
Alluvial, black, red and yellow, laterite, arid and forest Identify a soil from properties and region.
soils have distinct profiles.
Recommend conservation for a slope or
Soil fertility is not identical to crop productivity. dryland.

Erosion control combines vegetation, contour
methods and careful land use.
One-line recall Alluvial, black, red and yellow, laterite, arid and forest soils have distinct profiles.
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CHAPTER 23
India 7: Natural Hazards and Disasters
Quick understanding
Move from hazard description to risk analysis, preparedness, response and recovery.
Core points Check your learning
Disaster risk combines hazard, exposure and Prepare a local hazard map.
vulnerability.
Separate mitigation, preparedness,
Earthquakes, floods, cyclones, droughts and response and recovery actions.
landslides require different measures.
Community knowledge and early warning save lives.
Equation and notation
Disaster risk is shaped by hazard × exposure × vulnerability
SYMBOLS AND UNITS
Hazard: potentially damaging event or process Exposure: people and assets in harm's way
Vulnerability: susceptibility to damage The relation is conceptual, not a fixed SI equation
One-line recall Disaster risk combines hazard, exposure and vulnerability.
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CHAPTER 24
Practical 1: Introduction to Maps
Quick understanding
Read maps as scaled, selective representations using direction, symbols, legend and coordinates.
Core points Check your learning
Every map makes choices about purpose and detail. Analyse the essential elements of a map.
Conventional signs support shared reading. Choose a map type for a stated task.
Large-scale maps show smaller areas in greater
detail.
One-line recall Every map makes choices about purpose and detail.
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CHAPTER 25
Practical 2: Map Scale
Quick understanding
Express and convert statement, representative-fraction and graphical scales.
Core points Check your learning
Representative fraction uses the same unit in Convert a statement scale to RF.
numerator and denominator.
Construct a linear scale and measure
Agraphical scale remains useful when a map is distance.
enlarged or reduced.
Scale controls measurable detail.
Equation and notation
Representative fraction = Map distance / Ground distance
SYMBOLS AND UNITS
Map distance and ground distance: measured in the Representative fraction: dimensionless ratio
same unit
One-line recall Representative fraction uses the same unit in numerator and denominator.
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CHAPTER 26
Practical 3: Latitude, Longitude and Time
Quick understanding
Use the geographic grid to locate places and calculate local or standard time.
Core points Check your learning
Latitude measures angular distance north or south Find coordinates from a graticule.
of the Equator.
Calculate time difference between
Longitude measures east or west of Greenwich. longitudes.
Earth rotates 15 degrees per hour, so 1 degree
equals 4 minutes.
Equation and notation
Time difference = Longitude difference × 4 minutes per degree
SYMBOLS AND UNITS
Longitude difference: degrees Time difference: minutes
Earth rotates 360 degrees in 24 hours
One-line recall Latitude measures angular distance north or south of the Equator.
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CHAPTER 27
Practical 4: Map Projections
Quick understanding
Understand how projections transfer a curved Earth to a plane with unavoidable distortion.
Core points Check your learning
Cylindrical, conical and zenithal projections suit Select a projection for an equatorial,
different regions. mid-latitude or polar region.
No flat map preserves all area, shape, distance and Explain one form of distortion.
direction.
Projection choice must follow map purpose.
One-line recall Cylindrical, conical and zenithal projections suit different regions.
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CHAPTER 28
Practical 5: Topographical Maps
Quick understanding
Interpret relief, drainage, settlement, transport, vegetation and land use from conventional signs and
contours.
Core points Check your learning
Contour spacing indicates slope. Calculate gradient or identify a landform
from contours.
Patterns should be read together, not symbol by
symbol in isolation. Write an integrated interpretation of a
topo-sheet extract.
A grid reference locates a feature precisely.
One-line recall Contour spacing indicates slope.
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CHAPTER 29
Practical 6: Introduction to Aerial Photographs
Quick understanding
Recognise aerial-photo types, scale, perspective and visual clues for interpreting features.
Core points Check your learning
Vertical and oblique photographs differ in camera Identify land use from photo elements.
orientation.
Compare an aerial photograph with a

Tone, texture, shape, shadow, size and association map.
guide interpretation.
Relief displacement and scale variation affect
measurement.
One-line recall Vertical and oblique photographs differ in camera orientation.
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CHAPTER 30
Practical 7: Introduction to Remote Sensing
Quick understanding
Understand how sensors record reflected or emitted energy and turn it into spatial information.
Core points Check your learning
Passive sensors use natural energy; active sensors Choose sensor characteristics for a
transmit their own signal. stated application.
Spatial, spectral, temporal and radiometric resolution Trace a remote-sensing workflow from
describe different capabilities. energy source to map.
Ground verification improves interpretation.
One-line recall Passive sensors use natural energy; active sensors transmit their own signal.
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CHAPTER 31
Practical 8: Weather Instruments, Maps and
Charts
Quick understanding
Observe weather elements and decode station data, isobars and synoptic patterns.
Core points Check your learning
Standard instruments and observation times improve Match weather elements with instruments
comparability. and units.
Weather maps combine many observations at one Interpret a simple station model and
time. pressure pattern.
Closely spaced isobars indicate a stronger pressure
gradient.
One-line recall Standard instruments and observation times improve comparability.
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