HASS – Geography – Knowledge and Understanding

Year 1 AC9HS1K04 how places change and how they can be cared for by different groups including First Nations Australians
Coastal Changes and Protection: • **Topic**: Explore how coastal areas change over time due to natural processes like erosion, tides, and storms. • **Care**: Discuss how coastal areas can be protected through activities like planting vegetation, building sea walls, and community clean-ups. Include the traditional knowledge and practices of First Nations Australians in coastal protection.
Mangrove Ecosystems: • **Topic**: Study the importance of mangroves in protecting coastlines from erosion and providing habitat for marine life. • **Care**: Learn about how First Nations Australians have traditionally used and managed mangrove ecosystems, including sustainable harvesting and conservation practices.
Seagrass Meadows: • **Topic**: Investigate the role of seagrass meadows in stabilizing the seabed and providing food and shelter for marine animals. • **Care**: Discuss how seagrass meadows can be protected from threats like pollution and boating, including the involvement of local communities and Indigenous practices.
Coral Reefs: • **Topic**: Explore how coral reefs change due to natural events like storms and human activities like overfishing and pollution. • **Care**: Learn about efforts to protect and restore coral reefs, including the role of marine protected areas and traditional management practices of First Nations Australians.
Tidal Pools: • **Topic**: Study the changing nature of tidal pools with the ebb and flow of tides and the diverse life they support. • **Care**: Discuss ways to protect tidal pools from human impact, including respecting no-take zones and traditional gathering practices of Indigenous peoples.
Wetlands and Estuaries: • **Topic**: Investigate how wetlands and estuaries change with the seasons and how they provide important habitats for fish and birds. • **Care:** Learn about the importance of these areas for First Nations Australians and how they have traditionally managed and cared for these ecosystems.
Marine Pollution: • **Topic:** Study the impact of pollution on marine environments and how it can lead to changes in these ecosystems. • **Care:** Discuss ways to reduce marine pollution, including community clean-up efforts, recycling programs, and traditional practices of waste management by First Nations Australians.
Shell Middens: • **Topic:** Explore shell middens as historical records of the use of marine resources by First Nations Australians. • **Care:** Learn about the significance of these sites and how they can be protected and respected as part of cultural heritage.

Year 4

AC9HS4K05

the importance of environments, including natural vegetation and water sources, to people and animals in Australia and on another continent

Great Barrier Reef (Australia):

- **Importance to Animals**: Study the diverse marine life that depends on the reef, such as fish, coral, and sea turtles.
- **Importance to People**: Explore how the reef supports tourism, fishing, and cultural significance for First Nations Australians.

Mangrove Forests (Australia and Southeast Asia):

- **Importance to Animals**: Investigate the role of mangroves as nurseries for fish and habitat for birds and other wildlife.
- **Importance to People**: Discuss how mangroves protect coastlines from erosion, support fisheries, and provide resources for local communities.

Coral Reefs (Australia and the Caribbean):

- **Importance to Animals**: Compare the coral reefs in Australia with those in the Caribbean, focusing on their biodiversity and the species they support.
- **Importance to People**: Examine the economic and cultural importance of coral reefs for coastal communities in both regions.

Seagrass Meadows (Australia and Europe):

- **Importance to Animals**: Study the role of seagrass meadows in providing food and shelter for marine animals like dugongs and seahorses.
- **Importance to People**: Explore the benefits of seagrass meadows in maintaining water quality and supporting commercial fisheries.

Freshwater Ecosystems (Australia and Africa):

- **Importance to Animals**: Investigate the biodiversity of freshwater ecosystems, such as rivers and lakes, in Australia and Africa.
- **Importance to People**: Discuss the significance of these water sources for drinking water, agriculture, and cultural practices.

Wetlands (Australia and North America):

- **Importance to Animals:** Examine the importance of wetlands for bird migration, fish breeding, and amphibian habitats.
- **Importance to People:** Explore how wetlands provide flood control, water purification, and recreational opportunities.

Coastal and Estuarine Ecosystems (Australia and South America):

- **Importance to Animals:** Study the biodiversity of coastal and estuarine ecosystems, focusing on species like crabs, fish, and birds.
- **Importance to People:** Discuss the role of these ecosystems in supporting fisheries, protecting against storm surges, and providing cultural value

Polar Marine Ecosystems (Antarctica and the Arctic):

- **Importance to Animals:** Compare the unique marine life in Antarctic and Arctic waters, such as penguins, seals, and whales.
- **Importance to People:** Explore the significance of polar marine ecosystems for scientific research, climate regulation, and the livelihoods of Indigenous peoples.

Saltmarshes (Australia and Europe):

- **Importance to Animals:** Investigate the role of saltmarshes in providing habitat for birds, fish, and invertebrates.
- **Importance to People**: Discuss how saltmarshes help in flood control, carbon sequestration, and supporting coastal economies.

Marine Protected Areas (Australia and Worldwide):

- **Importance to Animals:** Study the benefits of marine protected areas in conserving marine biodiversity and protecting endangered species.
- **Importance to People**: Explore how marine protected areas support sustainable fisheries, ecotourism, and cultural heritage.

HASS – Geography - Water in the World

Year 7 AC9HG7K01 classification of environmental resources and the way that water connects and changes places as it moves through environments
The Water Cycle and Oceans: • **Classification**: Study the role of oceans as a major component of the water cycle, including evaporation, condensation, and precipitation. • **Connections and Changes**: Explore how ocean currents distribute heat and moisture around the globe, affecting weather and climate patterns.
Watersheds and Coastal Areas: • **Classification**: Examine watersheds and how they drain into coastal areas, rivers, and estuaries. • **Connections and Changes**: Discuss how water flow from watersheds impacts coastal environments and the organisms living there.
Marine Resources: • **Classification**: Identify and classify marine resources, such as fish, seaweed, and minerals from the seabed. • **Connections and Changes**: Explore how the extraction and use of these resources impact marine ecosystems and human communities.
Mangroves and Estuaries: • **Classification**: Study mangrove forests and estuarine environments as vital coastal resources. • **Connections and Changes**: Investigate how these environments act as buffers against storms, filter pollutants, and provide habitats for diverse species.
Coral Reefs: • **Classification**: Classify coral reefs as unique marine ecosystems that provide resources like food, medicine, and tourism opportunities. • **Connections and Changes**: Examine how coral reefs are affected by changes in water quality, temperature, and ocean acidification
Marine Pollution: • **Classification**: Identify different types of marine pollution, including plastic, chemical, and oil pollution. • **Connections and Changes**: Discuss how pollution travels through waterways to oceans and the impacts on marine life and human health.
Tides and Coastal Erosion: • **Classification**: Study tides as a natural coastal resource influencing marine and human activities. • **Connections and Changes**: Investigate how tidal movements and wave action contribute to coastal erosion and shape coastal landscapes.
Freshwater and Marine Interactions: • **Classification**: Examine the interface between freshwater and marine environments in estuaries and river mouths. • **Connections and Changes**: Explore how the mixing of fresh and saltwater creates unique habitats and affects water quality and biodiversity.
Marine Biodiversity: • **Classification**: Identify and classify different marine organisms and their roles in the ecosystem. • **Connections and Changes**: Discuss how changes in water temperature, salinity, and quality influence marine biodiversity.
Climate Change and Oceans: • **Classification**: Study the ocean as a crucial environmental resource in regulating Earth's climate. • **Connections and Changes**: Examine how rising sea levels, increased ocean temperatures, and acidification affect marine environments and human communities.

Year 7

AC9HG7K02

the location and distribution of water resources in Australia, their implications, and strategies to manage the sustainability of water

Great Barrier Reef:

- **Location and Distribution**: Study the location and extent of the Great Barrier Reef, the largest coral reef system in the world.
- **Implications**: Discuss the ecological importance of the reef and the threats it faces, such as coral bleaching and overfishing.
- **Sustainability Strategies**: Explore strategies to protect and manage the reef, including marine protected areas, sustainable fishing practices, and coral restoration projects.

Coastal Wetlands:

- **Location and Distribution**: Investigate the distribution of coastal wetlands in Australia, including mangroves, saltmarshes, and estuaries.
- **Implications**: Examine the role of wetlands in providing habitat for wildlife, protecting coastlines, and filtering pollutants.
- **Sustainability Strategies**: Discuss efforts to conserve and restore wetlands, including community involvement and traditional practices of Indigenous Australians.

Rivers and Estuaries:

- **Location and Distribution**: Study the major rivers and estuaries in Australia, such as the Murray-Darling Basin and the Swan River.
- **Implications**: Explore the importance of these water bodies for ecosystems, agriculture, and human settlements.
- **Sustainability Strategies**: Examine water management practices, such as sustainable irrigation, pollution control, and the use of water-saving technologies.

Marine Protected Areas (MPAs):

- **Location and Distribution**: Identify the locations of MPAs in Australia, including the Coral Sea and Ningaloo Marine Park.
- **Implications**: Discuss the benefits of MPAs for biodiversity conservation, fisheries management, and tourism.
- **Sustainability Strategies**: Explore the role of MPAs in protecting marine resources and the involvement of local communities and Indigenous groups in their management.

Groundwater and Aquifers:

- **Location and Distribution**: Investigate the distribution of groundwater resources and aquifers in Australia, including the Great Artesian Basin.
- **Implications**: Examine the importance of groundwater for agriculture, industry, and drinking water supply.
- **Sustainability Strategies**: Discuss strategies to manage groundwater sustainably, such as monitoring usage, preventing contamination, and promoting efficient water use.

Desalination and Water Recycling:

- **Location and Distribution**: Study the location of desalination plants and water recycling facilities in Australia.
- **Implications**: Explore the role of these technologies in providing a reliable water supply, especially in arid and semi-arid regions.
- **Sustainability Strategies**: Discuss the benefits and challenges of desalination and water recycling, including energy use and environmental impact.

Dams and Reservoirs:

- **Location and Distribution**: Identify the major dams and reservoirs in Australia, such as the Warragamba Dam and Lake Argyle.
- **Implications**: Examine the role of dams in water storage, flood control, and hydroelectric power generation.
- **Sustainability Strategies**: Discuss the environmental and social impacts of dams and strategies to mitigate these impacts, such as fish ladders and ecosystem restoration.

Rainwater Harvesting:

- **Location and Distribution**: Study the use of rainwater harvesting systems in urban and rural areas of Australia.
- **Implications**: Explore the benefits of rainwater harvesting for reducing reliance on mains water and mitigating the effects of drought.

Sustainability Strategies: Discuss best practices for rainwater harvesting, including the design and maintenance of systems and the promotion of community adoption.

Year 7
AC9HG7K03
the economic, cultural, spiritual and aesthetic value of water for people, including First Nations Australians

Great Barrier Reef:

- **Economic Value**: Discuss the economic benefits of the Great Barrier Reef, including tourism, fishing, and marine biodiversity.
- **Cultural and Spiritual Value**: Explore the cultural significance of the reef for First Nations Australians, including traditional practices and stories.
- **Aesthetic Value**: Examine the natural beauty of the reef and its appeal to visitors and artists.

Mangrove Forests:

- **Economic Value**: Study the economic importance of mangrove forests in supporting fisheries and protecting coastlines.
- **Cultural and Spiritual Value**: Learn about the traditional uses of mangroves by First Nations Australians, including food, medicine, and shelter.
- **Aesthetic Value**: Discuss the scenic beauty of mangrove ecosystems and their role in coastal landscapes.

Seagrass Meadows:

- **Economic Value**: Investigate the role of seagrass meadows in supporting commercial fisheries and protecting marine habitats.
- **Cultural and Spiritual Value**: Explore the cultural importance of seagrass meadows for Indigenous communities and their traditional ecological knowledge.
- **Aesthetic Value**: Highlight the visual appeal of seagrass meadows and their underwater landscapes.

Wetlands and Estuaries:

- **Economic Value**: Examine the economic benefits of wetlands and estuaries in flood control, water purification, and supporting fisheries.
- **Cultural and Spiritual Value**: Discuss the spiritual and cultural significance of these ecosystems for First Nations Australians, including their role in traditional ceremonies and practices.
- **Aesthetic Value**: Appreciate the natural beauty of wetlands and estuaries and their importance for wildlife observation and recreation.

Coral Reefs in the Pacific:

- **Economic Value**: Study the economic impact of coral reefs in the Pacific region, including tourism and fishing.
- **Cultural and Spiritual Value**: Learn about the cultural connections of Pacific Islander communities to coral reefs and their traditional management practices.
- **Aesthetic Value**: Explore the vibrant colors and diverse marine life of coral reefs that attract divers and photographers.

Freshwater and Marine Ecosystems:

- **Economic Value: Discuss the economic significance of freshwater and marine ecosystems in providing resources like fish, water, and recreation.**
- **Cultural and Spiritual Value: Investigate the spiritual and cultural connections of Indigenous Australians to these ecosystems, including Dreamtime stories and totems.**
- **Aesthetic Value: Highlight the beauty of rivers, lakes, and coastal areas and their inspiration for art and literature.**

Marine Protected Areas:

- **Economic Value: Examine the role of marine protected areas in sustaining fisheries, tourism, and biodiversity.**

- **Cultural and Spiritual Value**: Discuss the involvement of Indigenous communities in managing marine protected areas and their cultural heritage.
- **Aesthetic Value:** Appreciate the pristine beauty of protected marine areas and their value for conservation and recreation.

Traditional Water Management:

- **Economic Value:** Study traditional water management practices of First Nations Australians and their contributions to sustainable resource use.
- **Cultural and Spiritual Value**: Explore the spiritual significance of water in Indigenous cultures and the importance of preserving sacred water sites.
- **Aesthetic Value:** Discuss the aesthetic appreciation of water landscapes in Indigenous art and storytelling.

Ocean Resources:

- Economic Value: Investigate the economic benefits of ocean resources, including fisheries, minerals, and energy.
- **Cultural and Spiritual Value:** Learn about the cultural connections of coastal communities to ocean resources and their sustainable use practices.
- **Aesthetic Value:** Highlight the beauty of ocean environments and their influence on human culture and creativity.

Climate Change and Water:

- **Economic Value:** Examine the economic impacts of climate change on water resources, including sea level rise and changes in fisheries.
- **Cultural and Spiritual Value:** Discuss the effects of climate change on Indigenous communities and their traditional practices related to water.
- **Aesthetic Value:** Appreciate the changing landscapes and seascapes influenced by climate change and the need for conservation.

Year 7

AC9HG7K04

the causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments

Cyclones and Hurricanes:

- **Causes**: Study the formation of cyclones and hurricanes, including the role of warm ocean water, atmospheric pressure, and wind patterns.
- **Impacts**: Examine the effects of cyclones and hurricanes on coastal communities, marine ecosystems, and infrastructure.
- **Responses**: Discuss the measures taken by governments and communities to prepare for and respond to these storms, such as evacuation plans, early warning systems, and building resilient infrastructure.

Tsunamis:

- **Causes**: Investigate the causes of tsunamis, such as underwater earthquakes, volcanic eruptions, and landslides.
- **Impacts**: Explore the devastating effects of tsunamis on coastal areas, including loss of life, destruction of property, and damage to marine habitats.
- **Responses**: Study the strategies used to mitigate tsunami impacts, including tsunami warning systems, evacuation routes, and coastal defenses.

Storm Surges:

- **Causes**: Understand the causes of storm surges, including high winds and low atmospheric pressure during storms.
- **Impacts**: Analyze the impact of storm surges on coastal communities, infrastructure, and marine environments.
- **Responses**: Discuss the preparation and response efforts, such as constructing sea walls, developing emergency plans, and conducting community drills.

Flooding:

- **Causes**: Examine the causes of coastal and riverine flooding, including heavy rainfall, storm surges, and rising sea levels.
- **Impacts**: Study the effects of flooding on communities, ecosystems, and the economy.
- **Responses**: Investigate the measures taken to manage flood risks, such as building levees, improving drainage systems, and implementing zoning regulations.

Drought:

- **Causes**: Explore the causes of drought, including prolonged periods of low rainfall and changing climate patterns.
- **Impacts**: Analyze the impact of drought on water resources, agriculture, and marine life.
- **Responses**: Discuss the strategies used to cope with drought, such as water conservation, desalination, and government policies to support affected communities.

El Niño and La Niña:

- **Causes:** Study the El Niño and La Niña phenomena and their effects on global weather patterns and ocean temperatures.
- **Impacts:** Investigate the impact of these events on marine ecosystems, fisheries, and coastal weather conditions.
- **Responses:** Examine how governments and communities adapt to the changes brought by El Niño and La Niña, including managing water resources and supporting affected industries**.**

Coral Bleaching:

- **Causes:** Understand the causes of coral bleaching, including elevated sea temperatures and ocean acidification.

- **Impacts:** Analyze the effects of coral bleaching on marine biodiversity, tourism, and fisheries.
- **Responses:** Discuss the measures taken to protect and restore coral reefs, such as marine protected areas, coral gardening, and reducing carbon emissions.

Sea Level Rise:

- **Causes:** Investigate the causes of sea level rise, including melting ice caps and thermal expansion of seawater.
- **Impacts:** Examine the impact of sea level rise on coastal communities, infrastructure, and ecosystems.
- **Responses:** Study the strategies to mitigate and adapt to sea level rise, such as building sea walls, relocating communities, and restoring natural barriers like mangroves and wetlands.

Marine Heatwaves:

- **Causes:** Explore the causes of marine heatwaves, including climate change and changes in ocean currents.
- **Impacts:** Investigate the effects of marine heatwaves on marine life, coral reefs, and fisheries.
- **Responses:** Discuss the actions taken to monitor and mitigate the impacts of marine heatwaves, such as establishing marine protected areas and supporting marine research.

Oil Spills:

- **Causes:** Understand the causes of oil spills, including accidents on oil rigs, tankers, and pipelines.
- **Impacts:** Analyze the environmental and economic impacts of oil spills on marine and coastal ecosystems.
- **Responses:** Examine the response strategies, such as containment, cleanup efforts, and policies to prevent future spills.

Year 9 – Geography – Biomes and Food Security

AC9HG9K01
the distribution and characteristics of biomes as regions with distinctive climates, soils, vegetation and productivity

Coral Reef Biomes:

- **Climate**: Study the warm, tropical climates where coral reefs are found.
- **Soils**: Examine the calcareous sediments and the role of calcium carbonate in reef building.
- **Vegetation**: Investigate the diverse marine flora, such as algae and seagrasses, that contribute to reef ecosystems.
- **Productivity:** Discuss the high biodiversity and productivity of coral reefs, supporting numerous marine species.

Kelp Forest Biomes:

- **Climate**: Explore the temperate and cold-water climates where kelp forests thrive.
- **Soils**: Analyze the rocky substrates that kelp attach to and the nutrient-rich waters that support their growth.
- **Vegetation**: Study the giant kelp and other marine algae that form the forest canopy.
- **Productivity**: Examine the high productivity of kelp forests and their role in supporting marine life, including fish and invertebrates.

Mangrove Forest Biomes:

- **Climate**: Investigate the tropical and subtropical climates where mangroves are found.
- **Soils**: Study the saline and waterlogged soils that mangroves thrive in.
- **Vegetation**: Examine the different species of mangrove trees and their adaptations to saline environments.
- **Productivity**: Discuss the high productivity of mangrove forests, providing habitat and nursery grounds for many marine species.

Seagrass Meadow Biomes:

- **Climate**: Explore the temperate and tropical climates where seagrass meadows occur.
- **Soils**: Analyze the sandy and muddy substrates that seagrasses root in.
- **Vegetation**: Study the various species of seagrasses and their role in marine ecosystems.
- **Productivity**: Examine the productivity of seagrass meadows in supporting marine life and maintaining water quality.

Polar Marine Biomes:

- **Climate**: Investigate the cold, polar climates of the Arctic and Antarctic regions.
- **Soils**: Study the icy and nutrient-rich waters that characterize these biomes.
- **Vegetation**: Examine the limited but crucial marine flora, such as phytoplankton and ice algae.
- **Productivity**: Discuss the seasonal productivity of polar marine biomes and their importance for species like krill and polar bears

Open Ocean (Pelagic) Biomes:

- **Climate:** Explore the wide range of climates that the open ocean encompasses.
- **Soils**: Analyze the lack of soil, focusing instead on the water column and nutrient availability**.**
- **Vegetation:** Study the microscopic phytoplankton that form the base of the marine food web.
- **Productivity:** Examine the productivity of the open ocean, supporting vast numbers of fish, whales, and other marine life.

Deep-Sea Biomes:

- **Climate:** Investigate the cold, dark conditions of the deep sea.
- **Soils:** Study the abyssal plains and the unique sediments found in the deep ocean.
- **Vegetation**: Examine the chemosynthetic bacteria and other organisms that thrive in hydrothermal vent communities.
- **Productivity:** Discuss the productivity of deep-sea biomes and the adaptations of organisms to extreme conditions.

Estuarine Biomes:

- **Climate:** Explore the temperate and tropical climates where estuaries are found.

- **Soils:** Analyze the nutrient-rich sediments deposited by rivers**.**
- **Vegetation:** Study the salt-tolerant plants, such as marsh grasses and mangroves, that thrive in estuarine environments.
- **Productivity:** Examine the high productivity of estuaries and their role as nurseries for many marine species.