



Teacher Reference

For
Rainforest Biome on Android Tablet
Team Gaia



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List of Wildlife - Organized by Rainforest

Amazon Rainforest

- Grass
- Grasshopper
- Poison Dart Frog
- Fire-Bellied Snake
- Harpy Eagle
- Bromeliad



South-East Asian Rainforest

- Durian Flower from the Durian Tree
- Dawn Bats
- Flying Snake
- Mongoose
- Bengal Tiger
- Tree Shrew
- Pitcher Plant



Australian Rainforest

- Freshwater Shrimp
- Southern Pygmy Perch
- Duck Billed Platypus
- Saltwater Crocodile
- Carpet Python
- Acacia Tree Ant
- Acacia Tree



African Rainforest

- Swallowtail Butterfly
- Flap-neck Chameleon
- Boomslang Snake
- Crowned Eagle
- Leopard
- Elephant



Reading this Guide

Reading this Guide

Image of Rainforest
in game

Name of Rainforest



Photo-Taking
Game



Bromeliad
Micro
Eco-System



Card
Game

Mini-games located in
said Rainforest

Reading this Guide

Name of Wildlife



Prey- what it eats



Forest Layer in which it is located



Predator - what eats its



Games in which it can be found in the above rainforest



Interesting Facts about the wildlife depicted

- Grasshoppers are one of the few insects that have ears
- Grasshoppers' ears are on their front legs or stomach depending on species
- Grasshoppers live all over the world

Reading this Guide

Name of Wildlife



Relationship - This wildlife has an interesting relationship with the wildlife depicted below - this relationship is shown in a game



Forest Layer in which it is located



Games in which it can be found in the above rainforest



Interesting Facts

- Pineapples are in the bromeliad family
- Most bromeliads live in Brazil
- Bromeliads can live on the ground, on rocks, or on trees

Complete Wildlife Compilation

Amazon Rainforest



Photo-Taking
Game



Bromeliad
Micro
Eco-System



Card
Game

Amazon Rainforest

Grass



Forest Layer



Predator



Grasshopper

Games



Interesting Facts

- Bamboo and sugarcane are types of grass.
- Different kinds of grass grow all over the world
- There are over 6,000 types of grass

Amazon Rainforest

Grasshopper



Prey



Grass

Forest Layer



Predator



Poison Dart Frog

Games



Interesting Facts

- Grasshoppers are one of the few insects that have ears
- Grasshoppers' ears are on their front legs or stomach depending on species
- Grasshoppers live all over the world

Amazon Rainforest

Poison Dart Frog

Stages of
Frog Growth



Prey

Forest Layer

Predator

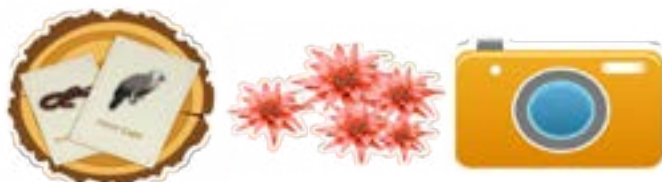


Grasshopper

Fire-Bellied Snake

Games

Interesting Facts



- The poison dart frog lives only in South America
- Poison Dart Frogs are used by natives to coat the ends of arrows and darts in venom
- Poison Dart Frogs gain their venom from the bugs they eat

Amazon Rainforest

Fire-Bellied Snake



Prey



Poison Dart Frog

Forest Layer



Predator



Harpy Eagle

Games



Interesting Facts

- The fire-bellied snake is the only known predator of the poison dart frog
- Fire-bellied snakes live only in South America
- Fire-bellied snakes are also known as *Leimadophis epinephelus*

Amazon Rainforest

Harpy Eagle

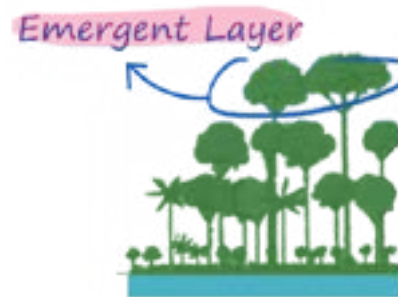


Prey



Fire Bellied Snake

Forest Layer



Games



Interesting Facts

- Harpy eagles live for up to 35 years
- Harpy eagles have no natural predators in their habitat
- Female harpy eagles are bigger than male harpy eagles

Amazon Rainforest

Bromeliad



Relationship



Poison Dart Frog

Forest Layer



Games



Interesting Facts

- Pineapples are in the bromeliad family
- Most bromeliads live in Brazil
- Bromeliads can live on the ground, on rocks, or on trees

African Rainforest



Photo-Taking
Game



Elephant
Herd
Relationship



Card
Game

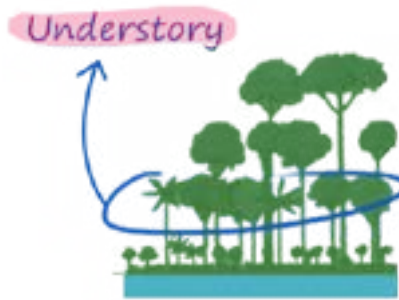
African Rainforest

Swallowtail Butterfly



Forest Layer

Predator



Flap-Neck Chameleon

Games

Interesting Facts



- Wingspan can reach up to 16 centimeters
- Is Africa's second largest swallowtail butterfly
- Can sometimes be closer to green than blue

African Rainforest

Flap-Neck Chameleon

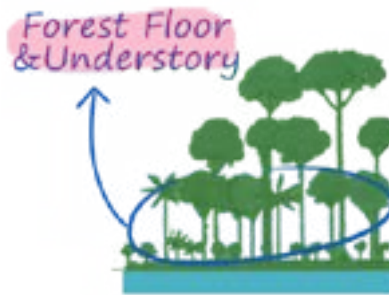


Prey



Swallowtail
Butterfly

Forest Layer



Predator



Boomslang Snake

Games



Interesting Facts

- Can reach up to 14 inches long
- Lay up to 50 eggs when reproducing
- The flap-neck chameleon is sometimes kept as a pet

African Rainforest

Boomslang Snake



Prey



Flap-Neck Chameleon

Forest Layer



Predator



African Crowned Eagle

Games



Interesting Facts

- Can reach up to 5 feet in length
- Can live up to eight years in the wild
- Boomslang snakes are venomous and can be fatal to humans

African Rainforest

Crowned Eagle

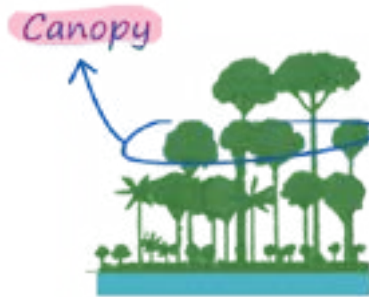


Prey



Boomslang Snake

Forest Layer



Predator



Leopard

Games



Interesting Facts

- Found only in Africa
- Prefers to eat mammals, but will eat snakes and lizards if it has to
- Only living member of the *Stephanoaetus* genus

African Rainforest

Leopard



Prey



African Crowned
Eagle

Forest Layer



Games



Interesting Facts

- Leopards are mostly nocturnal
- Leopards take their food into trees
- Leopards like to live alone

African Rainforest

Forest Elephants



Forest Layer



Games



Interesting Facts

- Elephants live in both Africa and Asia
- Elephants are endangered
- If a baby elephant complains, the entire family of elephants will go over to comfort it.

South-East Asian Rainforest



Photo-Taking
Game



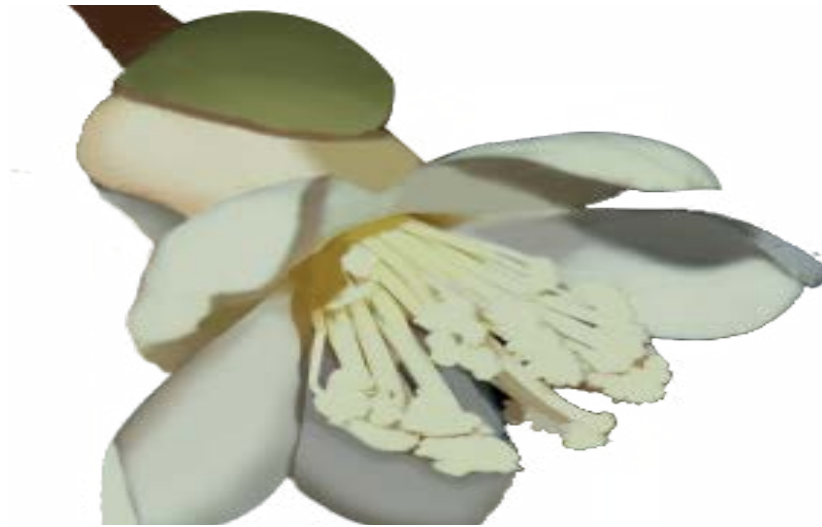
Shrew -
Pitcher Plant
Relationship



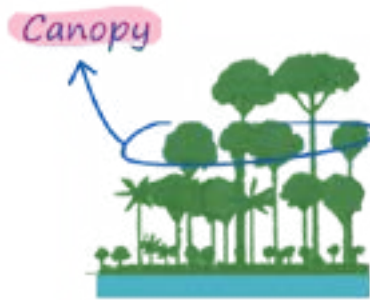
Card
Game

South-East Asian Rainforest

Durian Flower from Durian Trees



Forest Layer



Predator



Dawn bat

Games



Interesting Facts

- Durian trees rely on animals to spread its seeds
- Durian flowers are mostly pollinated by bats
- Durian trees are a subcanopy tree

South-East Asian Rainforest

Dawn Bats

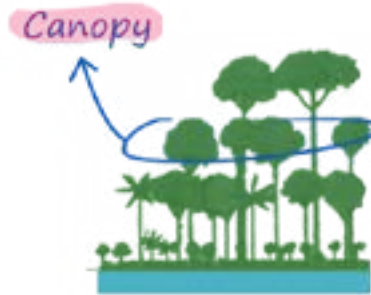


Prey



Durian Flower

Forest Layer



Predator



Flying Snake

Games



Interesting Facts

- Dawn bats are the primary polinator of Durian trees
- Dawn bats live in caves
- Dawn bats are nocturnal

South-East Asian Rainforest

Flying Snakes



Prey



Dawn Bat

Forest Layer



Predator



Mongoose

Games



Interesting Facts

- Flying snakes do not fly, they glide
- There are five known species of flying snakes
- Flying snakes can reach up to 4 feet in length

South-East Asian Rainforest

Mongoose



Prey



Flying Snake

Forest Layer



Predator



Bengal Tiger

Games



Interesting Facts

- Mongooses can be found across Southeast Asia and Africa
- Mongooses live in burrows
- Mongooses eat many things and sometimes will attack venomous snakes

South-East Asian Rainforest

Bengal Tiger



Prey

Forest Layer



Mongoose



Games

Interesting Facts



- Tigers are the largest member of the cat family
- Tigers can weigh up to 500 pounds
- All tigers are endangered

South-East Asian Rainforest

Tree Shrew



Relationship



Pitcher Plant

Forest Layer



Games



Interesting Facts

- Tree shrews are one of the largest shrews
- Tree shrews are active during the day
- Tree shrews can grow up to 8 inches in length

South-East Asian Rainforest

Pitcher Plant



Relationship



Tree Shrew

Forest Layer



Games



Interesting Facts

- Bromeliads can live on the ground, on rocks, or on trees
- Most bromeliads live in Brazil
- Pineapples are in the bromeliad family

Australian Rainforest



Photo-Taking
Game



Acacia Tree
Mutualism



Card
Game

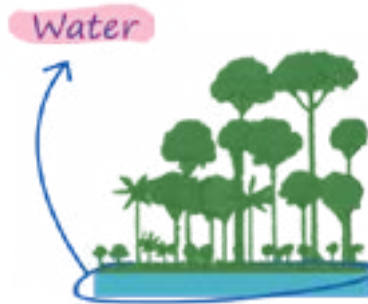
Australian Rainforest

Freshwater Shrimp



Forest Layer

Predator



Southern Pygmy
Perch

Games

Interesting Facts



- Freshwater shrimp are crustaceans
- There are freshwater and saltwater shrimp
- Shrimp live all over the world

Australian Rainforest

Southern Pygmy Perch



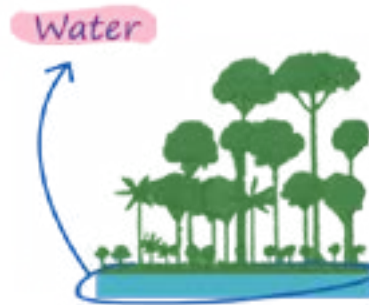
Prey

Forest Layer

Predator



Freshwater Shrimp



Duck Billed
Platypus

Games

Interesting Facts



- Southern Pygmy perch eat shrimp and other small invertebrates
- Southern Pygmy Perch live in water
- Southern Pygmy perch live throughout the waterways of Australia

Australian Rainforest

Duck Billed Platypus



Prey



Southern Pygmy
Perch

Forest Layer



Predator



Salt Water
Crocodile

Games



Interesting Facts

- Platypus are mammals
- Platypus males are venomous
- Platypus lay eggs

Australian Rainforest

Salt Water Crocodile



Prey

Forest Layer

Predator



Duck Billed
Platypus



Carpet Python

Games

Interesting Facts



- Saltwater crocodile are bigger than fresh-water crocodiles
- Saltwater crocodiles are the largest reptile in the world in terms of mass
- Saltwater crocodiles can live in both fresh and salt water

Australian Rainforest

Carpet Python



Prey



Salt Water
Crocodile

Forest Layer



Games

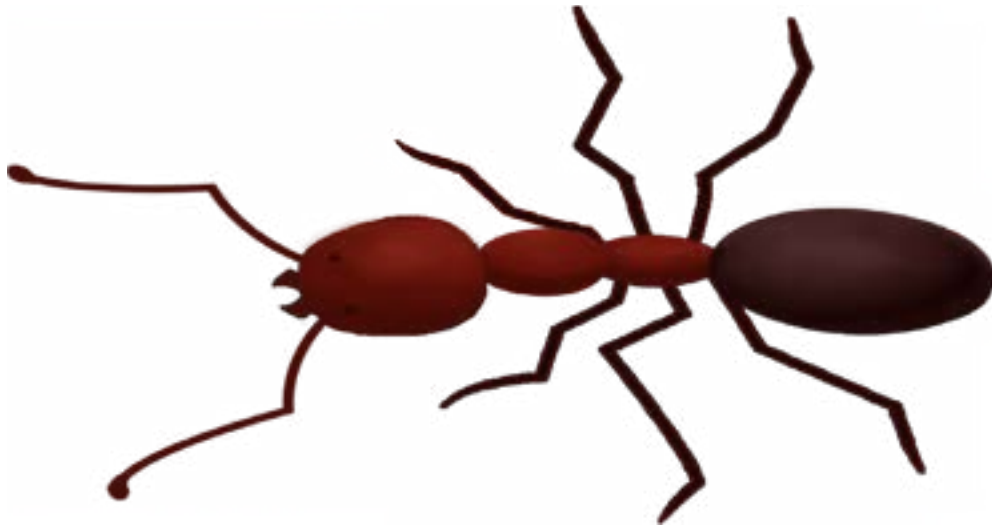


Interesting Facts

- Pythons can eat crocodiles if they are big enough
- Carpet python is normally active at night
- Pythons constrict their prey

Australian Rainforest

Bullhorn Acacia Tree Ant



Relationship



Bullhorn Acacia
Tree

Forest Layer



Games



Interesting Facts

- Live in acacia tree thorns
- Protect acacia trees from predators
- Live only in and on acacia trees

Australian Rainforest

Bullhorn Acacia Tree

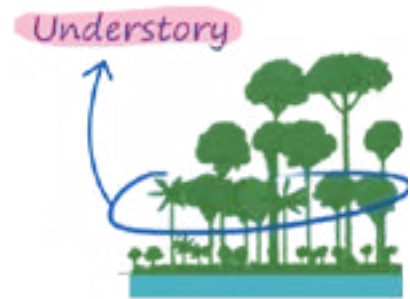


Relationship



Bullhorn Acacia
Tree Ant

Forest Layer



Games



Interesting Facts

- Have ant protectors
- Produce a grain that's only known function is to feed ants
- Most acacia trees live in Australia

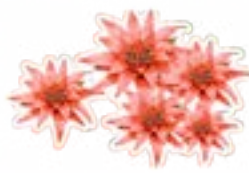
Playing the Games

Playing the Games

There are 6 different games each with its own icon as seen below:



Photo-Taking
Game



Bromeliad
Micro
Eco-System



Card
Game



Acacia Tree
Mutualism



Elephant
Herd
Relationship



Shrew -
Pitcher Plant
Relationship

In this section we will give directions to play in order to aid the students if they get stuck:

Playing the Games

Photo - Taking Game



The photo-taking game teaches kids animal names and appearances.

Animals pop out of the jungle from various locations. To take pictures of the animals, the player taps on them.

There are a few animals the player is tasked with finding, these are shown on the bottom of the screen in order starting from the left. This means that the player cannot proceed in this game without finding the animals in the correct order. Once found the box will be outlined in green and get a check mark.

The game is broken into two rounds, round 1 has the animal's name and silhouette shown. Round 2 has only the animal's name. This was done so the players will need to actually know what the animal looks like in round 2 in order to complete the experience.

The animals are different in each forest. Below are the animals in each forest and the order in which they need to be found.

Amazon Rainforest

- Grasshopper
- Poison Dart Frog
- Fire-Bellied Snake

South-East Asian Rainforest

- Dawn Bats
- Flying Snake
- Mongoose

Australian Rainforest

- Southern Pygmy Perch
- Duck Billed Platypus
- Saltwater Crocodile



African Rainforest

- Flap-neck Chameleon
- Boomslang Snake
- Crowned Eagle

Playing the Games

Card Game



The card game introduces children to food chains.

In the game the player plays cards against a local. Each game shows them a food chain found in the specific region. The local will always play a card first. The player's job is to play the animal that is a direct predator of the opponent's animal. There is a food pyramid in each game in the upper left corner to assist the player in finding a winning card.

In cases where the opponent plays a card at the highest end of the food pyramid we recommend playing the lowest species on the pyramid as they do not eat each other in our game. The total game shows five animals and is broken into two rounds. Round one features animals 1-3, round 2 features animals 3-5, thus showing them an entire food chain.

The animals in each forest and their predator relationships are as follows.

Food Chains Represented in the Game

Amazon

Grass -> Grasshopper -> Poison Dart Frog -> Fire Bellied Snake -> Harpy Eagle

Congo

Butterfly -> Flap Neck Chameleon -> Boomslang Snake -> Crowned Eagle -> Leopard

South East Asia

Durian Flower -> Dawn Bat -> Flying Snake -> Mongoose -> Bengal Tiger

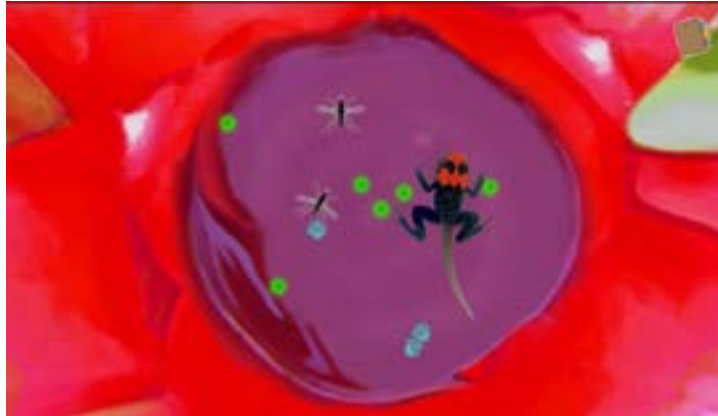
Australia

Freshwater Shrimp -> Southern Pygmy Perch -> Duck Billed Platypus -> Saltwater Crocodile -> Giant Carpet Python



Playing the Games

Bromeliad Game



The bromeliad game is about microecosystems. Through the game the player will manage all levels of a micro ecosystem and raise a tadpole into a poison dart frog. There are a few different steps in this system.

- A leaf will fall into the pool of water
- Tap it three times to break it into bio-food (smaller pieces that microorganisms can eat)
- Once there are 8 pieces of bio-food in the pool a micro organism will show up.
- Microorganisms eat the bio-food. Touch them and drag them to their food (conversely you can drag food to the creature).
- Once a microorganism eats two pieces of bio-food it will reproduce.
- Once there are four microorganisms in the pool a mosquito will show up because they eat microorganisms (in reality the mosquito's larvae eat the organisms, but to simplify it so children can understand we made it just mosquito).
- Touch and drag the mosquitoes to the microorganisms to feed them (conversely you can drag the microorganisms to the mosquitoes).
- Each mosquito needs to eat two microorganisms to reproduce.
- Once there are four mosquitoes a tadpole will show up. It eats mosquitoes drag it to mosquitoes or drag mosquitoes to it to feed it.
- It goes through four stages of metamorphosis eating 3 mosquito to undergo a change in the following format, 1) basic tadpole, 2) tadpole with hind legs, 3) tadpole with hind and front legs, 4) frog.

There is a food chain in the upper left corner of the screen which can act as a reference for players who need to know what creature eats what.



Playing the Games

Elephant Game



The elephant game shows herd behavior, specifically between a mother and a child elephant.

To play it you must tap and hold on the mud pool, this fills the trunk with mud. Then tap and hold on the elephants passing by (specifically the small clean ones). follow the baby elephant with your finger until it is fully muddied and protected from the sun. Once the trunk is empty fill it back up by holding on the mud pool.



Playing the Games

Shrew and Pitcher Plant Game



The shrew and pitcher plant game shows a scientifically documented relationship between pitcher plants and shrews where the plant gets most of its nitrogen from the shrew's droppings. Playing it is simple. There is a bar on the left that shows how much nectar/nutrients the plant has. This bar is filled when the plant eats bugs. Each drop of nectar that is produced detracts from this bar.

As nectar forms bugs show up. To feed the pitcher plant tap and drag the bugs into the pitcher plant's bottom section.

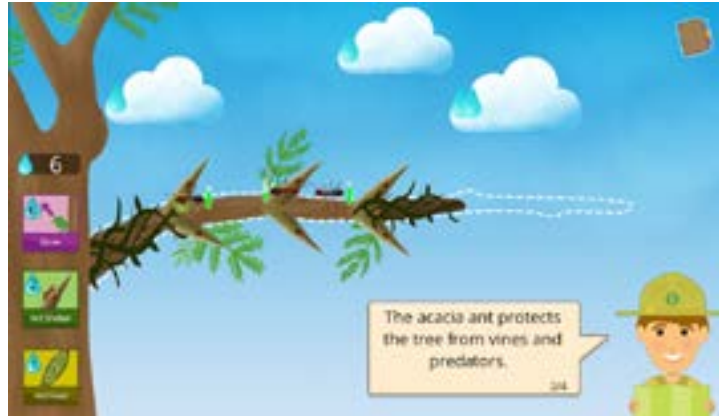
Once there are 8 drops of nectar a shrew will show up. This scares the bugs away. The shrew will eat the nectar.

Tap the shrew's body to make it poop, the faster you tap the faster it poops. The poop makes the plant grow. It takes three visits from the shrew to fully grow the plant and finish the game.



Playing the Games

Shrew and Pitcher Plant Game



The acacia tree game shows a relationship between the acacia tree and acacia tree ants. In nature the tree provides ants with shelter and food, in return the ants act as a defense mechanism.

At the top of the screen there are rain clouds. These produce raindrops at set intervals. By tapping a cloud with a raindrop on it the drop will fall. The goal is to have these drops hit the tree branch. When they do hit the tree's branch they are collected. Icons show up on the right that the player can spend rain drops on. These being Grow, ant shelter, and ant food. Grow grows the tree branch, ant shelter creates a house for ants and releases an ant onto the tree branch, and ant food produces food to feed the ants.

Every now and then an enemy in the form of a strangling vine will grow on the tree. Anywhere where there is a vine on the branch water will not be absorbed. The ants remove the vines from the tree and keep it healthy.



TroubleShooting

TroubleShooting

In case of an error or if the game freezes we suggest:

Option 1: Restart the Game

Please click on the pause button on the top-right of the game screen and select the 'Restart' option

Option 2: Restart the Application

Please quit the application. This is done by closing it via the task manager which comes up on pressing the icon on the right of the home icon on the device's menu bar and restarting the application.

Option 3: Restart the Tablet

Please restart the tablet. This can be done by holding down the power button till the tablet shuts down and then by turning it back on again.

Appendix

Appendix-A

Content Standards

Primary:

Science (S.2.GS.5 - S.2.GS.7):

- Interdependent relationships in ecosystems

Secondary:

English-Reading (ELA.2.R.C3.1 - ELA.2.R.C3.5):

- Integration of knowledge and ideas

Social Studies (SS.PD.2.G & SS.2.G.2):

- Identify the continents and oceans on a map and globe



Appendix-B

Social Studies Content

