Activity Pack: Rainforest Animals

This pack is designed to provide teachers with information to help you lead a trip to Colchester Zoo focusing on Rainforest Animals

How to Use this Pack:

This Rainforest Animal Tour Guide pack was designed to help your students learn about African animals and prepare for a trip to Colchester Zoo.

The pack starts with suggested rainforest animals to visit at Colchester Zoo including a map of where to see them and which encounters/feeds to attend. The next section contains fact sheets about these animals. This includes general information about the type of animal (e.g. what layer of the rainforest they live in, what they eat, etc.) and specific information about individuals at Colchester Zoo (e.g. their names, how to tell them apart). This information will help you plan your day, and your route around the zoo to see the most rainforest animals. We recommend all teachers read through this, and give copies to adult helpers attending your school trip.

The rest of the pack is broken into: pre-trip, at the zoo, and post-trip. Each of these sections starts with ideas to help teachers think of ways to relate rainforest animals to other topics. Then there are a variety of pre-made activities and worksheets. Activities are typically hands on 'games' that introduce and reinforce concepts. Worksheets are typically paper hand-outs teachers can photocopy and have pupils complete independently. Teachers can pick and choose which they want to use since all the activities/worksheets can be used independently (you can just use one worksheet if you wish; you don't need to complete the others).

The activities and worksheets included in this pack are for a range of ages in KS1 and KS2, and a few suitable for early KS3. Activities have the suggested age range and other information on the left-hand side of the page underneath the description. Worksheets have the suggested age and subject in the upper right-hand corner of the page. These are guidelines only. Feel free to use the activities and worksheets for students of all ages.

We suggest using the pre-trip activities/worksheets prior to your trip to familiarise your pupils with vocabulary, context, and the animals they will see during your trip. The at the zoo activities/worksheets typically require information your pupils can gather while they are at Colchester Zoo and are designed for completion during your school trip. The at the zoo worksheets also contain spotters guides where your pupils can check off which rainforest animals they spot. The post-trip activities/worksheets are designed to be used after your visit to help consolidate learning and build on information gathered during your school trip. Within these sections, the activities/worksheets can be used in any order.

If you would like any more guidance, or have any questions about any of the information contained within this pack, please contact our education department at education@colchesterzoo.org

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Rainforest Animals to See at Colchester Zoo:
Download a more detailed map from our website:
www.colchesterzoo.org
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Rainforest Animals to See:

1. Rainforest Walkthrough and Iguana House: **iguanas, tortoises, tamarins** and **marmoset**, towards the entrance from here are the **parrots.**

2. Worlds Apart walkthrough: **sloths, tamarins, marmosets, piranha, anacondas** lots of other rainforest animals!

3. Heart of the Amazing: **tropical fish, squirrel monkeys, saki monkeys.**

4. Orangutan Forest: see the **orangutans.**

5. **Sun bears** at the top of the steep hill**,** and **spider monkeys** further down the hill.

6. Wilds of Asia: **gibbons, hornbills, pythons.** Walk further down to visit Dragons of Komodo and see the **Komodo dragons.**

7. Chimpanzee Lookout: see the **chimpanzees.**

8. Lost Madagascar: ride the train to the **lemurs**. Pupils must be accompanied on the train. Check on the day for the times the train is running.

9. Inside the giraffe building, at the very back and bottom are the **pygmy hippopotamus.**

Feeds and Talks to Attend:

Sun Bear Encounter (5 on map) this is the best time to see these enduring animals moving around instead of sleeping. Check the clocks at their enclosure for times.

Orangutan Encounter (4 on map) watch the orangutans being fed by the keepers. A great time to see them climbing to the roof of their enclosure!

Komodo Dragon Encounter (6 on map) the reptile keepers will tell you all about the enormous animals, and might even be training them.

Monkey Encounter (5 on map), see the monkeys use their amazing balance and climbing skills as they gather food from around their enclosure.

Chimp Encounter (7 on map) the keepers will tell all about them and can answer your questions. You might see the chimps being fed!

Visit www.colchesterzoo.org to see the 'Daily Timetable' for a full list of all talks, feeds, and shows and their times

Please note that times of feeds may change without notice.
Visit the website and ask at entrance for an up to date schedule .

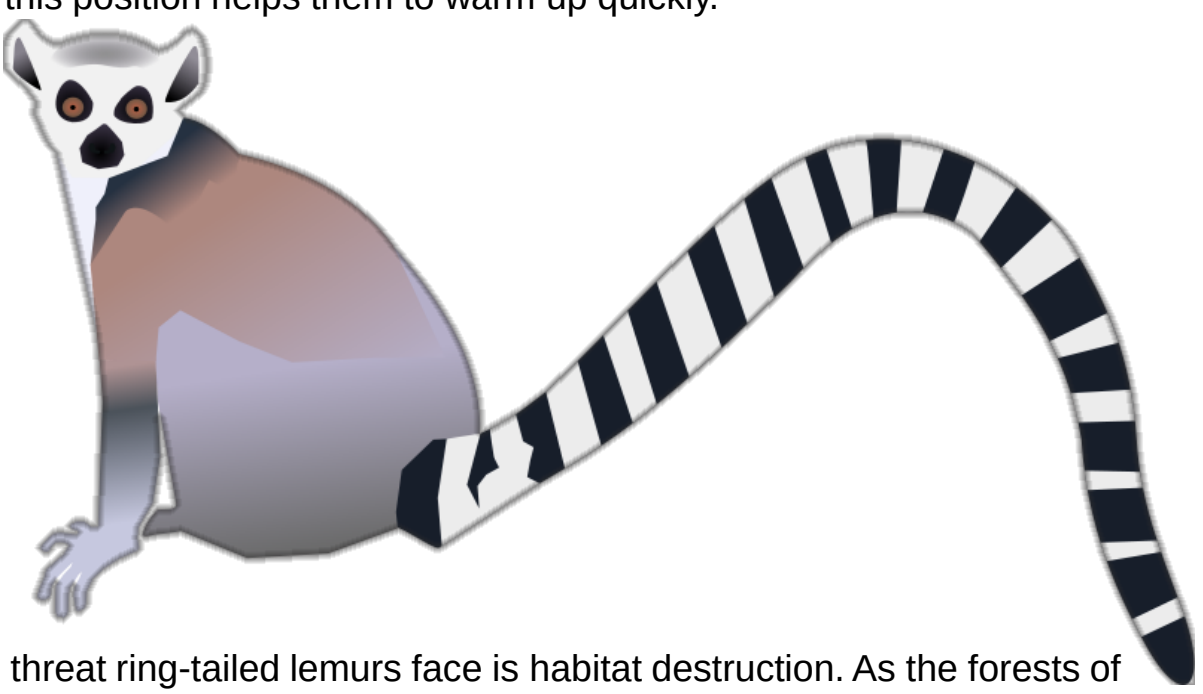
Lemur catta

Ring-Tailed Lemurs

Habitat: Deciduous forests and rainforests on Madagascar
Distribution: Southwest Madagascar
Diet: Mainly fruit, flowers and leaves (sometimes insects)
Longevity: 16-19 years in the wild, up to 27 in captivity
Status: Endangered (IUCN Red List)

Ring-tailed lemurs are the most easily recognised species of lemur due to their distinctive black and white ringed tail. Lemurs have small arms and longer legs with soft leathery skin to provide better grip. Other than their hands and feet, the ring-tailed lemur is covered in soft fur, which is grey on the back, and white underneath.

Ring-tailed lemurs are active during the day. They move around in trees but spend most their time on the ground looking for food or resting. Ring-tailed lemurs have a very characteristic sunbathing position, where they sit up and expose their underside to the sun. The fur on the underside is thinner, and they have very dark skin, and this position helps them to warm up quickly.



The main threat ring-tailed lemurs face is habitat destruction. As the forests of Madagascar are cleared for farming, this lemur (like other species of lemur) has no-where left to live. Lemurs are also hunted for food (bush meat) and caught as pets.

Colchester Zoo has two troops of ring-tailed lemurs. One troop is found in our Lost Madagascar walkthrough enclosure.

To get to Lost Madagascar, start your journey on the ranger guided road train. After riding the train you get a chance to walk in the enclosure with the lemurs! After visiting, ride the train back to the start, or exit next to the lions. All pupils, of any age, must be accompanied on the train.

Pygmy Hippopotamus

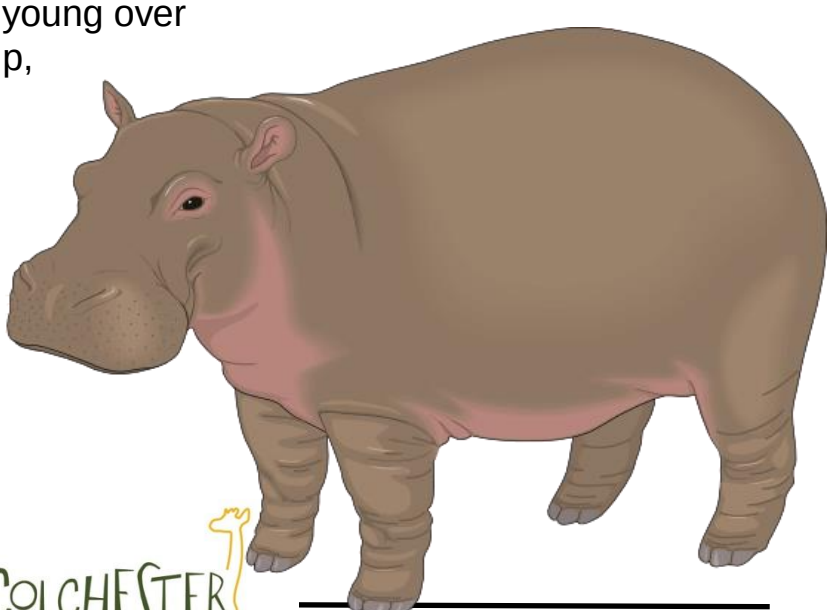
Habitat: **T**ropical rainforest and swamps
Rainforest Layer: Understory
Distribution: Western Africa
Diet: Leaves, shoots, roots and fruit
Longevity: 35 years in the wild, up to 42 in captivity
Status: Endangered

The Pygmy hippo is much smaller than the common hippopotamus. It is only a metre tall at the shoulder and weighs just 272 kg. Young are about the size of a housecat. They have smooth, almost hairless skin that is brown-black. They secrete a white substance from their pores which acts as a moisturiser. Pygmy hippos do not have webbed toes (like the larger hippos) because they spend more time on land. When threatened, they retreat into forest cover than the water.

Despite their small size, pygmy hippos can be aggressive when threated or defending their territory. They are not social animals, preferring to live alone or in pairs, avoiding other hippos. Pygmy hippos have large territories, males cover 160 hectares, females 40—60 hectares. They have several resting places which they exclusively use for sleeping. They are nocturnal, usually active between 6pm and midnight when they wander around the forest floor in search of fallen fruit and other food.

Because pygmy hippos have such large ranges, they are severely effected by deforestation. They are also endangered due to hunting for food and hunted for their teeth. They are hard to study in the wild, but estimates suggest there are fewer than 3,000 left in the wild.

Colchester Zoo has two adult pygmy hippos; a male called Freddy and a female called Venus. They are part of an international breeding programme and have had several young over the years. When the young grow up, they move to other zoos around the world to aid with the progression of the breeding programme.



Varanus komodoensis

Komodo Dragon

Habitat: Dry grasslands, savannahs and (monsoon) rainforests
Distribution: Indonesian islands of Komodo, Rinca, Gili Motang, Gili Dasami and Flores.
Diet: Deer, wild boar, and snakes, will also eat fish and smaller Komodo dragons
Longevity: Up to 50 years in the wild, presumed longer in captivity
Status: Vulnerable

Komodo dragons are the world's largest, land-living lizard and can reach lengths of almost 3m. They are a member of the monitor lizard family. Their tail is longer than their body. They have a long, thick neck and flattened body with short legs and sharp claws on the end of their toes. The adults vary in colour from dark red through to grey black.

Komodo dragons use their long yellow tongue and keen sense of smell to find their food, usually rotten, dead animals. They can smell rotten food from almost 10km away. They are mainly scavengers but will also hunt animals such as pigs and water buffalo. They use their serrated teeth to injure their prey. Within their mouths, they have deadly bacteria and a unique venom, all of which are put into the prey through the injury. The komodo will then watch and wait for its prey to slowly die of blood poisoning caused by the bacteria (and helped by the venom).

In the wild, their populations are currently stable but because Komodo dragons are limited to islands they are at risk from natural disasters (e.g. storms), and human activities (e.g. poaching and habitat destruction).

Colchester Zoo has several komodo dragons in various exhibits around the zoo. Colchester Zoo was the first zoo in the U.K. to breed Komodo dragons naturally aiding the Komodo dragon European Endangered Species Breeding Programme (EEP)

Pan troglodytes

Chimpanzees

Habitat: **T**ropical rainforest and savannah
Distribution: Guinea and Ghana in West Africa, across to Tanzania
Diet: fruit, flowers, insects, and meat
Longevity: 40 - 45 years
Status: Endangered (IUCN red list)

Chimpanzees are human's close living animal relative. Their hind feet are adapted to climbing trees with a big toe just like a thumb. Like humans, chimps are omnivores. They eat a lot of fruit, and forage for this in small parties of 3-6 individuals. Chimps are very intelligent and use tools to extract insects from nests. Chimps also hunt in groups when going after larger prey such as young monkeys, wild pigs and antelopes.

Chimps are apes, not monkeys. One easy way to tell the difference is that apes do not have tails, but monkeys have tails.

Chimpanzees have many threats. The rainforests where they live are destroyed for logging and to make room for agriculture. Chimps are hunted by poachers for bush meat. Because they are related to humans, chimpanzees can also get sick and die from many of the same illnesses and disease that infect humans.

Colchester Zoo has 8 chimps; 3 males and 4 females. Male and female chimps are easy to tell apart because female have very large bottoms. Each individual has different facial features and behaviours. Tara has the biggest bottom, and Kora has less hair than the others. Tara is mother to Tekita. Tekita is mother to Tumba (the chocolate coloured one), and our youngest/smallest chimp Talia. Pippin is the largest male of our group. Finally, there is Tombe, the medium sized male and now our dominant male.

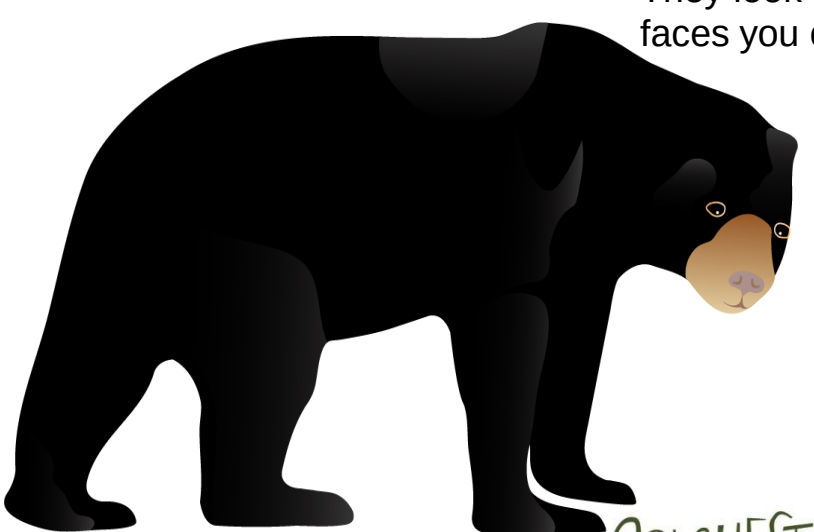
Helarctos malayanus

Sun Bears

Habitat: Dense rainforests
Distribution: South-eastern Asia
Diet: Termites, bees, other insects, honey, vegetation, fruit, nuts, birds and other small vertebrates
Longevity: Up to 25 years
Status: Vulnerable

Sun bears are the smallest of all eight bear species. They are called the 'sun bear' due to their white-golden crescent marking on their chest, which in ancient Eastern folklore, represents the sun. Another name for the sun bear is the honey bear, because they love honey (honey comb and bees as well!). The sun bear is excellent at climbing trees. The pads of their feet are smooth and hairless to help them grip, and their long claws help them grab while climbing. Their claws are also good for ripping open termite mounds and tearing apart bee nests to get food. Sun bears are most active at night, and during the day can be found sleeping and sun bathing in tree branches.
Sun bears are classed as vulnerable, and have rapidly declining numbers. Their main threat in the wild is habitat loss. They are a rainforest species, and the forest they live in are cut down for wood products and clearing land for farming. They are also illegally hunted, for use in bear paw soup or traditional medicine (which uses bear gall bladders). Because they are so small, they are also targeted by the illegal pet trade.

Colchester Zoo has two sun bears which had a hard start to life. The boy, Jo-Jo was confiscated from a bar in Cambodia when he was 6 months old. He was kept in a tiny cage to amuse tourists. Srey ya, the girl, was confiscated by anti-poaching patrols. She was so small, she only weight 300g, had barely any fur and her eyes weren't even open! Luckily for our bears, they were rescued, and now have an easy life at Colchester Zoo.



They look very similar, but if you study their faces you can tell them apart. Jo-jo has a tan muzzle, and the rest of his face is black. Srey ya has faint gold-tan markings above her eyes, like she's wearing golden eye shadow.

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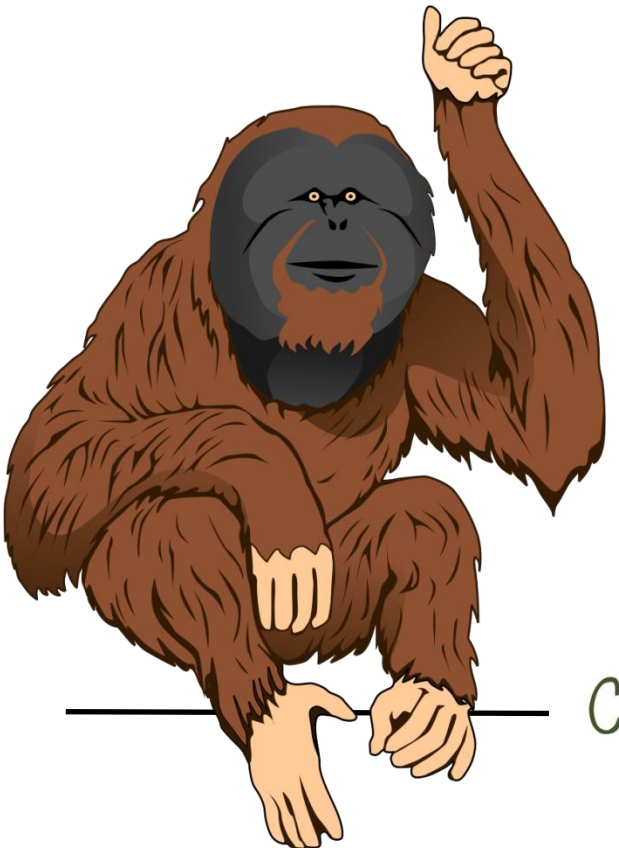
Pongo pygmaeus

Bornean Orangutan

Habitat: Tropical rainforest
Distribution: Borneo and Sumatra
Diet: Mainly fruit, also leaves, bark, nuts, eggs and small vertebrates
Longevity: Up to 35 in the wild, and 50 in captivity
Estimate number in wild: ~54,000
Status: Critically Endangered

The name orangutan means ‘man of the woods’ from the Malay words: orang meaning ‘man’ and utan meaning ‘forest’. Orangutans are very well adapted to life in the rainforest. Their long red-orange fur helps camouflage them (red is hard to see in rainforests, because red light is absorbed by the green leaves). They have long arms (almost twice the length of their legs), perfect for swinging through the forest. Their hands and feet are large and curved, providing them with excellent grip. Adult males have facial flanges and a large throat pouch. These help the males make extra loud noises when they communicate with other orangutans far away in the forest. This communication is usually about territory, since orangutans are usually solitary (unlike the other great apes: chimpanzees, bonobos and gorillas). Orangutans are highly intelligent, using leaves as umbrellas and sticks to catch fish.

Orangutans are critically endangered. Their major threat is habitat loss, which is especially problematic because the only place they live are the islands of Indonesia. The rainforests of Indonesia are being cut down to create palm oil plantations. This is a very high profit crop and it is thought that 10% of all supermarket products contain it. As the rainforest is cut down, orangutans don’t have anywhere else to live.



Colchester Zoo has two orangutans, Rajang and Tiga, both male. Rajang is a hybrid Bornean and Sumatran orangutan born in a zoo in 1968. Tiga is a pure Bornean orangutan, born in 2001. Tiga has slightly darker fur and more forward facing cheek pads. The easiest way to distinguish them is their behavior. Rajang was raised by people as a baby, so he has a very inquisitive nature and loves to watch people up close. If the orangutan is close to the glass and looking right at people, it is probably Rajang.

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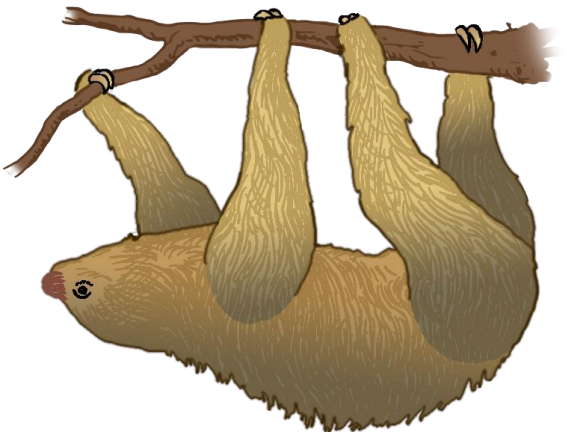
Suborder: Folivora

Sloth



Amazing Adaptation: Living upside-down
Habitat: Tropical rainforests
Rainforest Layer: Canopy and understory
Distribution: Northern South America
Diet: Leaves, fruits, and occasional insects
Longevity: Over 30 years in captivity
Status: Varies by species

This unusual leaf-eating animal spends most of its solitary life hanging upside down in the forest canopy. It carries out the majority of its activities in this position such as eating, sleeping and even giving birth! It rarely comes down from the trees only to defecate (go to toilet). It only does this once a week, and digs a hole to bury it so that predators can't find the sloth by smell. They have many adaptations the help them live upside down, including **upside-down organs**, **long gripping claws**, and **backwards fur (that grows from their belly towards their back)**. Their fur also has special grooves in it that algae grows in. This helps camouflage the sloth by making them green in colour, and also provides a handy snack if they get hungry.

Sloths are one of the slowest animals in world, moving at an average speed of 0.5km per hour, but they are capable of moving at about 1.6km per hour. Sloths are also remarkably good swimmers, this is an adaption to deal with the annual flooding of the rainforest.

There are six different species of sloth. Some of them are widespread and others are critically endangered with very few left. Habitat loss is the biggest threat for all species of sloth. Some are also captured for the pet trade.

Colchester Zoo has Linnaeus Two-toed Sloths (*Choloepus didactylus)* and are native to South America. The sloths live in two pairs. Tucurui (male) and Gallina (female) live in the World's Apart Enclosure. The other pair, Calypso (male) and Carmen (female) live in the Rainforest Walkthrough Enclosure.

Family: Callitrichidae

Marmosets and Tamarins


Golden lion tamarin

Habitat: Rainforests and deciduous forests
Rainforest Layer: Emergent, canopy and understory
Distribution: South and Central America
Diet: Mainly fruit, flowers, tree sap, leaves and insects
Longevity: About 10 years in the wild, up to 18 in captivity
Status: Some are common, others are critically endangered

Marmosets and Tamarins are some are the smallest monkeys. All marmosets and tamarins live in South and Central America and belong to the group of monkeys called 'New World Monkeys'. They are all members of the family Callitrichidae.


Geoffroy's marmoset

All callitrichids live in trees. They have gripping claws to help them climb They also have long tails. They can't grab with these tails but instead use them for balance (like a squirrel). These tiny monkeys are very active, jumping around in the canopy layer of forests in search of food.

Callitrichids typically live in small, territorial groups. In these groups they work together to raise their young. Young ones will typically remain with their parent's group for a few years to help care for their younger siblings before finding a new group.

Marmosets and Tamarins are classified into different groups based on their teeth. Tamarins have very large front teeth, which help them gouge holes in trees to get out insects. Marmosets have smaller front teeth. They also have differences in behaviour. Marmosets are very territorial and will aggressively defend themselves. Tamarins are much more timid and typical hide when frightened or challenged.

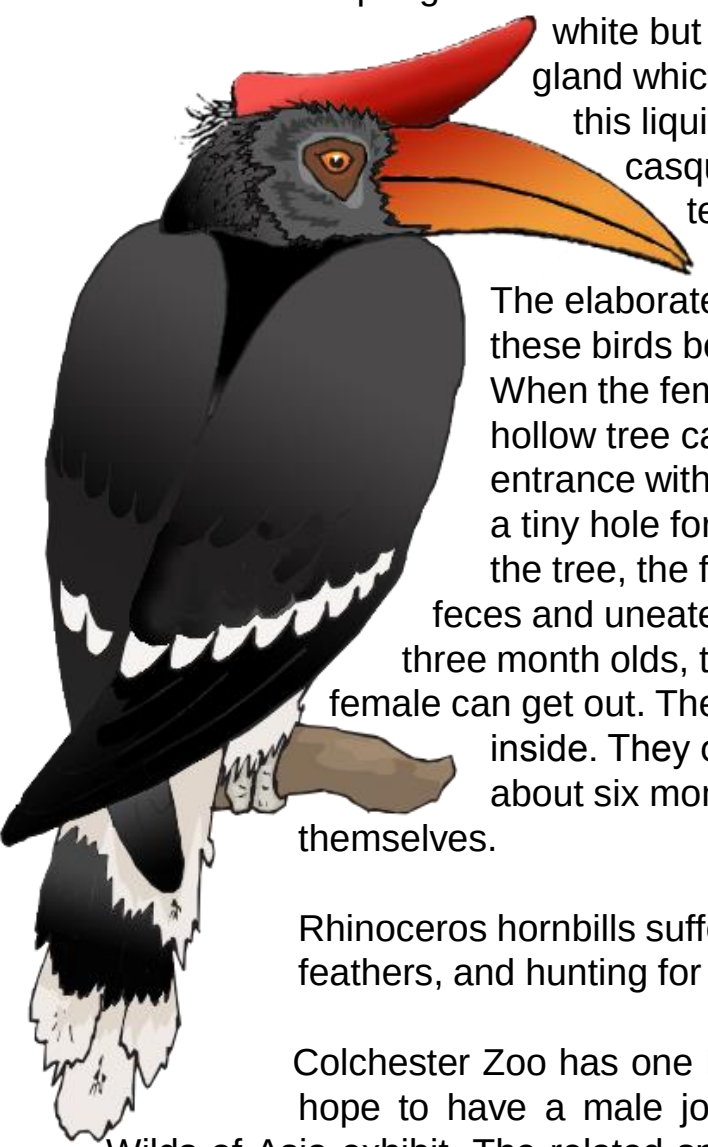
Colchester Zoo has many different types of these tiny monkeys. Most of them are in the Rainforest Walkthrough, Worlds Apart Walkthrough or by Wilds of Asia. Some of the species housed at the zoo include: silvery marmoset, very small with goblin ears; Geoffroy's marmoset with a white face and black ear tuffs; Goeldi's marmoset, covered in fluffy black fur; emperor tamarin with a long white moustache; pied tamarin with a distinct two-colour body; golden lion tamarin, bright orange and a large orange mane; and the golden-headed lion tamarin, black with a bright orange mane.

Buceros rhinoceros

Rhinoceros Hornbill

Habitat: Rainforest
Rainforest Layer: Emergent and canopy
Distribution: Southeast Asia: Brunei, Indonesia, Malaysia, and Thailand
Diet: Fruit, insects, small reptiles, rodents and smaller birds
Longevity: Up to 35 years in the wild and up to 90 in captivity
Status: Near threatened (IUCN Red List)

The rhinoceros hornbill is one of the largest hornbill species (large duck sized) and has a very elaborate casque (the pointy 'double-beak' on top of its beak). This bony casque is very light — composed of a thin outer covering of beak that is filled with a sponge like cellular tissue. The beak and casque are naturally white but the birds constantly rub them against a tail gland which secretes an orange-red fluid. Over time this liquid colours their beak and casque. The casque is used for elaborate courtship and territorial displays.



The elaborate courtship displays are very important for these birds because the female needs to trust the male. When the female is ready to lay eggs, she climbs inside a hollow tree cavity. The male and female then seal up the entrance with a paste of mud, fruit, and feces. They leave a tiny hole for the male to bring the female food. Inside the tree, the female keeps the nest clean by shoving feces and uneaten food back out. After the chicks are about three month olds, the parents break open the nest so the female can get out. They then seal the nest back up with the chicks inside. They continue bring the chicks food until they're about six months old and able to break out of the nest themselves.

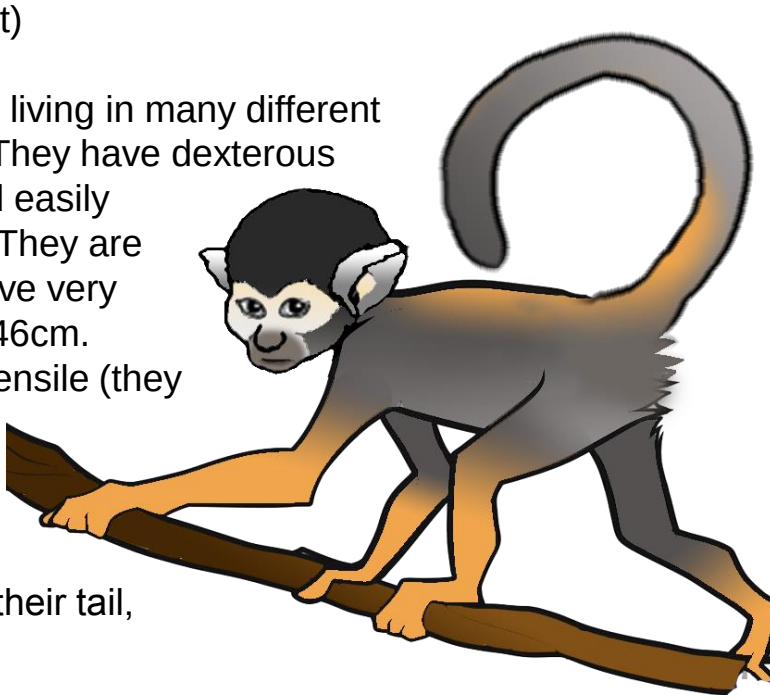
Rhinoceros hornbills suffer from loss of habitat, poaching for their feathers, and hunting for food

Colchester Zoo has one Rhinoceros hornbill. Her name is Hettie. We hope to have a male join her in the near future. She lives by the Wilds of Asia exhibit. The related species, rufous hornbills, with redder feathers and smaller casques can be seen next to the Guest Services building.

Saimiri sciureus

Squirrel Monkey

Habitat: Rainforests, riverine forests and mangrove swamps
Rainforest Layer: Canopy and understory
Distribution: South America; Ecuador and Venezuela to Brazil, Bolivia and Peru
Diet: Fruit, nuts, eggs and animal prey including insects and eggs
Longevity: Up to 21 years
Status: Not threatened (IUCN Red List)



Squirrel monkeys are highly adaptable, living in many different habitats and eat lots of different food. They have dexterous hands which let them move quickly and easily through the tree canopy or understory. They are small monkeys, only 30cm long, but have very ong tails. Their tails can be as long as 46cm. Juvenile squirrel monkeys have a prehensile (they can grab stuff with it) tail. Their tails help them hold on and keep them safe while they're learning how to balance and move around the trees. Adult squirrel monkeys can't grab with their tail, they just use it for balance.

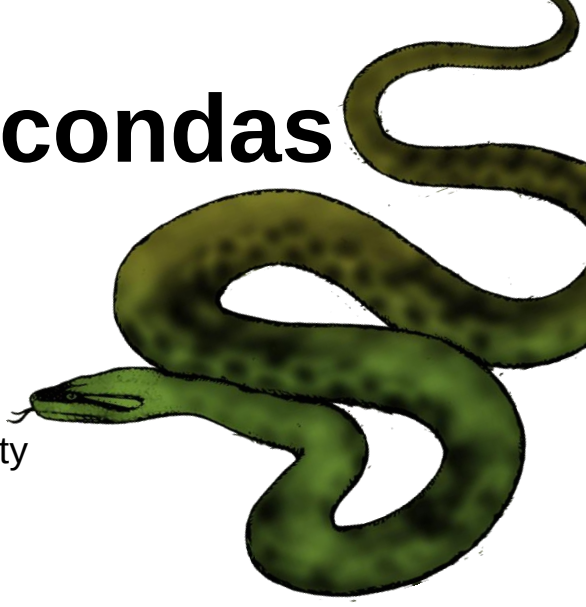
Squirrel monkeys are very social animals and can live in large troops of up to 30 to 50 animals. In the wild, Squirrel monkeys will live near capuchin monkeys because the capuchins react quickly to danger alerting all animals nearby, and helping keep the squirrel monkeys safe.

Squirrel monkeys are fairly intelligent monkeys. They communicate to others in their group in numerous ways. For example, they will often urinate on their hands and feet, so that while they are climbing through the trees they leave a scent trail without needing to stop.

The squirrel monkey is vulnerable in the wild because of habitat loss due to slash and burn agriculture in the rainforests. They are also caught in the wild for the pet trade.

Colchester Zoo has multiple groups of squirrel monkeys. The largest group is housed in the Heart of the Amazon. There are many females in that group and most years there are babies. Its easy to identify the young monkeys because they are still able to grab with their tails.

Pythons and Anacondas



Green Anaconda

Burmese Python
Habitat: Rainforests and wetlands
Rainforest Layer: Understory and forest floor
Distribution: Southern Asia
Diet: Small mammals, deer, pigs and monkeys
Longevity: 20-30 in wild, over 40 years in captivity
Status: Near threatened (IUCN Red List)

Green Anaconda
Habitat: Rainforests, streams, and wetlands
Rainforest Layer: Forest floor
Distribution: South America, east of the Andes
Diet: Large rodents, tapirs, pigs, fish, turtles, birds and aquatic reptiles
Longevity: 10-15 years in wild, over 30 years in captivity
Status: Near threatened (IUCN Red List)

These are some of the largest snakes in the world. Burmese pythons are up to 7.6m long, but comparatively lightweight. Green anacondas are heavier and snake only 5m could weigh over 90kg! The longest ever recorded anaconda was 6.3m long, potentially much longer snakes (over 12m long!) could exist in the dense rainforest.

Both snakes are very good swimmers and can stay underwater for over 30 minutes. They also hide in the water with just their nose above the surface. They will stay like this for hours waiting for prey. The snakes have an excellent sense of smell. They also have heat sensors that detect when prey is near. When they catch prey, they grab it with their long teeth, and then constrict it, wrapping their bodies around the prey to crush it. They are not venomous.

Rainforest destruction threatens the habitat of both species. Larger snakes are also hunted for their skin. Juveniles of both snakes are frequently caught for the pet trade.

Colchester Zoo's largest snakes are the Burmese Pythons in Wilds of Asia. Sasha is the longest at 6m and lives with male Solomon. There are smaller (but still large) green anacondas in the Worlds Apart Exhibit.

Burmese Python

Pre-Trip Classroom Ideas:

These are ideas to get teachers thinking about different activities to teach pupils about the rainforest and the zoo. Use these ideas as a starting point with or without the pre-made activities and worksheets on the next pages.

1. Learn vocabulary words with students (see next page for list)

2. Discuss the term 'endangered'. For older pupils investigate different levels of conservation status: extinct, endangered, threatened, least concern, etc.

3. Play a guessing game about zoo animals. Count and graph how many clues it takes for each animal. Which animals are easiest to guess?

4. Have students create food chains showing connections between rainforest animals. Students will need to research animal diets.

5. Plan an imaginary trip to a rainforest (Amazon rainforest, Congo Basin, Pacific Islands rainforest, etc.). Have students plan their travel routes and determine how long it will take to reach their destination. Students could also research destination cities or national parks including information on populations, industries and animals species that live there.

6. Use a Venn diagram to compare and contrast the UK and a tropical country filled with rainforests (e.g. Brazil, Indonesia). Draw two overlapping circle and fill them in. The areas where the circles overlap contain attributes that both share. The portions that don't overlap contain unique attributes. These Venn diagrams could focus on human populations, animals found there, ecosystems, habits and geography, etc.

7. Cut pictures from magazines or find pictures online and make a class collage of animals they want to see at the zoo. The collage could focus on animals with similar adaptations, animals that live in the same habitat etc.

8. Read about what animals need to survive in their habitat. Pupils can design a zoo living space for their favourite animal. Make sure all the animal's needs are met. Follow this up at the zoo by investigating the enclosures and seeing how they compare.

9. Write descriptive words to describe zoo animals, for example describe: orangutan's fur, parrot feathers, python scales, etc.

Pre-Trip Classroom Ideas:

Vocabulary Words:

Adaptation:	A body part or behaviour that helps and animals survive (teeth, trunk, etc.)
Camouflage:	Colours and patterns that help and animal blend into its surroundings
Canopy:	A layer of the rainforest; the second highest layer, the tops of most trees
Carnivore:	An animal that mainly eats meat
Deforestation:	Removal of the forest to use the land for something else (e.g. farms)
Emergent:	A layer of the rainforest; the very top layer with a few trees higher than everything else around them
Endangered:	Very few left, it faces major threats, and it might go extinct
Extinct:	All of that species is now dead; it is no longer found anywhere
Forest Floor:	A layer of the rainforest; the bottom layer, lots of thick roots, mud and plants
Habitat:	The type of place an animal lives (e.g. savannah, rainforest, etc.)
Herbivore:	An animal that mainly eats plants
Omnivore:	An animal that eats plants and meat
Predator:	An animal that hunts and eats other animals
Prey:	An animal that is eaten by other animals
Rainforest:	A forest habitat with lots of plants, lots of animals and lots of rain (also called a jungle)
Scavenger:	An animal that feeds on dead animals
Understory:	A layer of the rainforest; underneath the canopy, lots of vines and very dark, not all the way to the ground

Pre-Trip Classroom Activities:

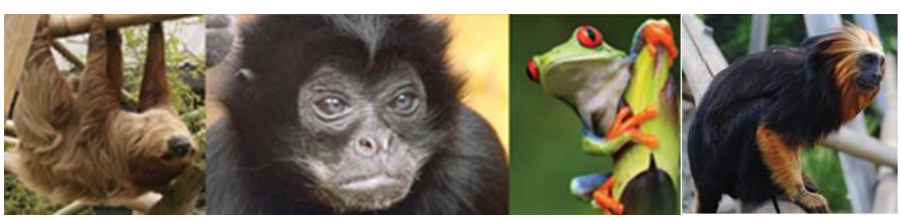
Rainforest Layers:

EMERGENT LAYER 40 metres +

This is the top layer of the rainforest. The trees here receive the most sunlight and can grow to 60 metres tall!
Animals include: parrots, hornbills, butterflies.

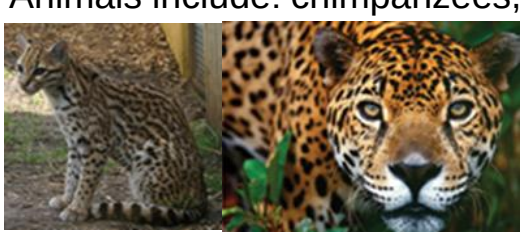
CANOPY LAYER 30-40 metres

Estimates suggest 50% of ALL plant species are found this layer of the rainforest.
Animals include: orangutans, monkeys, frogs.



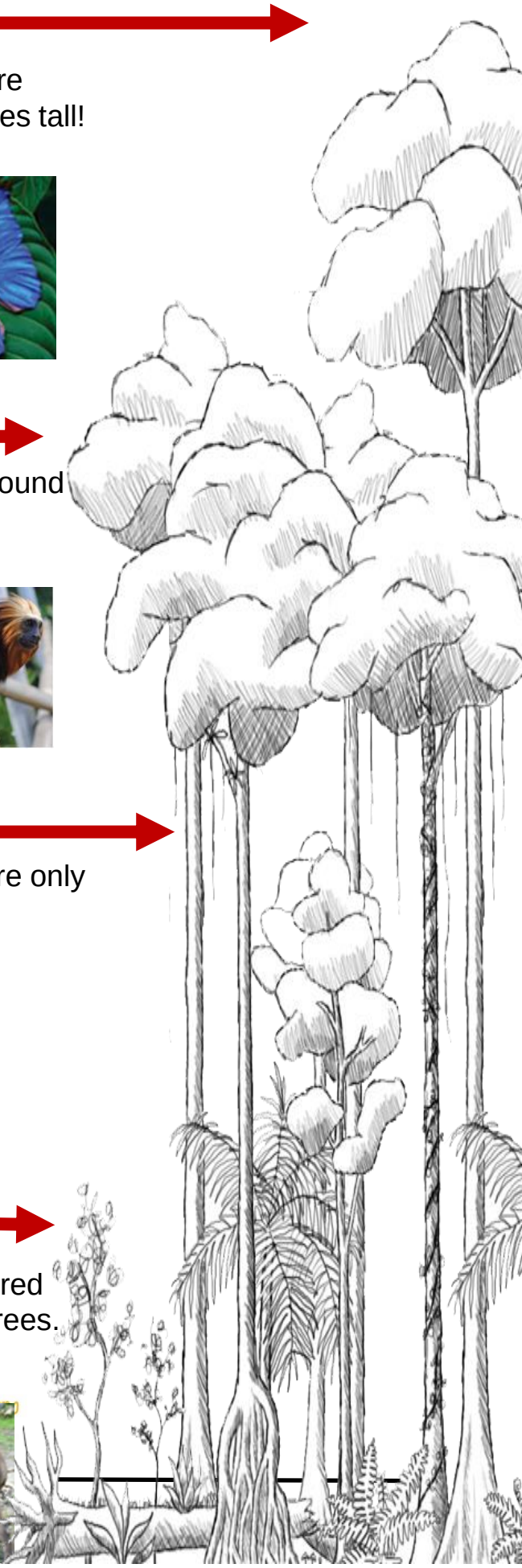
UNDERSTORY LAYER 5-30 metres

Very little sunlight reaches this area. The trees here only grow up to around 6 metres tall.
Animals include: chimpanzees, Burmese pythons.



FOREST FLOOR LAYER 0-5 metres

This is the darkest area of the rainforest; it is covered by a layer of leaf litter and fruit dropped from the trees.
Animals include: pygmy hippos, ants, anacondas.



Pre-Trip Classroom Activities:

Food, Water, Shelter, Space

This activity helps pupils visualise the importance of good habitat

Time: 10-20 minutes
Ages: Year 2 and up (ages 6 and up)
Subjects: Physical Education, Maths
Materials Required: Cups and pom-poms

Prior to this activity teach the pupils the essential components of habitat: food, water, shelter and space. Review these components and create actions for them, e.g. food = rub belly, water = cupped hands to lips, shelter = hold hands over head, space = hold hands open wide.

Mark two parallel lines on the floor on either side of a room. Ask two volunteers to be zebra and have them stand behind one of the lines. The rest of the class is the habitat, have them stand behind the line on the other side.

Explain that the zebra need to find food, water, shelter and space in their habitat in order to survive. Have both groups turn around with their backs to each other. Everyone needs to choose a habitat component and make an action for them. Remind them that they are not allowed to change their action. At the teacher's signal, both groups turn continuing to show their component action. Habitat stays where they are, and the zebras run across the room and finds the habitat component that matches them. The zebras bring their matching habitat component back to their line, where they now become zebras, representing successful years resulting in more zebra offspring. Any zebra that don't find their match die, rot, and become part of the habitat, and go stand behind the habitat. Repeat.

After each round have the pupils count how many zebra are alive. Place pom-poms in the cups to represent this (two zebra, two pom-poms), with a new cup for each round. Each round represents a year. Continue the game for at least five years. Some years there will be lots of zebras, some years not as many.

At the end of the game, discuss what happened. Show the pom-poms and make a graph of them indicating the changing zebra population. Have older pupils construct graphs based on this data. Explain that the results show that when the habitat meets all their needs there can be many animals, and when the habitat has problems (e.g. drought with no water) the animal populations decline.

Pre-Trip Classroom Activities:

Animal Mixer

How do animals communicate with each other? What makes animals unique and different from other animals? Pupils will think about this when they work to communicate without speaking

Time: 15 minutes
Ages: Reception and older (ages 5 and up)
Subjects: Drama, Physical Education, Science
Materials Required: Animal pictures, one per pupil

Start with a discussion of how animals communicate and how the pupils would communicate if they were animals. For younger pupils it's a good idea to give examples (e.g. chimp howl, snake hiss etc.). Then discuss how animals that don't make noise communicate. Do they twitch their whiskers or stand in funny positions or swish their tail? Once the students have all thought about how animals communicate, explain that they are going to become animals.

Many animals live in groups (can tie this into a discussion of monkeys living in troops, etc.). Once they have all assumed their animal identities, the pupils need to find the rest of their animal group. However, they can't speak, so to find their group they must communicate like animals!

Explain that they will be given a picture of an animal they need to act like. When the pictures are handed out they should look at it, but they need to keep it secret and not tell anyone what it is. After everyone has a picture, have them get started and try to find the other pupils in their group by making the appropriate animal action/sound. Once they find someone in their group, stay with them and try and find more. Continue until all the animals are in their group. As a conclusion go through the groups and have each demonstrate how they managed to find each other.

* To make it easier, hand out the same number of pictures of each animal, e.g. in a class of 30 hand out 6 pictures of 5 different types of animals (6 chimpanzees, 6 pythons, etc.). To make it harder, have uneven groups of animals, e.g. 3 chimpanzees, 9 squirrel monkeys, etc. Ensure you tell the pupils if the groups are uneven of they may be confused.

Pre-Trip Classroom Activities:

Monkey Ears

Monkeys have eyesight similar to ours, but instead of just relying on sight, they stay alert for predators using hearing. What would it be like to be a monkey? Can they hear the predator coming?

Time: 15 minutes or more
Ages: Year 2 and up (ages 6 and up)
Subjects: Physical Education, Science
Materials Required: Blindfold, something that makes noise (bells, set of keys, etc.)

First discuss how animals rely on their sense of hearing to stay alive. Hearing allows many animals to avoid being eaten by predators and allows other animals to find their prey. Monkeys have many predators. Discuss predators of monkeys such as: jaguars, leopards, other cats, snakes, eagles, larger monkeys, etc. Monkeys often live in groups, with the older more experience individuals listening for predators and keeping watch over the young monkeys who haven't learned what predators smell/sound like.

Get the class to form a large circle and put one pupil in the middle. The child in the middle is the mother monkey and the rest of the class are predators. Place the noise maker (set of jingly keys, bells, etc.) at the monkey's feet and explain that the noise maker is the baby monkey. Blindfold the monkey and tell him/her to listen carefully for any approaching predators.

The teacher should choose one predator silently (walk around the circle and touch on shoulder, point at pupils, etc.). The predator's job is to sneak very slowly and carefully and try and grab the baby monkey and make it back to the outside of the circle. It is sometime useful (especially with younger groups) to have everyone practice sneaking quietly like predators before the game begins.

The monkey must listen for the approach of the predators. When the monkey hears a predator they point at them. If the predator has been pointed at, they have lost the element of surprise and go back to the outside of the circle. Select a new predator to sneak forward. All the other pupils in the circle must be quiet so they don't interfere with the predator who is sneaking up. If a predator successfully grabs the baby monkey and makes it to the outside of the circle, they can become the new monkeys. Keep playing, giving multiple pupils a turn to be the predators and the monkey. For older group consider having multiple monkeys at one time working together and tying it into a discussion of how monkeys live in groups for added protection from predators.

Pre-Trip Classroom Activities: Rainforests of the World

Pupils learn about where rainforests are located around the world.

Time: 10-20 minutes
Ages: Year 3-5 (ages 7-10)
Subjects: Science, geography
Materials Required: Rainforests of the World map

Hand out copies of the map to each pupil and make sure they each have crayons for colouring. The pupils job is to label the three lines on their map and colour where they think the rainforests are. Pupils make educated guesses about where the rainforests are based on information points. Hand out the list of point or write on the board and leave up for the activity. After all pupils finish colouring, compare their guesses of where rainforests are to the actual map of rainforest habitats.

.The equator crosses the middle of the world.

.The tropic of Cancer is in the north and the tropic of Capricorn is in the south.

.Rainforests are located close to the equator, in-between the tropics of Cancer and Capricorn.

.Except in the very north, Central America is all rainforest.

.Northern South America is covered in rainforest.

.Below the equator, South America has rainforests across the centre, and on the east coast. These do not reach all the way to the tropic of Capricorn.

.In Africa, the Congo Basin rainforest is located just around the equator on the west coast. It reaches approximately halfway from the equators to the tropics and half-way across the continent.

.The east coast of Madagascar is rainforest

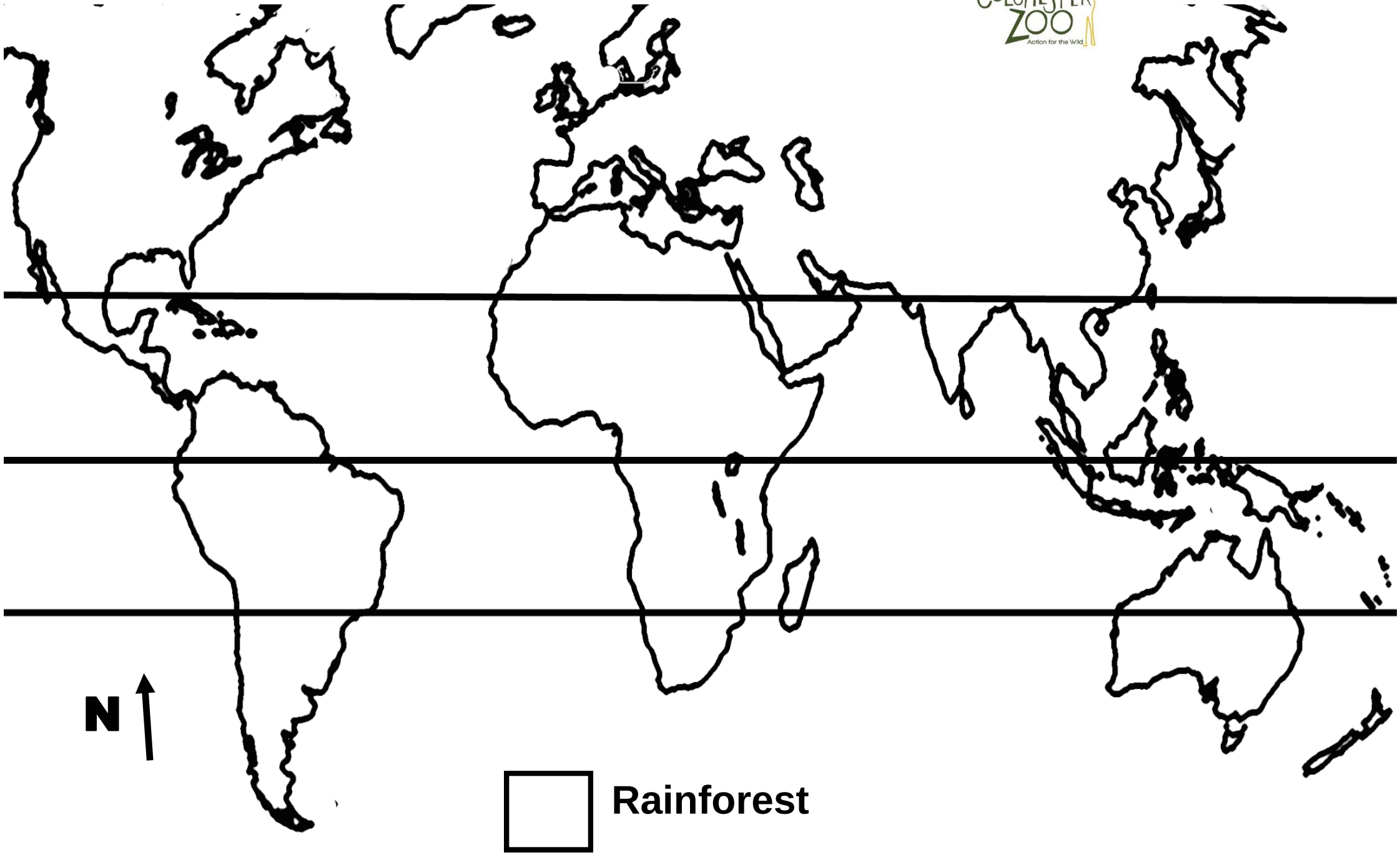
.The far south of India is rainforest

.The south tip of Asia that sticks into the ocean is rainforest, from the ocean until halfway to the tropic of Cancer.

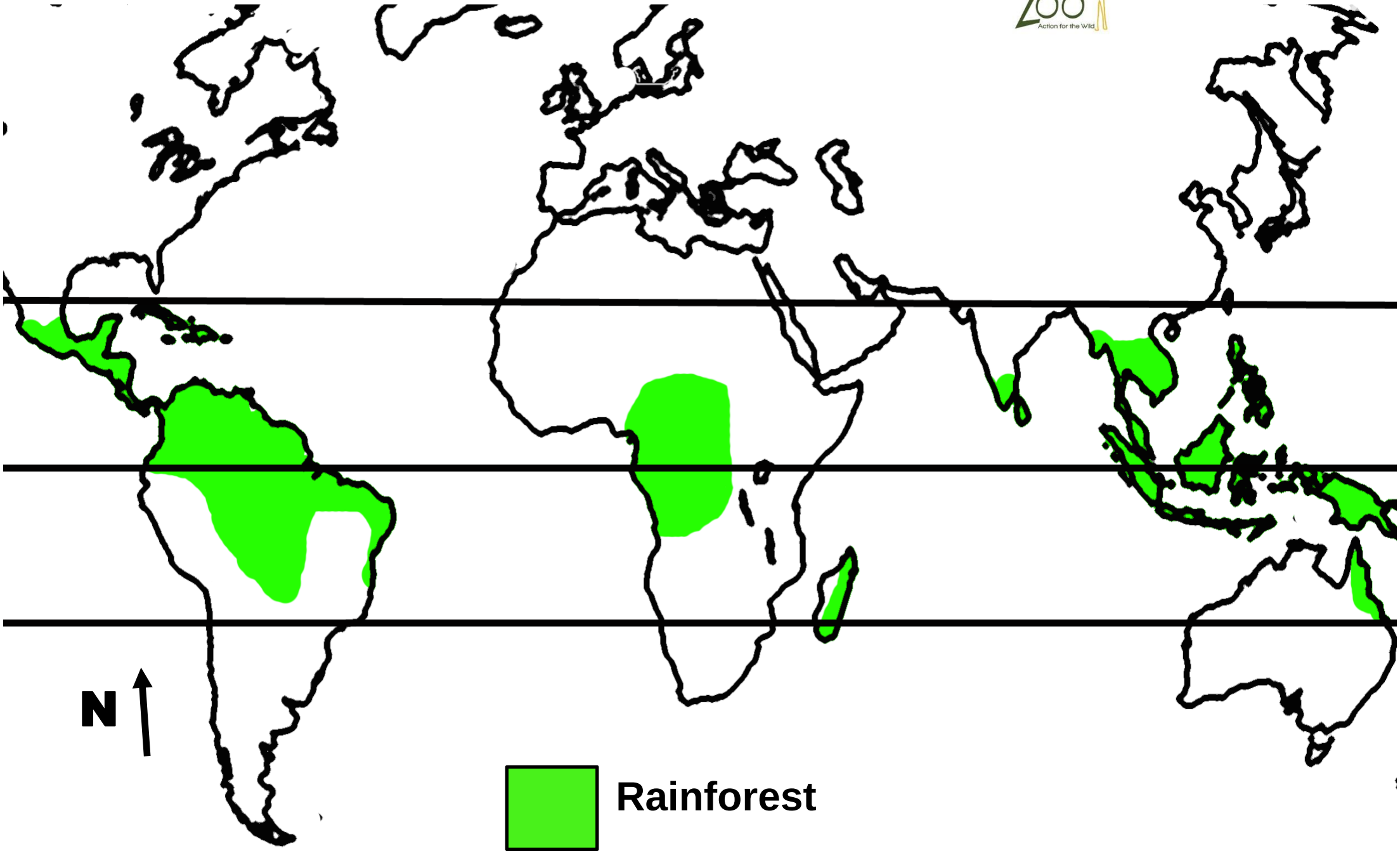
.All the little islands of Asia have rainforest

.The north east coast of Australia has a very little bit of rainforest

Tropical Rainforests of the World



Tropical Rainforests of the World



At the Zoo Ideas:

These are ideas to help your class focus during their trip to the zoo. Use these ideas as a starting point with or without the pre-made activities and worksheets on the next pages.

1. Use the worksheets in this pack to help focus your students

2. Encourage students to spend time observing the animals. Some unique animal behaviours can only be seen if we watch very carefully

3. Have students make a detailed sketch of a zoo animal, sketching encourages careful observation

4. Take photos of the animals and around the zoo. When you get back to school make a photo scrapbook of your trip.

5. Attend the feeds or talks and have your students take notes. The keepers will tell you about the animals and their threats. Often the keepers are available after to ask questions if you want to learn more.

6. Observe the enclosures to determine what makes a good home for an animal. Pay attention for anything that looks like it's to entertain to the animals, zookeepers call they things enrichment. Enrichment for animals includes: wrapped boxes, toys, interesting smells, strange things (e.g. wellington boots, old brooms, etc.).

7. Pupils can examine the animal enclosure and determine, if they were an animal at the Zoo, which enclosure would they want to live in? Why?

At the Zoo Activities:

Camera

This activity gets students focusing quietly and independently, and works well when pupils are taking real photos to get them to decide what to take photos of beforehand.

Time: 15 minutes or more
Ages: Years 1 - 4 (ages 5-8)
Subjects: Art, ICT, observational Science skills
Materials Required: Cameras (optional), small bits of card (optional), pencils (optional).

Before starting, take time to talk with the pupils to consider what make interesting subjects for good photos. Should they take close up images? Are walls interesting? Is it easier to take photos of an animal that moves a lot or an animal that's resting?

Find an animal that the pupils can stay focused on rather than get over excited when they see the animal. Divide the pupils into pairs. Within each pair one student takes the role of photographer and one takes the role of camera. The child pretending to be the camera keeps their eyes closed while the photographer leads them to an interesting viewpoint.

The photographer chooses when the camera opens their eyes and takes a picture. A good way to do this is to have the photographer gently tap the camera on their shoulder to have them open their eyes. When the camera opens their eyes, their job is to try to remember and visualise everything they see in front of them: Do they see an animal? How many animals? What is the enclosure like? What textures do they see? When taking photos it's best if the camera only has their eyes open for 5-10 seconds, then closes them again. Have the photographer move the camera to a few different locations. Do they see different animals? Is there a slightly different view point? After they've taken a few 'photos' have them switch roles.

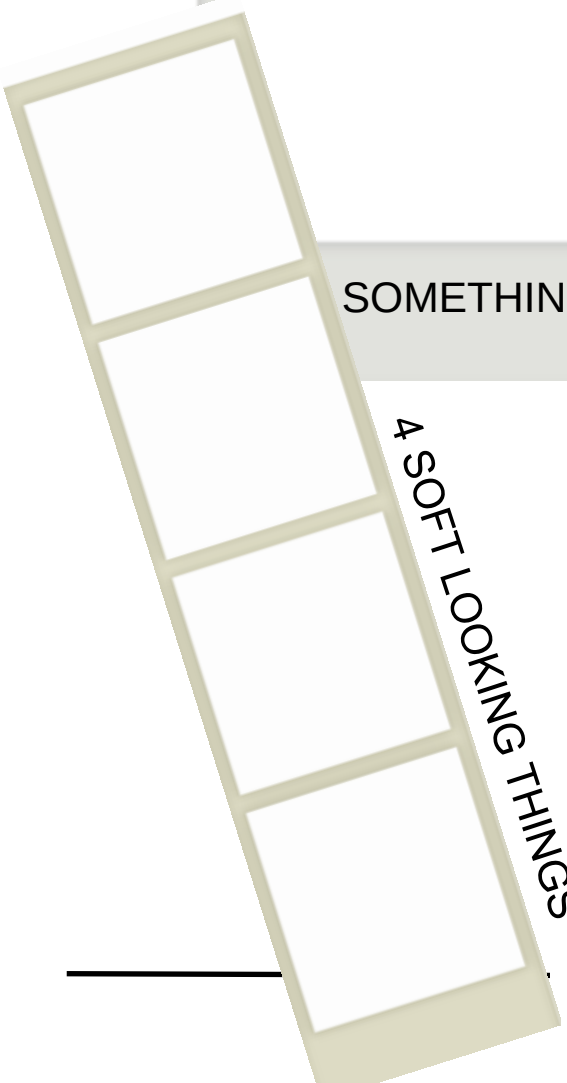
Optional: If the group has actual cameras, have them all select their favourite photo from their activity and see if they can capture it using their real camera/s.

Optional: for an extended activity, hand out small bits of card to each pupil. Explain that they are going to process the photos they took with their eyes. Have them select their favourite image they photographed (real or with just their eyes) and have them draw the picture on the card, just like a photo.

At the Zoo Ideas: Senses Scavenger Hunt

Ages: years 1 - 4 (ages 5-8)
Subjects: Art, Science

Draw pictures of the animals or things when you find them:

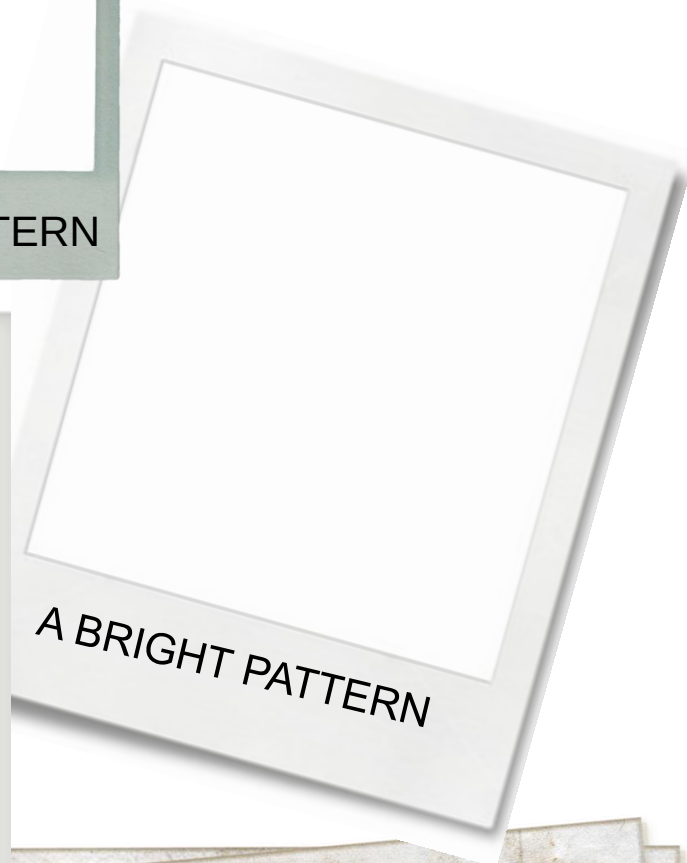


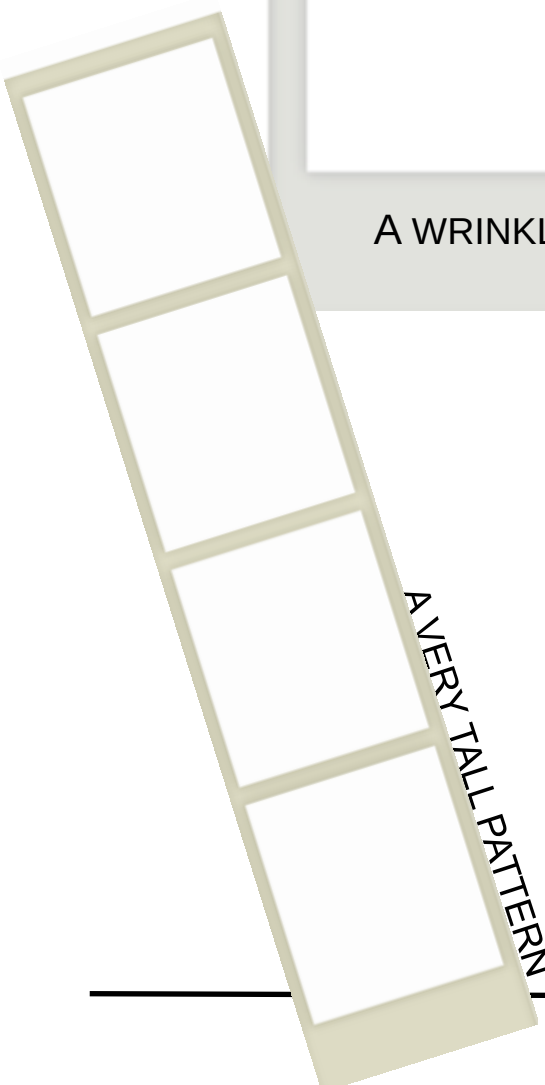
COLCHESTER ZOO
Action for the Wild

At the Zoo Ideas: Patterns Scavenger Hunt

Ages: years 1 - 4 (ages 5-8)
Subjects: Art, Science

Draw pictures of the animals or things when you find them:





At the Zoo Ideas: Rainforest Quiz

Ages: years 3-5 (ages 7-10)
Subjects: Science

Name:

- Rainforests are found in (circle all that apply):

  South America Africa Asia
  Europe

- Animal have adaptations to life in the rainforest, name two of these that you see at the zoo.
  1._____
  2._____

- Identify three animals that live in the rainforest:
  1._____ 2._____
  3._____

- Name one endangered rainforest animal:
  1._____

- List 2 reasons animals are endangered:
  1._____ 2._____

- What can you do to help these endangered animals?

_____
_____
_____

- The smallest rainforest animal I saw is_____
  Draw a picture of it on the back of the sheet.

- The rainforest animal I like best is_____
  Because _____

At the Zoo Ideas: Animal Description

Ages: years 4-6 (ages 8-11)
Subjects: Science

What colour is it:_____

It is covered in (circle one): fur feathers scales

It looks a bit like a:
_____

It eats:_____

It lives in the:
_____ habitat

It is the size of a (make a comparison):_____

A cool adaptation it has is:_____

Something very special about it is:_____

_____ _____

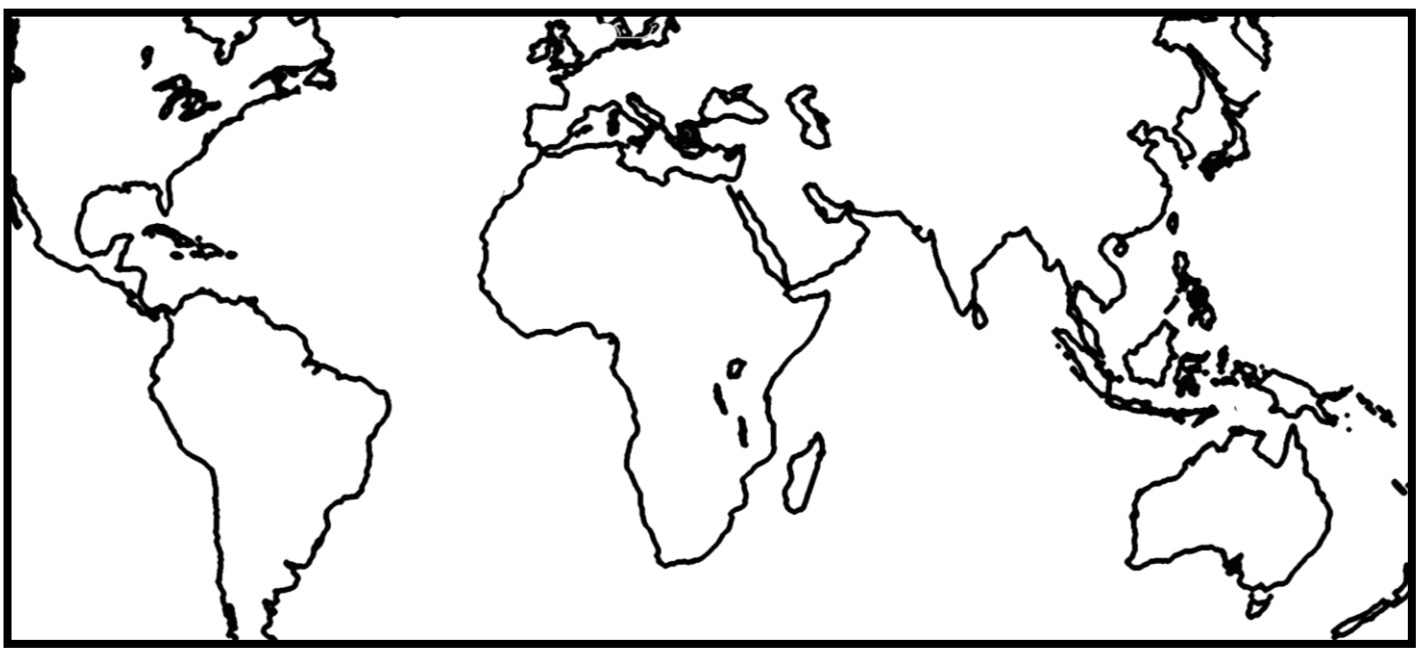
Name of animal:_____

Draw a picture of the animal on the back of this sheet

Type of animal (mammal, bird, etc.):_____

Size (record weight and height, can be an estimate):_____

Type of body covering (fur, feathers, scales, etc.):_____



Mark on the map where it lives in the wild

How does your animal get its food? (grazer, chases prey, browser, etc.): _____

_____

What layer of the rainforest does it live in:_____
How is it adapted to that habitat:_____

_____

What is the future of your animal in the wild? Why?

_____

_____

_____

At the Zoo Ideas: Observing Animal Behaviour

Name of animal:_____

Observe your animal for 10 minutes.
Make a mark each time it does one of the following:

Walks/Runs	Eats	Drinks	Lies down
Sleeps	Yawns	Looks at people	Plays

How can you identify your animal from others in their group:

_____

_____

Which animal in the group is the leader? How can you tell?

_____

_____

What do you think the animal is thinking/feeling (is it hungry? bored? sleepy? etc.)? Why do you think that?

_____

_____

_____

Many animals have things to do to keep them active. Can you see anything like that in your animals' enclosure?

_____

Did your animal interact with it? _____

What would you give the animal to do and why?_____

_____

_____

_____

_____

At the Zoo Ideas: Chimpanzee Watcher

Ages: years 3-8 (ages 7-13)
Subjects: Science

Draw a map of the zoos chimpanzee enclosure on the grid below.
Select EITHER the indoor or outside enclosure.
Show landmarks such as their trees, ropes and walls

1	2	3	4
5	6	7	8

Pick a chimpanzee to observe at the zoo. Look at the signs nearby to identify the name of your chimp_____

Every minute, record the time. Write the number of the grid where your chimp is. Describe what your giraffe is doing.

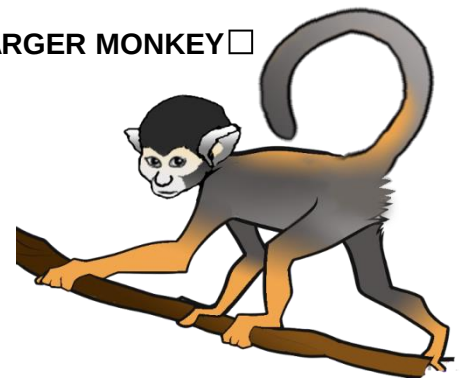
Time	Grid Number	Observations

At the Zoo: Animal Spotter's Guide - Beginner

On your trip to Colchester Zoo, be on the lookout for animals from the Rainforest. Keep track of the ones you find by ticking them off.

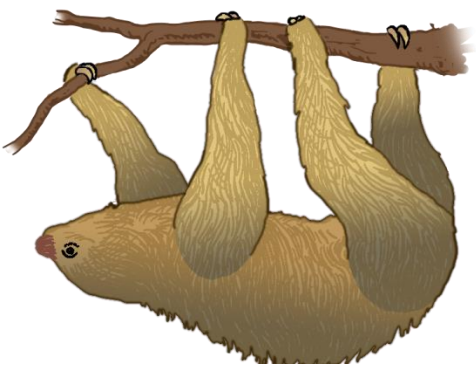
A VERY TINY MONKEY ☐

A LARGER MONKEY ☐

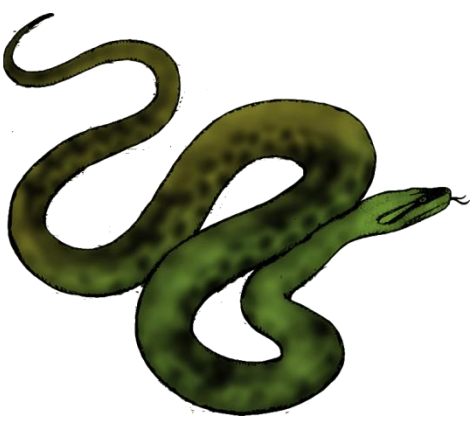


LEMUR ☐

SLOTH ☐

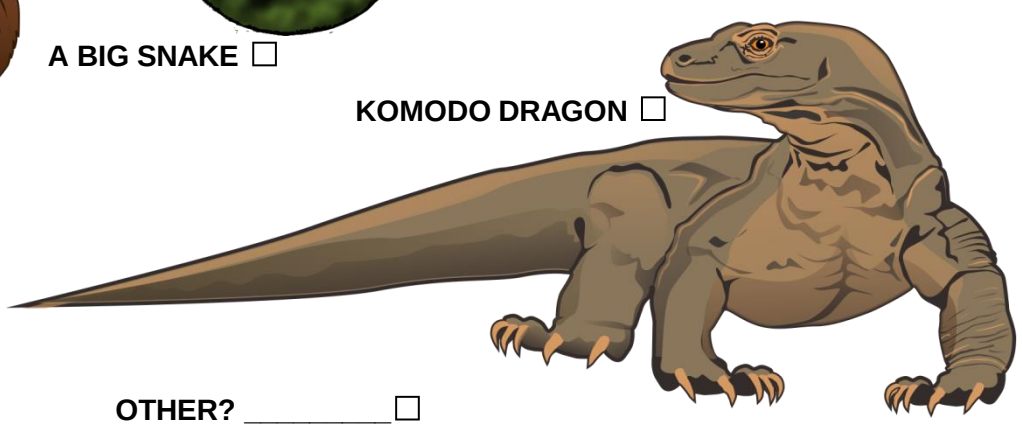


ORANGUTAN ☐



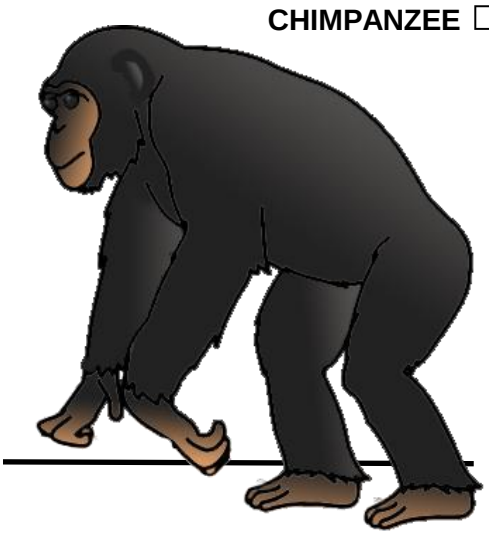
A BIG SNAKE ☐

KOMODO DRAGON ☐

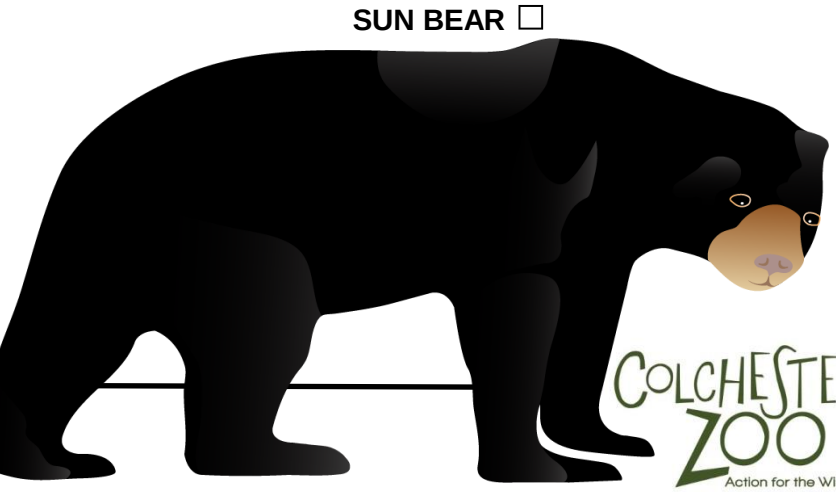


OTHER? _____ ☐

CHIMPANZEE ☐



SUN BEAR ☐



COLCHESTER ZOO
Action for the Wild

At the Zoo: Animal Spotter's Guide - Medium

On your trip to Colchester Zoo, be on the lookout for animals from the Rainforest. Keep track of the ones you find by ticking them off.

TAMARIN ☐

MARMOSET☐

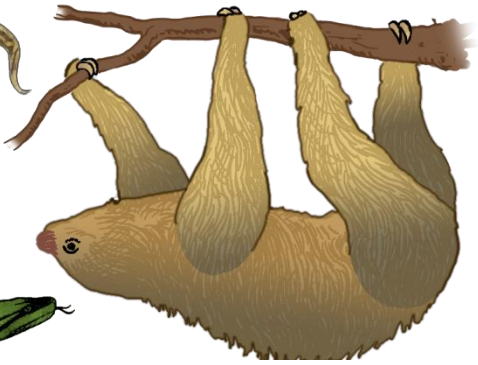
HORNBILL ☐

LEMUR ☐

A BIG SNAKE ☐

A LARGER MONKEY☐

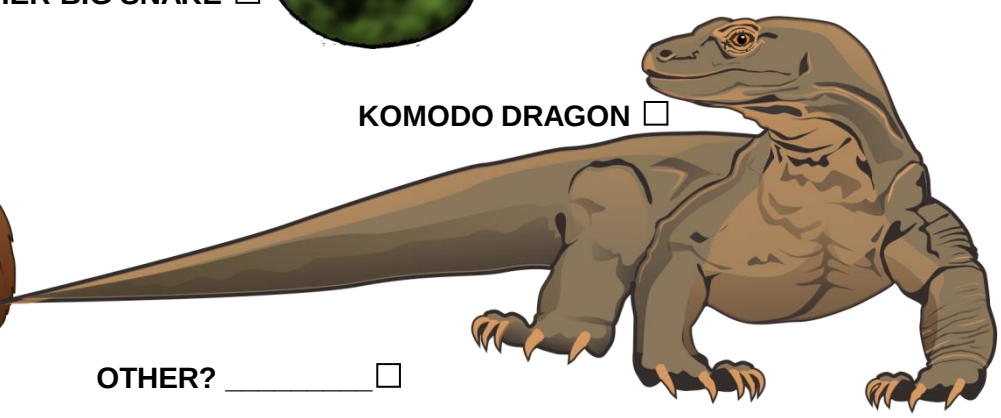
SLOTH ☐



ORANGUTAN ☐

ANOTHER BIG SNAKE ☐

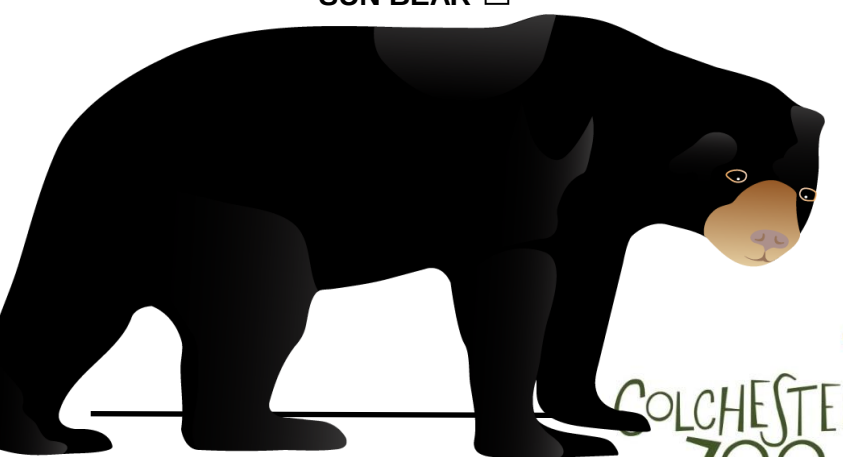
KOMODO DRAGON ☐



OTHER? _____☐

CHIMPANZEE ☐

SUN BEAR ☐



COLCHESTER ZOO
Action for the Wild

At the Zoo: Animal Spotter's Guide - Difficult

On your trip to Colchester Zoo, be on the lookout for animals from the Rainforest. Keep track of the ones you find by ticking them off.

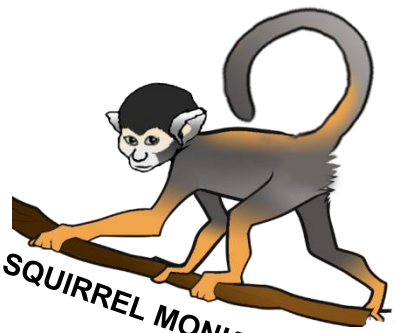
GOLDEN LION TAMARIN ☐

RHINOCEROS HORNBILL ☐

RING-TAILED LEMUR ☐

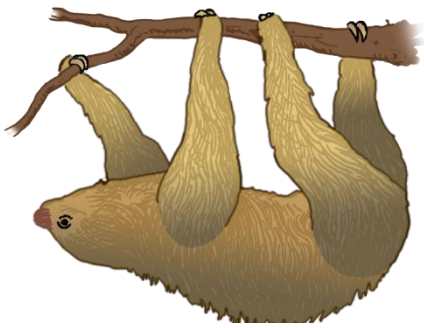
GEOFFROY'S MARMOSET☐

SPIDER MONKEY☐



SQUIRREL MONKEY☐

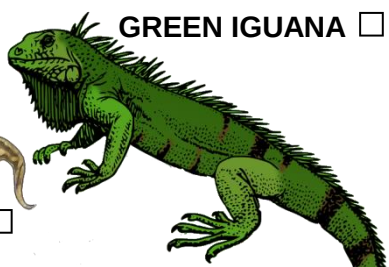
LINNAEUS'S TWO-TOED SLOTH ☐



GREEN ANACONDA ☐

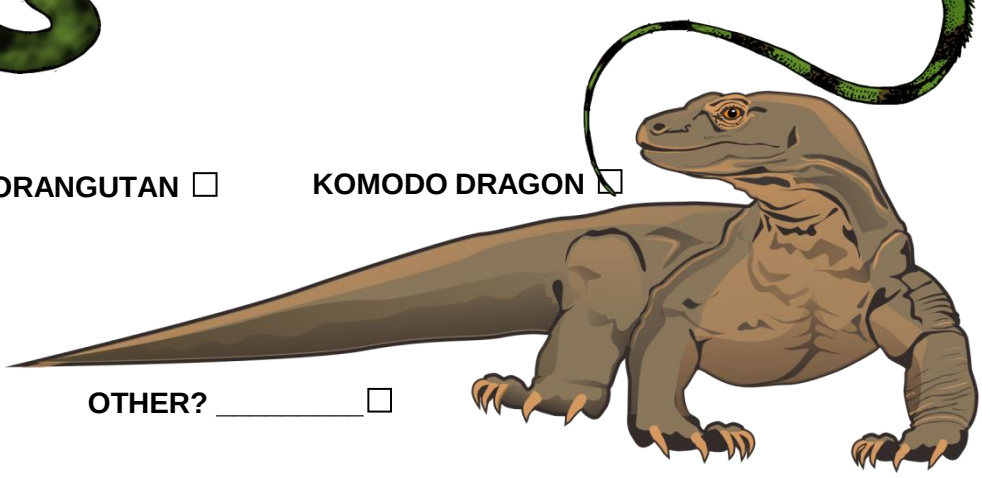
BURMESE PYTHON ☐

GREEN IGUANA ☐



ORANGUTAN ☐

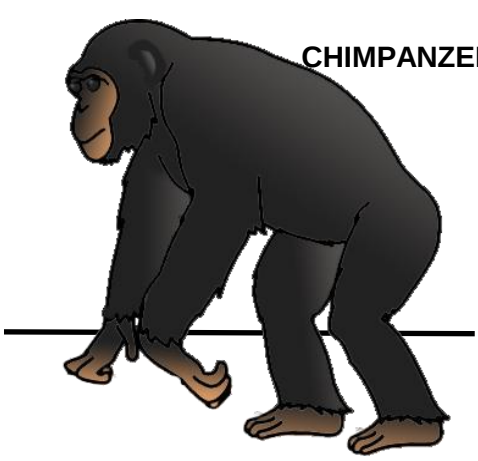
KOMODO DRAGON ☐



OTHER? _____☐

SUN BEAR ☐

CHIMPANZEE ☐



COLCHESTER ZOO
Action for the Wild

At the Zoo: Worlds Apart Maths

Visit the Worlds Apart Exhibit (next to the main café Penguini's).
See how many of these adaptations you can discover.

1) Green anacondas jaws separate into 4 parts, so they can open their mouth extra wide.
How many green anacondas did you see?_____
How many jaw parts are there?

_____
Green anaconda jaw parts

2) Green anacondas are one of the biggest snakes in the world with a maximum size of at least 8 metres! How many green anacondas did you see?____
Assuming they all grew to maximum size, how long would all their length totalled together be?

_____
Metres of green anacondas

3) An average Komodo dragon is 2.5metres long.
Estimate the length of the largest komodo dragon baby:
_____cm long.
How much more does that baby Komodo dragon need to grow to be full sized?

Komodo dragon grows an addition
_____cm

4) Each piranha has a different numbers of teeth because they constantly loose them and grow new ones. On average, they have a minimum of 20 teeth.
How many piranha's in the tank?_____
What is the minimum number of piranha teeth?

_____
Piranha teeth

5) Sloths are either two-toed, or three toed. The Colchester Zoo sloths are _____-toed.
How many sloths did you see today?_____
What is the total number of sloth toes?
(remember how many legs they have!)

_____
Sloth toes

6) Sloths move an average speed of 0.5m per hour.
Estimate the width of the outdoor Worlds Apart corridor (between the glass enclosure walls).
How wide is the corridor _____m.
How long would it take a sloth to climb from one side all the way to the other side (assuming it's moving at average speed)?

_____
Hours for the sloth to cross the corridor

Post-Trip Classroom Ideas:

These are ideas to get teachers thinking about how to relate a school trip to Colchester Zoo to subjects back at school. Use these ideas as a starting point with or without the pre-made activities and worksheets on the next pages.

1. Have students choose a specific rainforest animal they saw and conduct in-depth research based on what they observed.

2. Put rainforest fruits (banana, papaya, mango) and non-rainforest fruits (apple, peach, grapes) each in separate glasses of water. How long does it take for them to decompose? Which ones decompose faster? Why? Since it rains a lot in the rainforest, what qualities help a fruit survive in all that water and humidity?

3. Make a rainforest terrarium out of 2 litre soda bottles or a fish tank. Explain how transpiration works using the terrariums as an example.

4. Research human cultures in the places these animals live. Learn about food and customs. Learn the names of animals you saw in other languages.

5. Construct a diorama of a rainforest habitat. Encourage students to include the natural features they would find in the habitat as well as three or four animals from the rainforest.

6. Create a 'zoo guide book' of your school trip to Colchester Zoo. Have students write article about the animals they saw and include pictures/sketches they made during the trip.

7. Draw and design a comic strip about two animals at the zoo. Include what they are doing and what they would say to each other.

8. Using their memory, pupils can create a map of the zoo. Include animals that they saw and areas they remember (including food, toilets, play areas, etc.). After drawing from memory compare their maps to an actual map of the zoo. What's different?

9. Design posers to help endangered species you saw at the zoo. Remind pupils to include lots of facts they learned as well as make it eye-catching and decorative.

Post-Trip Classroom Activities:

Where in the World

Pupils learn which rainforests different animals live in.

Time: 20-30 minutes
Ages: Year 3-5 (ages 7-10)
Subjects: Science, Geography
Materials Required: Animals of the Rainforest Map.

Before this activity, learn about different rainforest animals and the different rainforests around the world. Pupils should also be familiar with the names of the continents.

Hand out copies of the map to each pupil. The pupils job is to draw a line connecting the animals to the rainforest they live in. If the pupils have already learned about all the animals, they can label the animals as well (see earlier in the pack for more detailed information about the animals and where they live).

For older pupils, have them research the animals more specifically and find out exactly which area they live in (research the country they live in).

To make it more of an art activity, print two copies of the map for each pupil. Have them cut out the animals shapes and glue them onto the rainforests where they live.

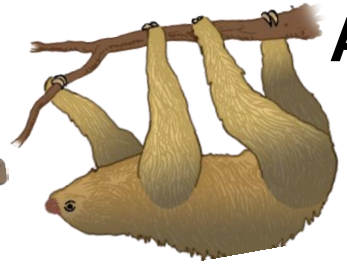
Animals of the Rainforest

COLCHESTER ZOO
Action for the Wild

N

Rainforest

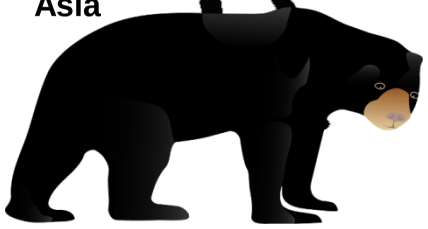
Africa



Northern South America

Asia

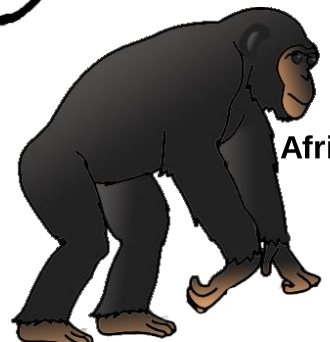
Asian Islands



Asia

South America

Asian Islands



Africa

South America

Madagascar

Post-Trip Classroom Activities: Rainforest Impact Quiz

Test pupils knowledge of the rainforest while learning about the impacts of deforestation.

Time: 20-30 minutes
Ages: Year 5 and up (ages 9+)
Subjects: Science
Materials Required: Rainforest Impact Quiz

Hand out the Rainforest Impact Quiz to each student. Have them write true or false next to each statement. After completing the quiz, they can switch quizzes with a partner to mark it. As you go over the answers, make sure to explain the ones that are false/true. This activity makes a nice introduction to talking about endangered rainforests and what we can do to help the rainforests.

1. Cutting down the rainforest changes wind patterns around the world. **TRUE**
2. Cutting down the rainforest changes rainfall patterns around the world. **TRUE**
3. The rainforests are the lungs of the planet, they recycle carbon dioxide into oxygen. **TRUE**
4. If the rainforests are completely gone, it won't affect us here in the UK. **FALSE** (as above)
5. Across the world, 20 football pitches of rainforest are cut down every minute. **FALSE** Across the world an area the size of 90 football pitches is cut down in the rainforest every minute
6. At current rates of deforestation the world's rainforests will be gone in 40 years. **FALSE** It is estimated that the rainforests could be gone by 2030!
7. Rainforests are found on every continent. **FALSE** There are no rainforests in Antarctica.
8. Rainforests cover over 50% of the earth's surface. **FALSE** Rainforests cover less than 2% of the earth's surface (most of the surface is covered by the oceans!)
9. The Amazon Rainforests contains 1/5 of the world's freshwater in its rivers. **TRUE** Remember that the ocean's aren't fresh water; most of the rest is in the ice caps and glaciers with a little in large lakes
10. There used to be 15 million km2of rainforest around the world. **TRUE**
11. Now there is just 10 million km2 of rainforest around the world. **FALSE** There are only 6 million km2 of rainforest around the world over half the world's rainforest have been cut down.

Pre-trip Activity: Rainforests Impact Quiz

Ages: years 5 and up (ages 9+)
Subjects: Science; Literacy

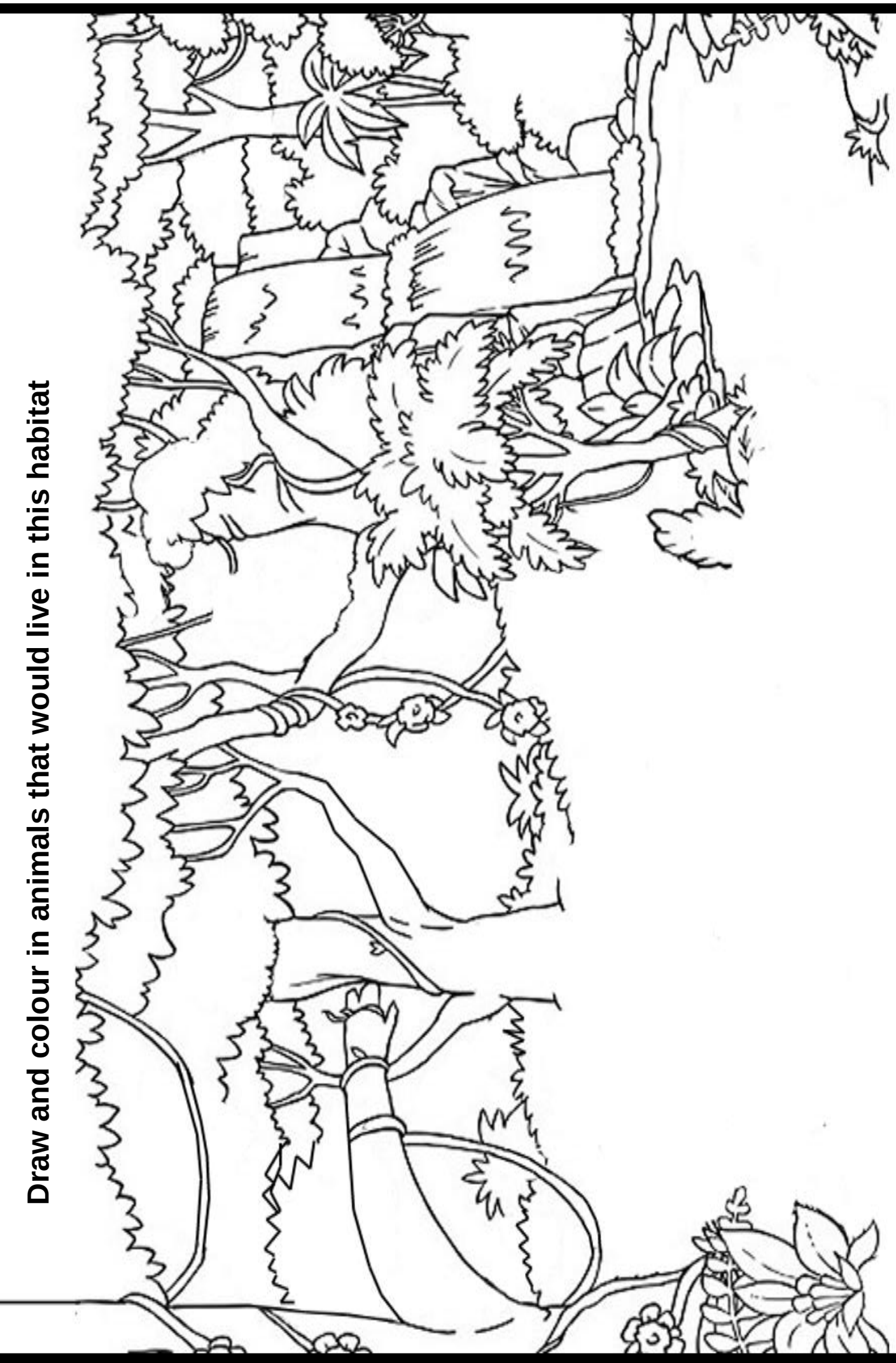
TRUE or FALSE

1	Cutting down the rainforest changes wind patterns around the world.	_____
2	Cutting down the rainforest changes rainfall patterns around the world.	_____
3	The rainforests are the lungs of the planet, they recycle carbon dioxide into oxygen.	_____
4	If the rainforests are completely gone, it won't affect us here in the UK.	_____
5	Across the world, 20 football pitches of rainforest are cut down every minute.	_____
6	At current rates of deforestation the world's rainforests will be gone in 40 years.	_____
7	Rainforests are found on every continent.	_____
8	Rainforests cover over 50% of the earth's surface.	_____
9	The Amazon Rainforests contains 1/5 of the world's fresh water in its rivers.	_____
10	There used to be 15 million km2 of rainforest around the world.	_____
11	Now there is just 10 million km2 of rainforest around the world.	_____

Post-trip Activity: Rainforest Drawing

Ages: years 1-3 (ages 5-7)
Subjects: Science, Art

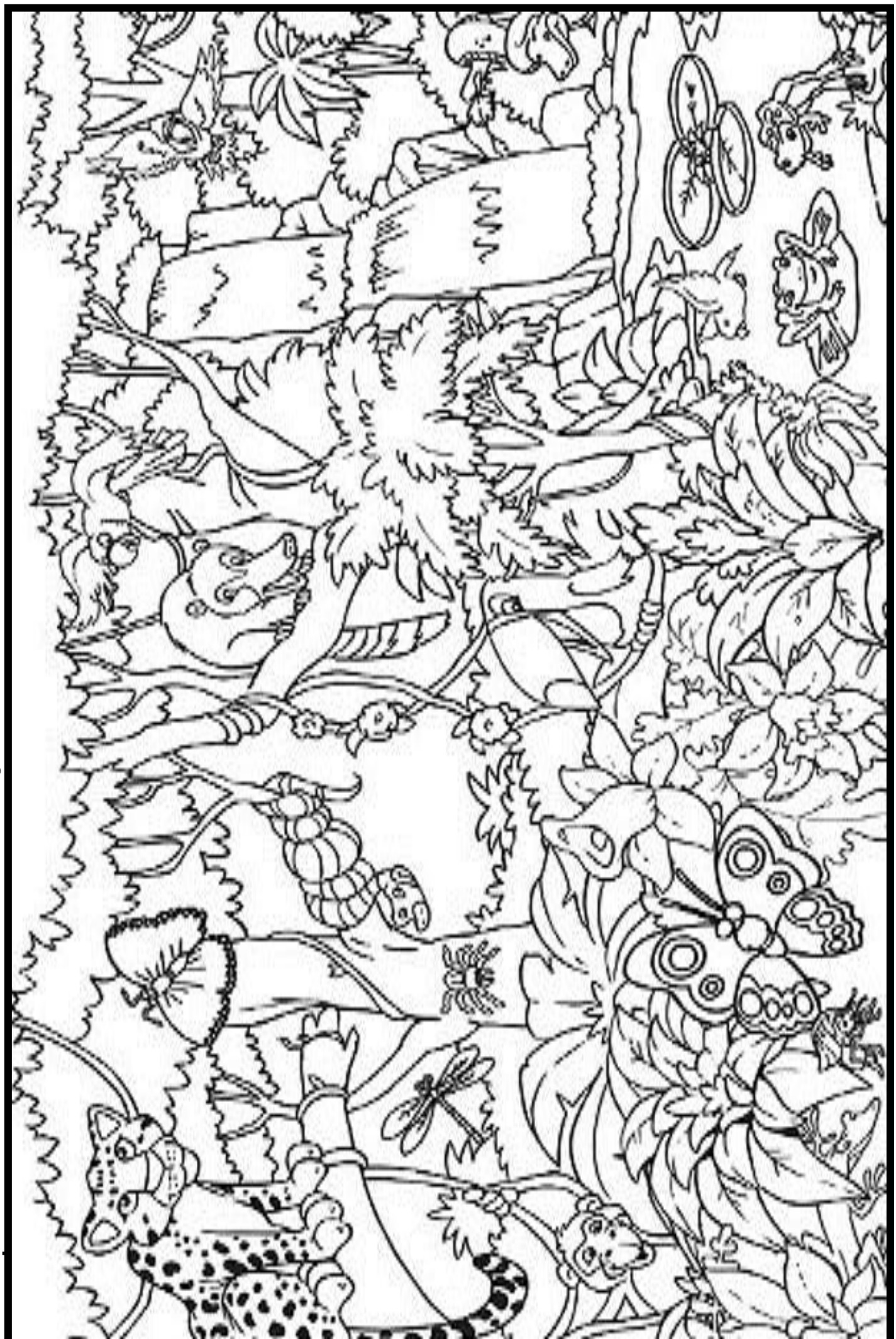
Draw and colour in animals that would live in this habitat



Ages: years 1-3 (ages 5-7)
Subjects: Science, Art

Post-trip Activity: Rainforest Animals Colouring

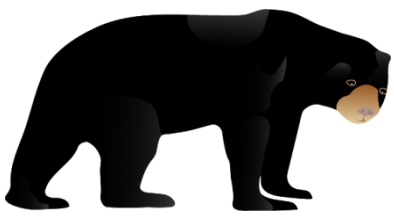
Colour these animal that you saw at the zoo

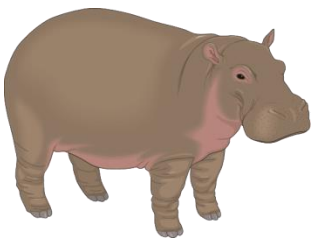


Post-trip Activity: Rainforest Layers

Label the rainforest layers and rainforest animals
Draw lines matching the animals to the rainforest layers

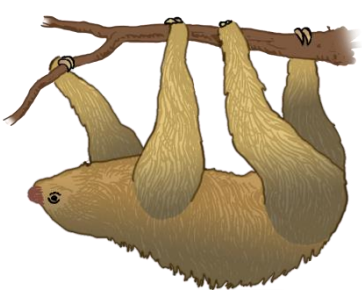
_____**LAYER** 40m +



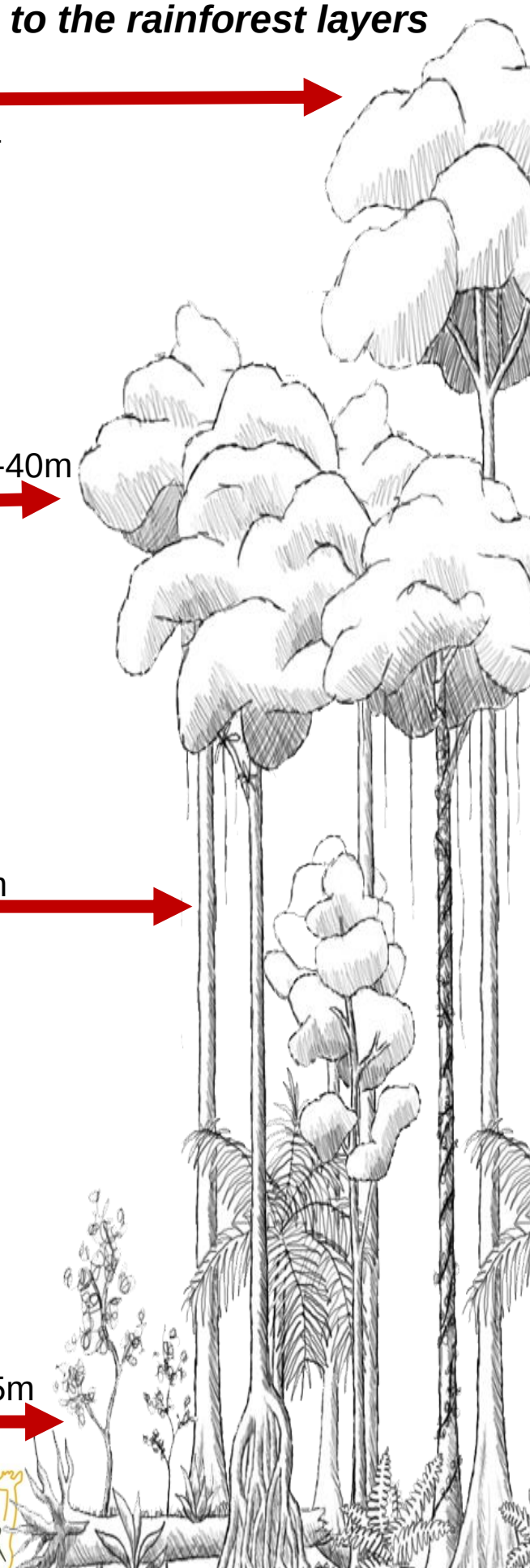


_____**LAYER** 30-40m

_____**LAYER** 5-30m



_____**LAYER** 0-5m



Post-Trip Classroom Activities:

Create a Creature

Pupils will use their knowledge about animal adaptations to create a creature

Time: 30+ minutes
Ages: Year 1 –5 up (ages 5-10)
Subjects: Science, Art
Materials Required: Potato for each pupil, toothpicks, craft supplies, glue, coloured paper, etc.

Explain to the pupil that they will be building an imaginary animal that is adapted to the rainforest. They will use the potato as the body for the animal and can stick in toothpicks/pipe-cleaners/paperclips for legs (if it has legs!). Encourage them to be create and add anything else than can thing of from other materials.

Remind them to think about:
- What does their animal eat? What food is available in the rainforest?
- What layer of the rainforest does it live in (does it climb, crawl, swim)?
- How does it camouflage itself?
- How does it avoid predators/hunt for prey?

After the pupils have finished construction, have each pupil name and describe their animal. Pupils can share the adaptations with the group.

For a longer activity, after they are finished have pupils compare their creations to real animals that they saw at the Zoo. For example, they could answer questions like: What real animal does their animal's ears look like? What real animal does their animal's pattern look like?

Post-Trip Classroom Activities:

Who Am I

This works as either an introduction to rainforest animals, or a reminder at the conclusion of a unit about what the pupils have learned.

Time: 10-20 minutes
Ages: Year 2 and up (ages 5 and up)
Subjects: Science
Materials Required: Pictures of different rainforest animals, clothespins

Have the pupils stand in a line, with their backs to the teacher. The teacher clips an animal picture to their back using the clothespins. The pupils should not see and are not supposed to know what their animal is, everyone else can see their picture.

Have pupils walk around the room and ask questions to each other to guess what animal is on their back. Pupils are only allowed to ask yes or no questions (no asking what their animal is called!). Encourage pupils to ask questions based on information they have already learned. For example, if studying food chains have them ask: am I a predator? If studying colour and camouflage have them ask: do I have stripes? If studying classification, have them ask: am I a mammal?). To make the pupils interact more, and ask more varied questions, have a rule that they can only ask another pupil one question, then they need to find someone else to ask.

After a pupil has guessed their animal, take the picture of their back and show it to them. If they have finished very fast, or you want the game to go on longer, give them another one to keep guessing. Depending on how hard the pictures are, some pupils will correctly guess 3 or 4 while some are still guessing their 1st. If some students are struggling, give them hints to make sure everyone guesses at least one correctly before ending the game.

To make this activity easier, review all the animal pictures to start. For older groups do not review the animals and consider using more obscure rainforest animals (e.g. archer fish, hornbill, etc.). If you are using harder animals, make sure they are ones the pupils already know. For harder animals, consider having a label on the picture with the animal's name so that the other pupils are giving correct information.

Post-Trip Classroom Activities:

Rainforest Products

A more in-depth explanation of rainforest products, which can be tied into concepts of deforestation and the loss of the rainforest

Time: 20-30 minutes
Ages: Year 4 and up (ages 8 and up)
Subjects: Science, literacy, geography
Materials Required: Coupon leaflets from shop (grocery store) with pictures of products, maps/globes/etc.

Explain to the pupils that many of the things we use every day come from the rainforest. Have them try and guess what comes from the rainforest (some might guess fruits, bananas, etc.). Write the answers on the board as they make suggestions. At the end, explain that there are other things, besides food that we get from the rainforest.

Divide the class into small groups. Hand out the rainforest product sheets and coupon leaflets to each group. Explain that the rainforest product sheet lists some of the products that are often from places there used to be rainforest. Their job is to go through the leaflets and cut out every product they find which is on the rainforest product list. Remind them to think about derivate of products (e.g. something that is lime-flavoured probably uses some lime).

After they've cut our the rainforest product pictures, explain that the other side of the sheet lists countries of export. Explain that an export is when a country makes something and sells it to another country. Have them sort their cut out rainforest products, they should have four groups of products at the end: South American rainforest products, Africa rainforest products, Asian rainforest products, and products from multiple locations (e.g. Africa and South America)

For older pupils, or as an extension, have them find the specific countries these products come from. Older groups could also do additional research to determine what parts exactly come from the rainforest. For example, most shampoos contain coconut derivatives which help them lather.

As a group discuss how to solve the problem of cutting down the rainforest for these products. Should we stop using these products? Should we buy local products? Should we insist on rainforest friendly products (i.e. rainforest alliance, marked with a green frog logo)? What other ideas and options can the class develop.

Post-Trip Classroom Activities:

Product	Main location of Export:
Shower gel /bath foam / shampoo (sodium laurel sulfate)	Asia (Indonesia, Philippines, India)
Liquid hand wash (sodium laurel sulphate)	Asia (Indonesia, Philippines, India)
Moisturiser and hand cream (nut oils; coconut oils)	Asia (Indonesia); Africa (Namibia)
Cosmetics: lipstick, foundation and mascara (cacao seed; palm oil)	Africa (Côte d'Ivoire , Ghana); South America (Brazil, Ecuador); Asia (Indonesia, Malaysia)
Vegetable oil	Asia (Indonesia, Malaysia)
Rubber: car tyres, toys, shower mats, electrical wires, balls, etc.	Asia (Thailand, Indonesia, Malaysia)
Banana	India, Uganda, China, Philippines, Ecuador, Brazil, Indonesia
Mango	South America (Mexico, Brazil, Peru, Guatemala, Haiti)
Pineapple	Costa Rica, Philippines
Limes and Lemons	India, Mexico, Argentina, Brazil,
Chewing gum (chicle tree sap/gum base)	South America (Guatemala, Mexico)
Rice	Asia (Thailand, Vietnam, Cambodia)
Wooden furniture (teak, bamboo)	Asia (Indonesia and Myanmar)
Paper (made from rainforest wood)	Asia (Indonesia and Myanmar)
Coffee	South America (Brazil, Colombia); Africa (Ethiopia, Côte d'Ivoire)
Tea	Asia (Sri Lanka, China, India)
Sugar	Brazil, India, China, Thailand

Post-Trip Classroom Activities:

Animal Poetry

Pupils use their knowledge of the rainforest to write poetry.

Time: 15-30 minutes
Ages: Year 3-8 (ages 7-13)
Subjects: Literacy
Materials Required: None

Introduce the pupils to different forms of poetry, for example, haiku, cinquain, and acrostic. Show them the example poems, by writing them on the board. After the pupils are familiar with the concept, they should choose an rainforest animal that they saw at the zoo. Using their memory and imagination they can try and write poetry about the animals they saw.

Haiku
Originating in Japan, the haiku is three line of poetry, following the pattern of five syllables, seven syllables and ending with five syllables. The lines do not need to rhyme. For example:

Hanging upside down, (five syllables)
moving incredibly slow, (seven syllables)
you're invisible. (five syllables)

Cinquain
Cinquain poems have five lines and have specific pattern. Word cinquains are based on the number of words in a line. For example:

Orangutan (one word—an animal)
Forest man (two words that describe it)
Climbing tall trees (three words expressing action)
Sad you are endangered (four words explain how you feel about it)
Amazing (sum up with one word)

Acrostic
These are poems where the first letter (or syllable or word, etc.) spell out a word or message. The easiest is spelling out the name of an animals (for older children try hiding messages). For example:

Hiding deep in the rainforest
In remote forests
Perfectly camouflaged and hard for
People to see, are the
Outrageously tiny, pygmy hippopotamuses

Post-Trip Classroom Activities:

Food Webs

The reinforces concepts about interdependency of animals in habitats

Time: 10 minutes
Ages: Year 1 and up (ages 5 and up)
Subjects: Science
Materials Required: Yarn, pictures of different rainforest plants and animals (optional)

Have the pupils form a circle. Get them all to name plants and animals that live in the rainforest. Hand out pictures of different plants and animals, or have the pupils remember their answers. Give the ball of yarn to one of the plants e.g. a vine. Then ask if any of the animals would use a vine (climb on it, eat it, live in it, etc.). Find an animal, e.g. a marmoset, and hand the ball of yarn to the marmoset (the vine should keep holding the end). Now ask what would connect to the marmoset, possibly a predator, e.g. an eagle. Hand the ball of yarn to an eagle.

Continue connection the pupils with the yarn representing the relationship between the plants and animals. Consider other connections as well, e.g. this bird lays eggs what would eat the eggs? This animal poops, what might use the poop? etc. Continue until all the pupils are connected together by the yarn. It should now look like a messy, interconnected web.

Investigate what happens to food webs if one element is removed. For example, ask what would happen if the rainforest is chopped down, the vines would all disappear (and most of the other plants as well). Have the pupil who is the vine let go of the yarn. Now, any other pupil who's yarn is loose (they were connected to the vine) should also let go. Use this to reinforce discussions of threats rainforest animals face and how important all the parts are for a healthy ecosystem.

Post-Trip Classroom Activities:

Home and Away

Reinforces which animals live in the rainforest and which live in other locations.

Time: 10 minutes
Ages: Years 1-4 (ages 5-9)
Subjects: Geography, science
Materials Required: Pictures of different habitats and animals

Introduce the pupils to the idea that different animals live in different habitat. Would a rhino want to live in the rainforest? Would the chimpanzee want to live in the desert? Animals have specific adaptations that help them live in different places. Discuss different adaptations that let animals live in different places (e.g. warm fur for cold place, big ears for hot places, etc.)

As a class, identify key habitat components of different habitats:

- Rainforest – lots of rain, very hot, lots of food, etc.
- Savannah—two seasons (wet and dry), a few trees, scrubby grass, etc.
- Desert—very little rain, very few plants, often very hot, cold at night, etc.
- Polar—very cold, 24 hour daylight/night at certain times of the year, ice, etc.
- Coral reef—underwater, lots of tiny fish and invertebrates, etc.

After identifying the key components of each habitat, place pictures of the different habitats around the room. Explain that you will be holding up pictures of different animals and the pupil's job is to run to the habitat they think it would like to live in.

When holding up the pictures, give some facts about the animals to help pupils guess where it lives. After the game is go over the animals and discuss where they live and their adaptations in more details. Some potential animals to use in the game include:

- Rainforest: sloth, chimpanzee, orangutan, sun bear, squirrel monkey, etc.
- Savannah: elephant, giraffe, cheetah, lion, rhino, zebra, etc.
- Desert: fennec fox, tortoise, scorpions, rattlesnakes, etc.
- Polar: polar bear, penguin, seal, sealion, etc.
- Coral reef: ocean turtle, shark, tropical fish, sea anemone, etc.

Post-Trip Classroom Activities:

Ecosystem Tag

This is a running game that reinforces concepts about predators/prey and different levels in ecosystems.

Time: 20-30 minutes
Ages: Year 4 and up (age 8 and up)
Subjects: Physical education, science
Materials Required: Arm bands (fabric strips to identify consumers and decomposers); energy chips (bits of card, pom-poms, etc.); pictures of different ecosystem levels

Before beginning this activity, review what an ecosystem is. Remind pupils of the different levels in food webs including producers (plants), consumers (most animals, e.g. sloths, parrots, monkeys etc.) and decomposers (insects, worms, bacteria, snails, etc.).

Divide the pupils into three groups: decomposers, consumers (twice the number of decomposers), and producers (twice the number of consumers) (e.g. 2 decomposers, 4 consumers, 8 producers). Set a boundary for the playing area representing the size of the ecosystem. The energy chips represent energy from the sun, there should be more of these than producers. Place these objects in a box/bucket/etc. in the centre of the playing area.

Each producer takes one energy chip from the box. They can only have one chip at a time, but if they lose it, they can get a new one from the box, because producers can make their own energy from the sun. Consumers get energy from eating producers. The consumers in this game tag the producers and are given their energy chip. Consumers can hold as many energy chips as they can get. The decomposers pat to take the energy from the consumers and put it back into the ecosystem. Decomposers take the consumers and take away ALL their energy chips. When decomposers have the energy chips they put them back in the box/bucket for the producers (plants) to use again.

When the game has been played for a while, ask the pupils how long the game could continue. The answer is forever! But what would happen if there weren't decomposers? Play again to find out what happens without one of the groups. At the end discuss how each group in the food web is important and has a specific role to play.

Post-Trip Classroom Activities:

Conservation Debate

Pupils to role play different opinions about conservation.

Time: 20-30 minutes
Ages: Year 4 and up (age 8 and up)
Subjects: Science, drama, citizenship
Materials Required: Copies of opinions and questions for each group (or write on board)

Many rainforest animals are endangered and may go extinct. One of the main reasons they are endangered is deforestation (loss of habitat when the forest is cut down). Orangutans only live on the islands of Borneo and Sumatra. The rainforests on these islands are being cut down. When the rainforest is all gone, the orangutans will be extinct in the wild.

Divide your pupils into groups and assign one opinion to each group. Have them pretend to have that opinion and answer the questions (with the opinion of that person, not their own opinion). Next, mix the groups up, so one pupil with each of the opinion is in all of the new groups (one farmer, one ranger, one tourist). Have them debate their opinions in this new group and try and answer the questions again.

After the smaller groups have discussed their opinions, have each group share their answers with the entire class. What was each groups opinion? Did any of the groups have the same solution for the problem?

As an extension activity have pupils try determine other groups who might have different opinions about orangutans (other than farmers, wildlife officer, and tourists). Repeat the activity with more opinions. Does that make it easier or harder to reach a solution?

Post-Trip Classroom Activities:

Conservation Debate - Opinions and Questions

Borneo Farmer: My family is poor. I barely have enough food for my family. Sometimes I can sell extra eggs from my chickens or get work in town. Even with that, I only earn £100-150 pounds a year. My farm is very tiny. If I cut down the nearby trees, I can make my farm a lot larger. If my farm is bigger, I can plant more crops and make more money. If my farm is bigger, I can maybe make £200 pounds a year farming and I can sell the wood for extra money as well! Just think of what I could buy, food, clothing, medicine, maybe even toys for the children!

Orangutan Wildlife Officer: We need to protect the rainforest. We are working hard to educate people about the importance of rainforest habitat. We patrol and prevent capture of orangutans for pets. We find and save injured and sick orangutans. Many volunteers are working to help protect this animal. However, every year more and more rainforest is cut down. Soon, there will not be a home for the orangutan in the wild. If they don't have a home, nothing we can do will protect them.

UK Tourist: I've always dreamed of taking a trip to see orangutans in the wild. I'm going to volunteer at an orangutan orphanage when I'm there and help the animals. I am saving up money for the trip because it is expensive to fly there and I want money to donate to the animals when I'm there. But I need to go soon, before there aren't any orangutans left. If there were no more orangutans, I don't think I'd bother going.

Questions to think about:

- Do you think endangered species are more important then buying toys?
- Who should get money spent by tourists?
- How should the farmer make money?
- How would you solve the problem of cutting down the rainforest?
- Who would benefit from this proposal? Is it fair?

We hope you enjoyed your trip to

COLCHESTER ZOO
Action for the Wild

Learning about

Rainforest Animals