

■ Deciduous forests overlooking Gwacheon, South Korea.



Unit 10 Seasonal Forest

Key Words

- coniferous (adj)** – ထင်းရှူးတော
- endemism (n)** – နေရာဒေသအလိုက် သီးခြား ဖြစ်ပေါ်လာသော
- evergreen (adj)** – အမြဲစိမ်းသော
- extract (v)** – ထုတ်ယူရနိုင်သော အဆီ၊ အနှစ်
- larvae (n)** – ခူကောင်ဘဝတွင်ရှိသော ပိုး
- molt (n)** – (တိရိစ္ဆာန်) အရေခွံ၊ အမွှေးများ ပြောင်းလဲခြင်း
- nymph (n)** – ပိုးတုံးလုံး
- optimal (adj)** – အသင့်တော်ဆုံးဖြစ်သော။
- resin (n)** – သစ်စေး (သစ်ပင်မှ ရသော အစေး)

10.1 The Taiga (00:00 – 08:50)



■ Taiga forest near Arkhangel'sk, Russia

A Before you watch

- 1. Discuss:** What do you remember about the *taiga* from Unit 1?
- Read the text and label the pictures with underlined words from the text.

The Taiga

The taiga is the largest area of forest in the world. It is also the furthest north. It lies between 50 and 70° of latitude north, between the arctic tundra and more temperate forest. It grows around the whole planet, across North America and Eurasia, covering parts of Canada, the USA, Sweden, Finland, Norway and Russia.

The taiga consists of coniferous trees, which are adapted to the cold, difficult climate. Coniferous trees have sharp leaves, called needles. Inside them is a bad-tasting resin, so they are hard for animals to eat. Their seeds grow inside cones, so that they are protected and difficult to eat.



a. _____



b. _____



c. _____

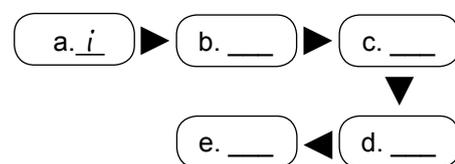
- Find the city of Arkhangel'sk on the map on pages 136 and 137. What latitude is it on?

B As you watch

- How far from the North Pole is the closest tree?
- What percentage of the world's trees are in the taiga?
- How long can it take for a taiga tree to grow larger than a seedling?
- What kind of animal is a lynx?
- Which animal can eat the conifer's seeds?
- Which animal doesn't migrate? Why?
- What do male capercaillie do every year in the taiga in spring?

C After you watch

- Complete the cause and effect chain showing why there is very little biodiversity in the taiga.



- Because the climate is cold, very few trees can grow in the taiga.
- The taiga can support very few predators.
- The trees that can grow protect themselves from grazers.
- There are very few grazers in the taiga.
- There is not enough food for grazers.

10.2 North and South American Forests (08:50 – 21:05)

A Before you watch

1. **Discuss** and answer the questions.
 - a. What differences do you think there will be between the taiga and the forests of North and South America?
 - b. What might be the reasons for these differences?

B As you watch

1. How do the needles of trees get water if there is no rain?
2. How much faster do North American trees grow than trees in the taiga?
3. What does the pine marten find to eat?
4. What is the world's largest living thing, and what is its name?
5. What species of tree are the the oldest trees on the planet?
6. What existed on Earth first, humans or the coniferous forests?
7. Listen and fill the gaps about the trees of South America.

South America: Trees of the Southern Continent

"Here in _____^a, araucaria trees, or monkey puzzles, are like the _____^b of the taiga. They have waterproof scales instead of needles and their cones look a little different, but the principles are the same. Slender-billed parakeets rather than crossbills **extract** their _____^c. Where the growing season is _____^d, there are alerce trees, the redwoods of the south. Like the frozen north, the Valdivian forests of Chile support very _____^e animals."

C After you watch

1. Find Chile on the map on pages 128 and 129. Do you think the Valdivian forests are in the north or south of the country? Why?
2. What is different about the animals in the Valdivian forests of Chile?
3. Label the four trees from the video correctly.
 - a. giant redwood
 - b. bristlecone pine
 - c. araucaria (monkey puzzle tree)
 - d. alerce



1. _____



2. _____



3. _____



4. _____

10.3 Broadleaf Forests (21:05 – 31:00)

A Before you watch

1. **Discuss:** What do you remember about the broadleaf forests of the world from Unit 1?

B As you watch

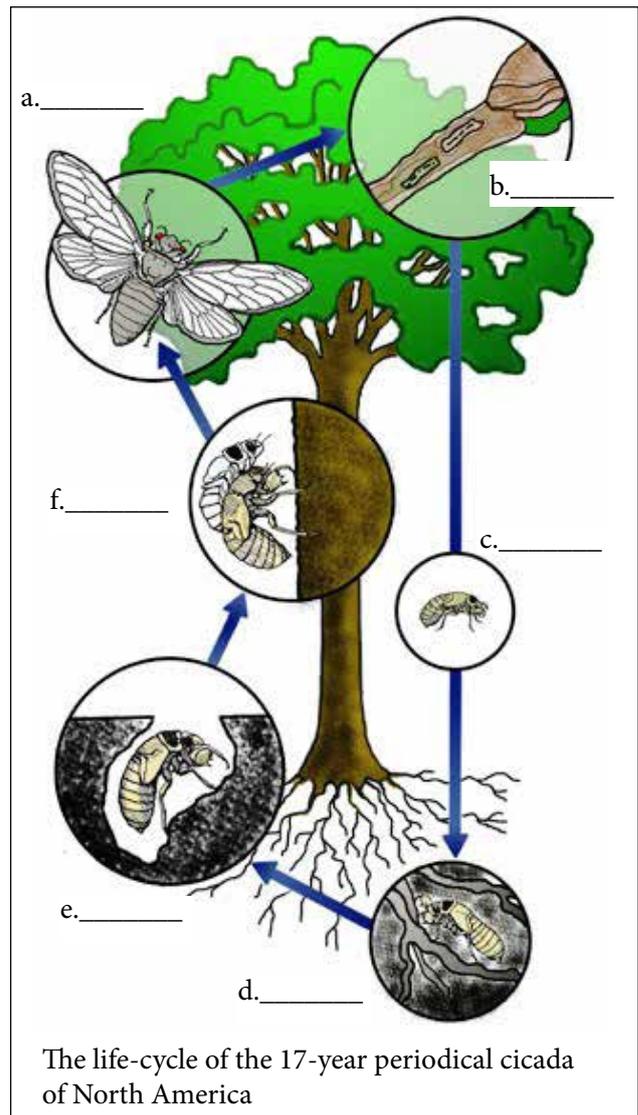
1. What is the advantage to trees of having broad leaves?
2. Why are broad leaves good for the animals in the forest?
3. What effect does this have on the food chain in the broadleaf forests?
4. What happens in the forests of North America every 17 years?

C After you watch

1. Periodical cicadas are clumsy and have no defences against predators. How are they able survive and reproduce as a species?
2. Read the description of the life cycle of the cicada and label the stages correctly using words and phrases from the text.

The Life-cycle of the Cicada

Rice-shaped eggs are laid in twigs and plant stems. Then, the eggs hatch into **larvae**. The larvae drop to the ground, dig into the soil and into a tree root. The larvae will suck the tree's sap through straw-like mouthparts (called the rostrum). There is now a **nymph** stage, which lasts up to 17 years. When the nymph is fully grown and the temperature is **optimal**, the nymph tunnels to the surface and goes through its final **molt** and emerges as a winged adult. When the wings dry and harden, the cicada flies in search of a mate. After they mate, the female lays more eggs in trees and the cycle begins again.



3. Order the sentences, which explain the role of cicadas in the forest food cycle.
 - a. The adult cicadas hatch and provide additional food for all the animals in the forest.
 - b. Cicadas mate. After they have mated, they die, decay and return nutrients to the soil.
 - c. The newly-laid cicada larvae return to the soil and begin to take nutrients from tree roots again.
 - d. Cicadas live underground and take nutrients from the roots of trees. 1
 - e. The nymphs' old outer skins fall to the forest floor, decay and return nutrients to the soil.

10.4 Winter and Spring (31:00 – 40:10)

A Before you watch

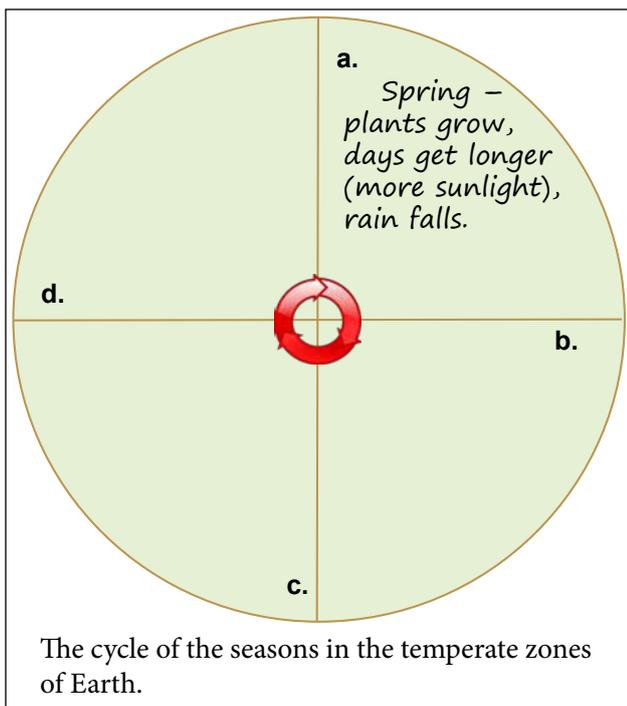
1. Discuss and answer the questions.
 - a. What do you know about the seasons in the temperate zones of the world?
 - b. Why are the seasons in the temperate zones different to the tropical zones?

B As you watch

1. What is the “rut” and what is its purpose?
2. What happens to the leaves of the trees in the northern hemisphere in autumn?
3. Where have the black vultures migrated from, and why?
4. How many amur leopards are there living in the wild?
5. Why are the plants on the ground “in a hurry” to open and grow in the spring?

C After you watch

1. Read the text about the seasons and label them correctly. (Note: they are not in order.)
2. Put the seasons in the correct order in the season cycle diagram below. Write the most important information from the text (in note form) on the diagram.



a. _____ In this season, plants begin growing again. The snow melts, and temperatures rise. Days become longer. Plants on the forest floor grow leaves and flowers before the trees grow leaves in order to catch direct sunlight and get their share of growth. The warmer temperature tells the trees to grow new leaves again, and restart the cycle. As tree leaves grow to their full size, they block most of the direct sunlight to the forest floor. In this season, deciduous forest receives most of its rain. However, it rains throughout the entire year.

b. _____ This season is extremely cold. The soil freezes, killing some plants. There is a lot of snow during this season. It is too cold for the trees to protect their leaves from freezing, so they simply lose them. This helps trees to conserve water, as a lot of water evaporates through the surface of a leaf.

c. _____ In this season, the deciduous forest cools down. As temperatures drop, the tree cuts off the supply of water to the leaves and closes off the area between the leaf stem and the tree trunk. With limited sunlight and water, the leaves are unable to continue producing chlorophyll (green pigment in leaves). This makes them change into the beautiful red, yellow and orange leaf colours. As it gets even colder, the leaves fall off.

d. _____ In this season, the deciduous forest gets its hottest. Trees and other plants enjoy full growth. The deciduous forest receives some rain. The broad green leaves help capture sunlight needed to make food through photosynthesis.



■ Avenue of the Baobabs, Madagascar.

10.5 Tropical Broadleaf Trees (40:10 – End)

A Before you watch

1. **Discuss** and answer the questions.
 - a. What kind of broad leaved trees might grow in tropical zones?
 - b. Does your country have broad leaved trees? Where?

B As you watch

1. How is a tropical broadleaf forest similar to a European one? How is it different?
2. Why do tropical broadleaf trees lose their leaves?
3. What tree flowers in the Indian teak forests, and why is that important for the animals there?
4. Why are the deer “welcomed” by other animals in the teak forest?
5. What adaptations do baobab trees have for surviving the dry seasons of Madagascar?
6. Explain the cooperative relationship between hawk moths, baobab trees and mouse lemurs.

C After you watch

Read the text and complete the sentences.

1. Humans are usually omnivores, which means _____.
2. Dogs and cats are _____, which means that they eat only meat.
3. Deer, buffalo and caribou are _____, which means that they eat _____.

Herbivores, Carnivores and Omnivores

Some animals eat only plants. These are the primary consumers, and are also called *herbivores*. Some animals eat only other animals. In the food chain these are the secondary or tertiary consumers. They are also called *carnivores*. Some animals, however, eat both plants and other animals. These are called *omnivores*.

Many primates are omnivores. Lemurs are an example of an omnivorous primate. Most of their diet consists of fruit, but they also eat insects, such as moths, when they are available.

Other examples of omnivorous mammals include bear species, pigs, mice and rats.

UNIT 10: SEASONAL FOREST -



FOCUS ON MYANMAR | SKILLS WORK

FORESTS IN MYANMAR

Important and biodiverse | Data from <http://www.banca-env.org/ebook.pdf>

Here is a guide to the major forest types in Myanmar.

Tropical Evergreen

The tropical **evergreen** forest (16% of Myanmar forest) is mainly found in the lowlands. It is wet evergreen forest. In it are species such as dipterocarpus. This type of forest is well conserved along the coast of the Tanintharyi Region.

Mixed Deciduous

The mixed deciduous forest (38% of Myanmar forest) is the major forest type of Myanmar. It is mostly full of teak trees. Teak makes this forest the most economically important forest of the country. The mixed deciduous forest is also associated with bamboo species, which are an important source of food for many wildlife species.



Myanmar teak

Dry Forest

The dry forest (10% of Myanmar forest) is found in the Central Dry Zone, where the rainfall is usually under 1,000 mm. It is described as "thorn scrub forest".



Thorn scrub forest similar to that in Myanmar.

Deciduous Dipterocarp

The deciduous dipterocarp forest (5% of Myanmar forest) is found only in five countries in the world: Myanmar, Laos, Cambodia, Vietnam and Thailand. Also known as *Indaing* forest in Myanmar, it is mostly found at higher altitudes in the northern part of the country. This forest type has been isolated from other similar forests of South East Asia, so it is one of the centres of **endemism** in Myanmar. It has endemic species like the critically endangered Burmese star tortoise, and many threatened species like the vulnerable Eld's deer.



Deciduous dipterocarp forest similar to that in Myanmar.

Hill and Temperate Evergreen

The hill and temperate evergreen forest (25% of Myanmar forest) is found in high rainfall areas, on slopes between 900 m and 1,800 m (hill forests) and over 1,800 m (montane forest). This forest type is characterised by many climber species and rich and lush undergrowth.

Others

The final 3 forest types account for 6% of Myanmar forest. They are: Mangrove forests (or tidal forests), beach and dune forest (found in narrow strips on beaches and dunes along the coasts), and the swamp forest, found in the Ayeyarwaddy Delta and in the floodplains of other rivers and lakes.

ADDITIONAL ACTIVITIES

1. Complete the table about Myanmar's seasonal forest using the information in the text.

forest type	% of total forest	additional information

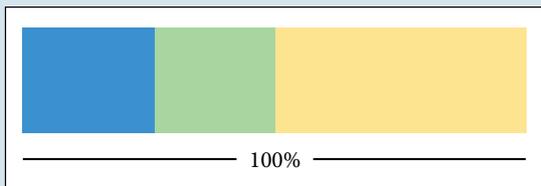
2. Answer the questions about the text.

- Which forest type is there most of in Myanmar?
- What forest type has mostly one type of tree and several types of grass? What are the names of the tree and the grasses?
- What is the scientific name for Indaing forest?
- What forest types are found close to coastal areas?
- What forest types are found in Myanmar's lowland?

3. Transfer these percentages into a column chart showing the distribution of the different kinds of forest in Myanmar. Remember:

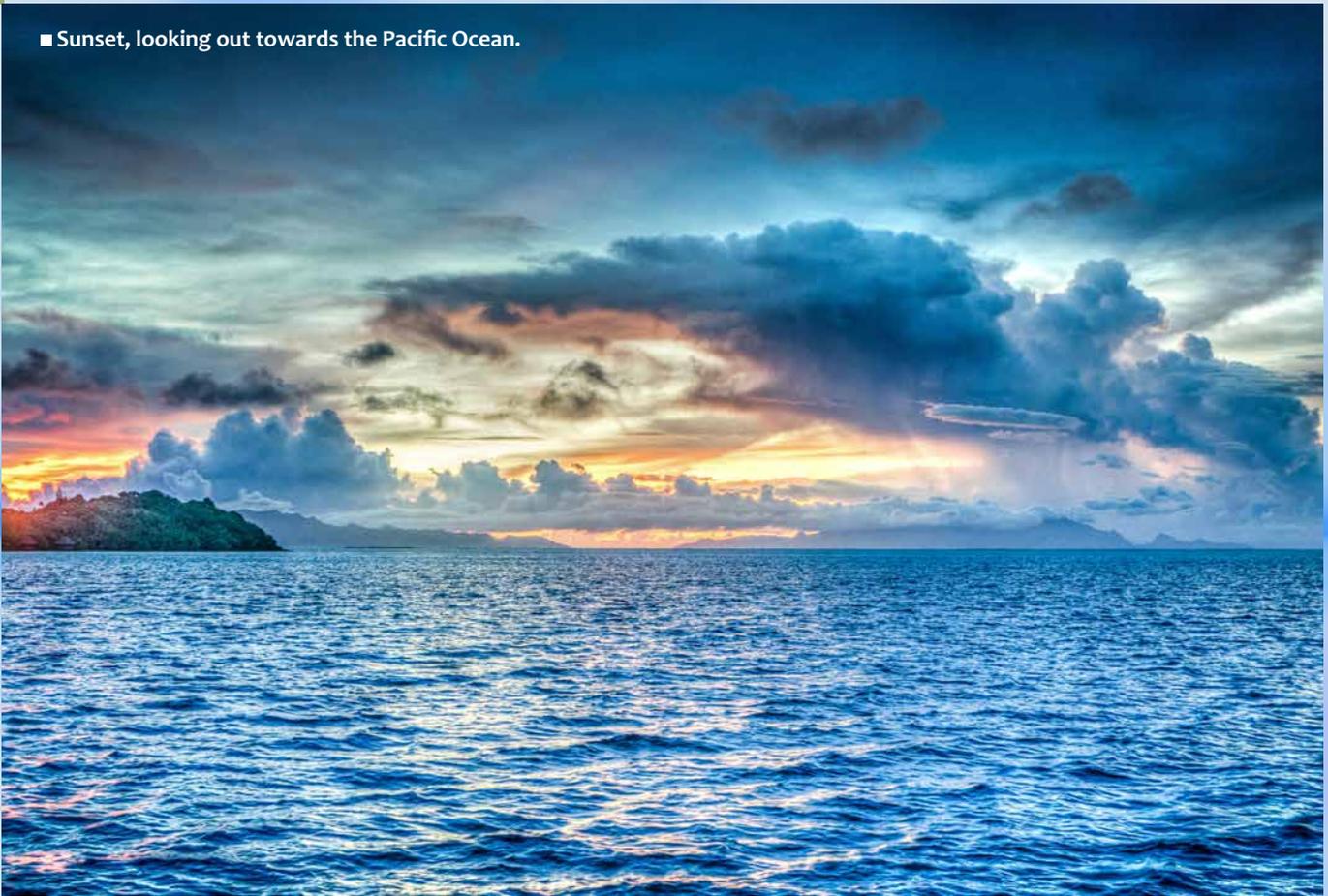
- that the column chart represents 100% of the forest in Myanmar.
- that the percentage should match with the amount of the column it covers. If a type of forest is estimated to be 50% of all the forest in Myanmar, it should cover half the column.
- to give the chart a title.
- to fill in the key.

Example:



Key

■ Sunset, looking out towards the Pacific Ocean.



Unit II Ocean Deep

Key Words

- detritivore (n)** – ပုတ်ဆွေးသော အပင်များကို စားသုံးသော
- calve XX**
- dorsal fin (n)** – (ကျောရိုး) ဆူးတောင်
- earthquake (n)** – ငလျင်
- excrete (v)** – အညစ်အကြေး စွန့်သည်
- feces (n)** – မစင်
- fissure (n)** – အက်ကြောင်း
- hydrothermal (adj)** – ရေပူ
- organic (adj)** – သဘာဝအတိုင်းဖြစ်သော၊ ပိုးကောင်များ
- sexual maturity (n)** – လိင်ပိုင်းဆိုင်ရာ အရွယ်ရောက်မှု
- suspended XX**
- tsunami (n)** – ဆူနာမီရေလှိုင်း
- vent (n)** – လေဝင်၊ လေထွက်ပေါက်

11.1 The Search for Food (00:00 – 11:40)

A Before you watch

- Discuss:** What is plankton? Why is it important for life in the sea?
- Read the text and answer the questions.
 - Are plankton plants or animals?
 - What trophic level(s) are plankton in the food chain?
 - Are plankton large or small?
 - Which animals depend on plankton?
 - Why are the plankton important for life on our planet?



Plankton is the general name for a large number of small organisms which live in the seas and oceans of our planet. Plankton are divided by trophic level into three main groups: *phytoplankton*, which are plants (such as the many different species of algae); *zooplankton*, which are small invertebrates (such as krill and jellyfish); and *bacterioplankton*; which are bacteria. Phytoplankton are producers; they take energy from the Sun by photosynthesis. zooplankton are consumers, usually feeding on other, smaller plankton. Finally, some bacterioplankton are producers and others are decomposers; they feed on the dead and decaying organisms in the ocean called “marine snow”.

Plankton are extremely important for life on our planet; the phytoplankton (including algae) produce oxygen when they photosynthesise and zooplankton are at the bottom of the food chain for nearly all the carnivores (consumers) in the ocean, including the larvae of most fish, and the biggest animal on earth, the blue whale.

- Complete the table with information from the text.

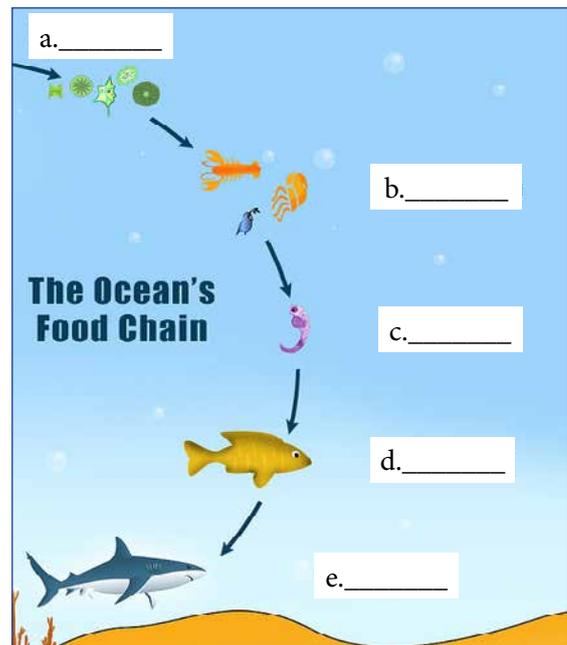
plankton	type of organism	trophic level	important for:
<i>phytoplankton</i>			
	<i>animal</i>		
			<i>recycling nutrients</i>

B As you watch

- What kind of animal is a *whale shark*, a fish or a mammal?
- What does the whale shark usually eat?
- Are the tuna fish carnivores or herbivores?
- What is the whitetip shark’s specialisation?
- According to the video, how do predators (such as whitetip sharks) find food in the ocean?
- How do the dolphins catch their prey?

C After you watch

- Label the ocean food chain diagram correctly.
 - zooplankton
 - predator
 - fish larvae
 - small fish
 - phytoplankton



11.2 Descent into Darkness (11:40 – 19:35)

A Before you watch

- 1. Discuss:** Read the statements. Are they true or false?
 - a. Marine snow is frozen water, which sinks to the bottom of the ocean.
 - b. Marine snow only happens in winter.
 - c. Marine snow is an important food source for animals who live deeper in the ocean.
 - d. Where there is no sunlight, marine snow forms the base of the food chain.
 - e. Marine snow gets eaten before it gets to the bottom of the ocean.
 - f. Marine snow fall only started recently, because of climate change.
- 2.** Read the text and check your answers. Explain why. If false, explain why.



Marine snow is another important food source for the deep ocean. Marine snow is not snow, of course, but it looks similar. It is particles which continuously fall from the upper levels of the ocean to the lower levels.

Most of the particles are **organic** waste (**feces**) or dead and dying plants and animals. Other particles include sand, soot and dust. These marine snow particles are important for animals which live deeper in the ocean. Because sunlight cannot reach these places, photosynthesis cannot happen. Grazers need to find another source of food, and many eat particles of marine snow.

Sometimes, in deep ocean, marine snow can fall for months before it reaches the bottom. Additionally, particles of snow are often eaten by an animal and later **excreted**. The feces continues to fall as snow until it is eaten by a **detritivore** or reaches the bottom. The particles can be eaten, excreted and eaten again many times before they hit the bottom.

The fall of marine snow has continued for more than a billion years.

B As you watch

- 1.** What does plankton do after sunset?
- 2.** How big are manta rays?
- 3.** What does plankton do after dawn (sunrise)?
- 4.** What happens in the ocean as we go deeper?
- 5.** Below 500 metres, what helps animals remain **suspended**?
- 6.** How does the sea spider stop itself from sinking?
- 7.** Why can't any creature at these depths "waste energy"?

C After you watch

- 1.** Label the animals from the video.



a.



b.



c.



d.

- 2.** What differences did you see in the environment and the animals as the video went deeper into the ocean?

11.3 The Ocean Floor (19:35 – 30:11)

A Before you watch

1. Read the text about the deep ocean and answer the questions.
 - a. What happens to the depth of the ocean as you move away from land?
 - b. What is the mid-ocean ridge?
 - c. What causes the mid-ocean ridge?
 - d. What organisms live here?
 - e. What do they eat?
 - f. Why are they unusual?

The Deep Ocean

Because it is so deep, the ocean is the most unexplored place in the world. As you travel away from the continents, the sea floor drops slowly. This is called the continental shelf. From about 650 feet (200 m), the ocean floor drops more quickly. This area is called the continental slope. About a mile down (1,600 m) is an area called the continental rise. At between 2.5 and four miles (4000-6000 m) the ocean floor becomes flatter again and drops more slowly. This huge area of ocean is known as the abyssal plain.

In the middle of the world's deep oceans is the mid-ocean ridge. It is a giant mountain range which circles the entire Earth. It is actually a huge rift valley around the entire planet. At these places, the Earth's tectonic plates are pulling apart.

Life here should be impossible. There is no sunlight and the only heat comes from the volcanic gas in giant **hydrothermal vents**. Even here, we find life. Hundreds of species of invertebrates live around these vents. They feed on the nutrients in the gases in the vents. This makes them some of the few organisms in the world which do not take their energy (either directly or indirectly) from the sun.

B As you watch

1. What does the monkfish do to catch its food?
2. What examples of scavengers are shown?
3. What are the "dragon chimneys"?
4. What animals live around the vents at Nine North?
5. What can happen when vents become inactive?

C After you watch

1. Read the text and fill the gaps with the words in the box.

predator scavenger

Scavengers vs. Predators

_____ ^a, as you saw in the video, are animals which feed on the dead. They are important for the same reason as decomposers – they take nutrients from the dead bodies and put them back into the ecosystem.

Some _____ ^b are very well known. Probably the most well known of all _____ ^c are vultures. Vultures are birds which are found in many on every continent except Antarctica and Oceania.

Other _____ ^d are less well known. The giant isopod is one of the deep ocean's most important _____ ^e. They grow to over 12 inches (30 cm) and will eat and eat until their bodies cannot move any more.

Most _____ ^f will also eat dead bodies if there is not enough food to catch and eat.



■ A giant marine isopod.

2. What is the difference between predators and scavengers?

11.4 Mountains of the Deep (30:11 – 43:30)

A Before you watch

1. **Discuss:** Predict the meaning of:
 - a. submarine volcano
 - b. seamount
2. Read the text and check.
3. Mark these statements as true or false. If false, explain why.
 - a. Submarine volcanoes are usually found near ocean ridges.
 - b. A submarine volcano is only called a submarine volcano if it is located in the deep ocean.
 - c. A seamount is only called a seamount if it is over 1 kilometre above the sea floor.
 - d. Some seamounts are so tall that their peaks almost touch the surface of the water.



■ A submarine volcano erupting.

Seamounts and Submarine Volcanoes

Submarine volcanoes are underwater vents or **fissures** in the Earth's crust. Through these, magma can erupt. Most are located near areas of tectonic plate movement, known as ocean ridges. Although most are located in the depths of seas and oceans, some also exist in shallow water, which can spew material into the air during an eruption. Hydrothermal vents are often found near submarine volcanoes.

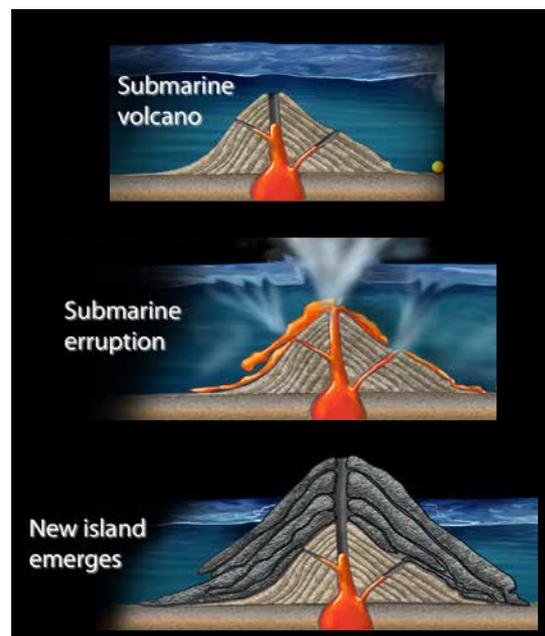
Many submarine volcanoes are seamounts; they are extinct volcanoes that rise from the sea floor. Seamounts are mountains that rise at least 1,000 metres above the sea floor. The peaks are often found hundreds or thousands of metres below the surface. However, some seamounts are unusual. For example, the Bowie Seamount in Canada's Pacific waters rises from a depth of about 9850 feet (3,000 m) to within 80 feet (24 m) of the sea surface.

B As you watch

1. How many submarine volcanoes might there be?
2. How far below the surface does the nautilus stay during the day?
3. What does it do at night?
4. Why can nautilus not see where it is going?
5. What other invertebrates are related to nautilus?
6. What is the predator/prey relationship between the squid and the Pacific spotted dolphin?
7. What cooperation is there between the mola mola fish and the smaller fish around it?
8. Why is Ascension Island important for frigatebirds?
9. Why is Ascension Island important for green turtles?

C After you watch

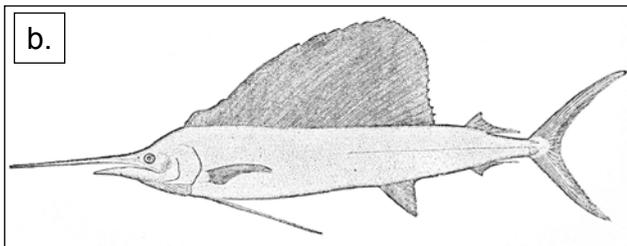
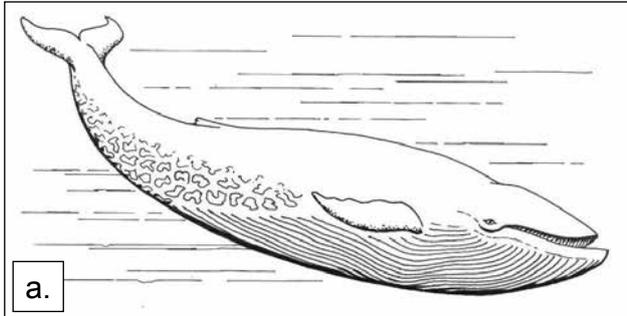
1. Find Ascension Island on the map on pages 130 and 131. What geographical feature is close to Ascension Island?
2. What do you think is the relationship between the feature and Ascension?
3. Look at the diagram and write a paragraph describing the formation of volcanic islands like Ascension Island.



11.5 The Blue Whale (43:30 – End)

A Before you watch

1. **Discuss:** Which picture shows a sailfish? Which shows a blue whale?



2. Read the sentences and predict whether they are describing blue whales or sailfish.
 - a. "They are three metres long."
 - b. "They have huge **dorsal fins**."
 - c. "They change colour, from blue, to striped, to black."
 - d. "They are the biggest animals that have ever existed."
 - e. "Some weigh nearly 200 tons."
 - f. "We don't know where they go to breed."
 - g. "They feed almost exclusively on krill."

B As you watch

1. Check your predictions from A1.
2. Check your predictions from A2.
3. How many krill does a blue whale eat each day?
4. How many blue whales used to live in the oceans?

C After you watch

Answer the questions.

1. What is the main difference between male and female blue whales?
2. What is the purpose of the blue whale's migration?
3. Why is the blue whale an endangered species?
4. Before the 1800s, how many more blue whales were there than there are today?
5. What is the main danger to blue whales today?

Blue Whales

The average blue whale is 70 feet (21 m) long and weighs 100 tons (90 metric tonnes). The upper parts of the blue whale's body are blue-gray. The undersides are whitish or light yellow. The female is larger than the male.

Blue whales migrate several thousand miles to wintering grounds. The mating season lasts for 5 months over the winter. One calf is born after a pregnancy of one year. It feeds for 7 months and will reach **sexual maturity** at 5-15 years of age. Females give birth every 2-3 years.

Blue whales live in open oceans, from the far Southern Hemisphere to the far north of the Pacific Ocean. In summer they live in polar waters because there is more food there. They eat only krill. In the winter, they migrate to warmer tropical and subtropical areas to breed and **calve**.

The blue whale is one of the world's most endangered whales. It was hunted between the mid-1800s and mid-1900s. By the mid-1900s only about 1,000 remained. Hunting stopped in 1967 and they are returning to the southern hemisphere and North Pacific. The latest estimate is 15,000 blue whales worldwide. Before hunting, there were probably 300,000 individuals.

Today, threats to blue whales include destruction of habitat. They are fully protected by the International Whaling Commission.

UNIT 11: OCEAN DEEP -



FOCUS ON MYANMAR

UNDER THE ANDAMAN SEA

Volcanoes and mountains beneath the water |



Under the Andaman Sea and the Indian Ocean lie many seamounts. Some of these reach above the surface of the water and form the Andaman Islands. Only one of these, Barren Island, is an active volcano.

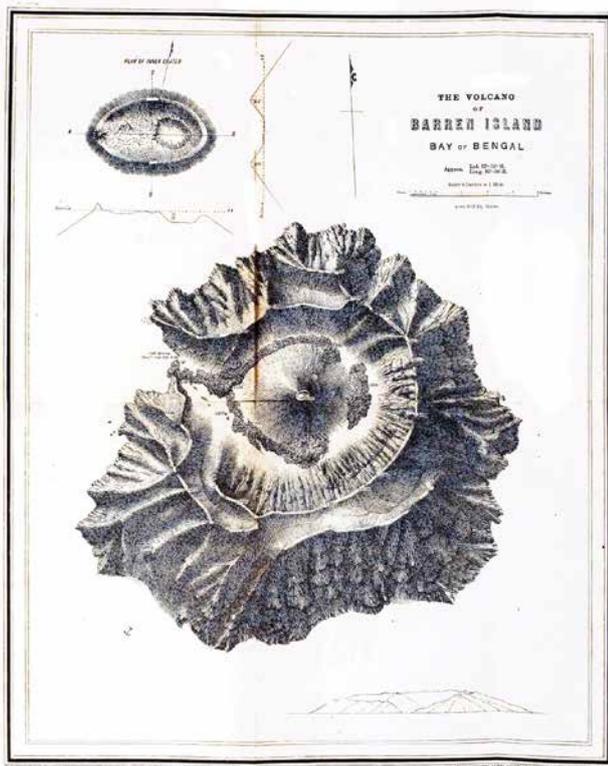
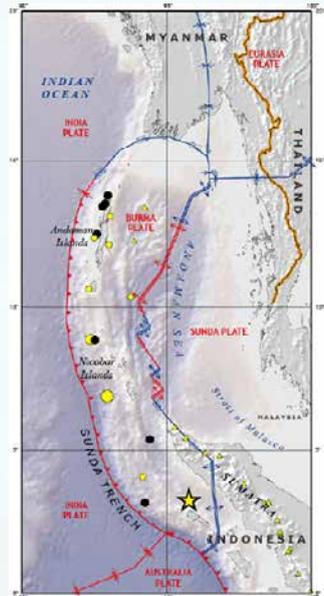
The Andaman Islands sit on the edge of two tectonic plates – the Indian Plate and the Burma Plate. The two plates meet under the Andaman Sea. They formed through millions of years of volcanic activity at the

point where the plates meet. North Andaman Island is 285 km southwest of Myanmar. The islands cover an area of 6,408 km².

There is still lots of tectonic activity in the area. Scientists believe that the tectonic activity of the Indian Plate and the Burma Plate caused the 2004 Indian Ocean **earthquake** and **tsunami**, which killed more than 220,000 people along the coast of the Indian Ocean.

Over 1600 km of the Indian plate boundary moved, and some was pushed under the Burma Plate. This pushed up the ocean floor by five metres. This caused the earthquake and the tsunami which happened after.

Barren Island rises 2,250 m from the sea floor, and its highest point is 354 m above sea level. It is part of the Indian territory of Andaman and Nicobar Islands, and lies about 135 km northeast of the territory's capital, Port Blair. It is an active volcano, and last erupted between 2005 and 2007. Scientists think that the eruptions are related to the 2004 earthquake.



1. Answer the questions about the text.
 - a. How many active volcanoes are part of the Andaman Islands?
 - b. How do scientists think the 2004 earthquake and tsunami happened?
 - c. Is Barren Island in Myanmar or India?
2. What do you remember about the 2004 earthquake and tsunami?
3. What can be done to reduce the numbers of people killed if a tsunami happens again?

ADDITIONAL ACTIVITIES



SKILLS WORK

1. Read the information in the box and complete the table showing the measures from the text.

Metric to Imperial Conversions

Most countries in the world (apart from Myanmar and the USA) use metric numbers – metres, kilometres, etc., so many books have metric measures. If you are used to imperial numbers (feet, miles, etc), it is useful to know how to convert from metres to feet and kilometres to miles.

Metres to Feet

One metre equals 3.28 feet. Therefore, if you multiply the number of metres by 3.28 (or 3.3 for a rough calculation), you get the number of feet:

$$\text{Feet} = \text{number of metres} \times 3.28 \text{ (or 3.3)}$$

If an object is 1000 m long, we multiply that by 3.28, and the answer is 3,280 ft.

Kilometres to Miles

One kilometre equals 0.6214 miles. Therefore, if you multiply the number of kilometres by 0.6214 (or 0.6 for a rough calculation), you get the number of miles.

$$\text{Miles} = \text{number of kilometres} \times 0.6214$$

If an object is 100 km long, we multiply that by 0.6214, and the answer is 62.14 mi.

Distance, Length or Height to Measure	km or m	ft or mi
Distance, North Andaman Island to Myanmar	285 km	
Amount of plate boundary moved in 2004		
Amount ocean floor moved upwards in 2004		
Height, Barren Island, sea floor to sea level		
Highest elevation, Barren Island		
Distance, Barren Island to Port Blair		

2. Read the information in the box and complete the table.

Converting square kilometres (km²) into square miles (mi²)

Often, books will give areas in square kilometres (km²). If you are used to miles and not kilometres, it is useful to know how to convert km² into mi².

One square mile equals 2.59 km². Therefore, if you divide the number of square kilometres by 2.59, you get the number of mi²:

$$\text{mi}^2 = \text{number of km}^2 / 2.59$$

If an object has an area of 1000 km², we divide that by 2.59, and the answer is 386.1 mi².

Area	km ²	mi ²
Andaman Islands	6408	
Myanmar		
Southeast Asia		