

Environment Grow Cards

Each topic has 40 cards, and these lists are to help you (or your students) to sort them into the different sets. Those in blue are based on mātauranga māori.

Name one way to check the nutrient status of the soil on a farm.	Describe two functions of soil.
Identify three soil organisms.	Explain why sandy soils drain quickly?
Provide three reasons why organic matter can improve soil?	Describe what legumes do in the soil?
Identify four components of soil.	Describe two advantages of direct drilling.
What is organic matter?	Describe the type of weather produced by high-pressure systems and low-pressure systems.
What is the difference between weather and climate?	What are two important roles that insects carry out within an ecosystem?
What are three indicators of a healthy waterway?	List ten words that describe landscape/topography.
What is one impact an El Niño has on New Zealand?	What is one impact a La Niña has on New Zealand?
Weather systems most regularly approach New Zealand from which direction? What causes this?	Describe topographic rainfall and how it creates a rain shadow?
What term is used to describe the artificial watering of farmland?	What is a microclimate?
What climate zone is New Zealand located in?	New Zealand has the fourth largest Exclusive Economic Zone in the world. What is the EEZ?
Name two causes of land erosion and explain how they cause erosion?	Describe the difference between a pasture surplus and a pasture deficit.
Give two reasons why there might be a lack of water in the soil?	Trash needs to be carefully managed.
Māori have named many atua (gods) who represent the natural environment, and are related to each other and to tangata (people).	According to Māori, the presence of swarms of namumanu (sandflies) is a forecast of what type of weather?
Define the Māori word "mauri".	Papatūānuku and Ranginui had many children who helped create the environment around us.
Taniwha are dangerous supernatural creatures, who are part of the natural environment and often have lairs in the dangerous parts of waterways.	The maramataka (Māori lunar calendar) informs when it is a good time to carry out activities – such as fishing, planting and harvesting- during the month.
The insect world features in many Māori legends.	Observation of Rangi (the sky) was used for predicting the weather.
What are the Māori names of the Earth Mother and Sky Father?	Wai-inu (drinking water), Waipukepuke (water with wind whipped peaks...)
Kupe is one of the ancestors who travelled from Hawaiki and has some responsibility in shaping New Zealand.	Between the south shores of Lake Tāupo and Tongariro is the maiden mount Pīhanga.
Tohu (signs) and maramataka (Māori calendar) are used to plan when activities take place.	Whakataukī are proverbs that help pass on wisdom.

Plant-Based Grow Cards

What is one reason lime is applied to soil?	What is the name of the process that describes the loss of water from plant tissues in the form of vapour?
Describe two functions of roots.	Name three seed dispersal methods.
Often plants are propagated in glasshouses and the plants need to be 'hardened off'.	Name two plant pests.
What is the difference between pesticides and herbicides?	Describe two reasons why plant classification is important.
Define what 'biological control' means in relation to pests and diseases.	Name three different asexual propagation methods.
Explain one way that weeds affect plant growth.	What is the difference between a perennial and annual?
Name two different pollination methods.	List three things that ALL seeds require for germination.
Describe the four stages of the lifecycle of most insects.	Podocarp trees boast a lineage that stretches back to the time when New Zealand was part of Gondwana.
What is an arboretum?	Describe two factors that contribute to making a weed invasive.
Define primary growth and secondary growth in a plant.	What is a green manure crop and why is it used?
What is photosynthesis?	What is respiration in plants?
What does being 'organic' involve?	Give two reasons why crop rotation is used.
Where is chlorophyll located, and what does it do?	Name two benefits of mulches.
Why do material heat up while they are composting?	What is grafting?
New Zealand has one of the largest range of seaweeds in the world, with over 900 species.	In the past, hue (gourds) were a staple crop of hapū and whānau.
Māori weavers recognise at least 60 distinct varieties of harakeke (flax). Why do Māori use different varieties, and name two harakeke products?	The practice of depositing bundles of leftover leaves under the harakeke plant to rot into compost is not advisable.
Traditionally, Māori have used chemicals found in the natural environment.	Māori maintained many tikanga (protocols) to nurture harakeke.
Māori weavers recognise at least 60 distinct varieties of harakeke (flax), and some cultivars were grown in pā harakeke (plantations).	Both Māori and Europeans used stones within gardens, or for walls, to alter the growing environment. Give one reason why?
It is common to plant kūmara and yams in mounds, and gourds and taro in shallow hollows.	Additives are often added to garden beds and cultivated sites.
In the past, Māori used elevated storehouses on a single pole to hold kai.	Rua kai (food storage pits) were dug into the earth, had drainage, sumps, a door, earth piled on the roof, floors covered in bracken and walls lined with timber or tree fern.

Animal-Based Grow Cards

Why is colostrum (first milk) important for newborn animals?	How many stomachs does a ruminant (eg., sheep or cow) have?
What is the definition of a notifiable disease?	Describe how you would know the age of your sheep?
Describe two functions of an animal's skin/hide?	Name three needs of a newborn animal.
Why would you use a drench?	Name three types of herd records you would keep if you were the manager of a dairy/beef farm.
Holstein-Friesian, Hereford, Angus and Jersey are all common cattle breeds.	What is a steer and what is a wether?
What is the purpose of a stomach?	What does the term rumination mean?
What is the advantage of 'body condition scoring' animals?	What sense do cattle and sheep use to identify their offspring?
Name two agricultural animals that have seasonal reproduction cycles and two that are year-round breeders.	What is the biological reason for slowly introducing different feed to an animal's diet, instead of converting them onto the new feed at once?
Where does most of the adsorption of nutrients occur in animals?	What are the five nutrients in the composition of stock food?
List three things to look for when inspecting livestock's feet?	Pasture growth slows over winter. Name two ways that farmers cope with the feed shortage?
Name two functions of the lymphatic system.	Name two behaviours of dominant cows.
Name two behaviours of sheep.	Name two behaviours of chickens.
Name two behaviours of dominant horses.	Name two behaviours of deer.
List four functions of bones.	What is the difference between wool and hair?
Describe how vaccinations work.	The behaviour of tītī (sooty shearwater) was considered by Māori when harvesting them.
Fishing experts play an important part in Māori life. Name four things a fishing expert would be knowledgeable on?	Bird experts play an important part in Māori life. Name four things a bird expert would be knowledgeable on?
The maramataka (Māori lunar calendar) offers guidance around when to go eeling.	Tānemahuta is also known as Tāne of the life-giving waters.
Some species of native birds were kept as pets including the kākā, kākāpō and gulls (excluding black and red billed ones as they are tapu).	How does a strong tītī (sooty shearwater) or seabird population contribute to the mauri (life-force) of islands?
Observation and experience are ways of learning knowledge. From the list, which tītī knowledge is best learnt through experience, not observation?	The kākā, kākāpō and gulls (barring the tapu black and red billed) could be mōkai (pets). The kākā was also used for bird hunting. How did the tame kākā help capture wild kākā?
Māori have a range of fishing methods for specific species and their habitat. Match the following fishing methods to the fish species:	Īnanga/matamata (whitebait) originated from atua (god) Rehua. The Īnanga asked Rehua for duties and he told them to look for a gleaming redness in the heavens.

Place & Locations Grow Cards

What are two reasons why most of New Zealand's major towns and cities are located close to rivers and/or the sea?	Name two of the four regions with the most dairy cattle.
Name two of the four regions in New Zealand with the most sheep.	Which region grows the most cereal crops, including wheat, barley, and oats?
What are the top three wine producing regions in New Zealand?	Are frosts more likely to occur inland or coastal, and at a top of a hill or in valleys?
Why do coastal areas have more moderate (i.e., less extreme) temperatures?	Which New Zealand region grows the most kiwifruit?
Where in New Zealand are merinos farmed predominantly?	Where are the five biggest export seaports by value located in New Zealand?
Flat, rolling, steep and mountainous are used to describe topography. Give two reasons why flat land is more valuable?	Avocados are usually grown in Northland and Bay of Plenty. What type of temperature, rainfall and sunshine do avocados like?
Guess the region... Warm, dry climate. Economy is land-based and landscape is varied, with mountains, hill country, plains and a coastline forming a large bay.	The well-drained volcanic soil from Pukekohe-Bombay south to Pukekawa produces one-third of New Zealand's fresh vegetables.
Guess the region... Land ranges from steep hill country to drained wetlands.	Guess the region... Dominated by two large harbours, on the east and west coasts.
Guess the region... Moderately steep hill country and a long coastline (1,700 km), with lots of islands.	Guess the region... Steep ranges with a mixture of native bush and forestry and alluvial plains that are the hub of production.
Guess the region... Warm summers and mild winters, but rainstorms are common, which can lead to floods.	Guess the region... A large area on the west coast centred on a cone-shaped volcano that flows down to fertile plains.
Guess the region... Water from Mount Ruapehu flows down to extensive river plains...	Which region in New Zealand has a subtropical climate?
Guess the region... Mostly hilly and mountainous with some well-known lakes, native forest, and forestry.	Guess the region... Most notable geographical feature is the Sounds, where a port and mussel beds are located.
Guess the region... Divided into two by the Remutaka and Tatarua ranges.	Guess the region... Mountainous with extensive native bush.
Guess the region... Largest region in New Zealand and mostly flat with extensive plains.	Guess the region... Offers mountains, vast dry plains, dramatic rivers, and remote beaches.
Guess the region... An agricultural powerhouse.	Name two of the four regions with the most beef cattle?
Some areas or things are either permanently or temporarily tapu (sacred, special).	Some Māori stories can function as maps, like how Māui fished up Te-Ika-a-Maui (North Island).
Rongo-marae-roa is the atua (god) of peace, horticulture, and cultivated foods.	Pā sites are often located to take advantage of natural features.
Kaimoana (seafood) was traditionally an important part of Māori kai.	Shellfish harvesting was always carried out in accordance with maramataka (Māori lunar calendar).
New Zealand is the land of birds.	What is a rāhui and why is it used?
The relationship Māori have with the environment has resulted in the establishment of many land and sea-based business.	Haumia-tiketike contrasts with Rongomarae-roa and can be found in the forests of Tāne Mahuta.