مركز عمان للموارد الوراثية الحيوانية والنباتية

مجلس البحث العلمي
The Research Council

كنوز عمان

Treasures of Oman

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the event

The Oman Animal and Plant Genetic Resources Center (OAPGRC), along with its partners, has organized a fun-filled event for you to learn about the beautiful plants, animals, marine and microbial species of Oman.

Discover where we can find them in Oman and look at what good things they can do for us and our environment.

Take care of them, they will take care of us.

the animal world
extinction is forever

the marine world
into the blue

the plant world
planting for tomorrow

the microbial world
look into my world

Dear students,

We hope you enjoyed your visit to the Tresures of Oman Roadshow and all the activities.

Apart from fun, the roadshow has a very important message;

Here in Oman we have been blessed with a treasure chest of genetic resource that includes animals, plants, marine and microbial life.

These genetic resources are incredibly important, not just for us, but for the world. This places a huge responsibility on our shoulders. We need to make sure these precious resources, which feed us, support our health, society and economy are preserved, conserved and managed so future generations can enjoy and benefit from them.

Join us in our mission to look after these natural treasures!

Sign OAPGRC's pledge now!

Dr Nadiya Al-Saady
Executive director, OAPGRC

about OAPGRC

Oman, thanks to its diverse climatic conditions, size and geography, is blessed with a treasure trove of outstanding biodiversity, an abundance of which is reflected at the genetic level. This unique pool of genetic resources spans the animal, marine, and plant worlds, both domesticated and wild, as well as the world of micro-organisms.

Following His Majesty Sultan Qaboos bin Said's order to review Oman's opportunities in protection of its globally significant genetic resources, the Oman Animal and Plant Genetic Resources Center (OAPGRC) was established by The Research Council in 2012.

Our mission is to promote the recognition, sustainable exploitation and valuation of genetic diversity inherent in Oman's animals, plants and microorganisms as a natural heritage resource.

It is our vision to develop as a collaborative hub for all animal and plant genetic resources activities; promote the sustainable use of knowledge across economic sectors and social segments; create value from world-class research and practical innovation; share our work with the world of international science and build recognized local capacity in the field of genetic resources.

With policy, expertise and capacity building, and extracting value underpinning all our activities, we work with a variety of local stakeholders and partners - from farmers to scientists to government organisations - on twenty-eight programs that will help us fulfil our remit and achieve our goals. They include research, data collection, conservation, public awareness and community engagement.

We share our experience, expertise and best practice through participation in a variety of committees, conferences, workshops, seminars and training activities and we proudly promote OAPGRC through activities which include: teaching out to schools, exhibitions, conferences, workshops and science cafés.

Oman
Animal &
Plant
Genetic
Resources
Center

The OAPGRC Promise

Oman is my country and I am determined to protect and look after our wonderful plants, animals and genetic resources. By committing to do as many of these as I can, even if that means only a few, I promise to join other young Omanis to help build a sustainable, biodiverse and eco-friendly Oman.

I promise

- to do everything I can to protect plants, animals and the environment
- to encourage my teachers to plant local plants in our school
- to spend more time outdoors, exploring and enjoying nature
- to encourage my family to buy local and seasonal foods
- to encourage my family to support local farmers
- to turn off the lights and A/C before leaving a room
- to unplug all my things when not using them
- to turn off the tap while brushing my teeth
- to recycle
- to take reusable bags when I'm shopping
- to donate instead of throwing away
- to put my rubbish in the bin

I will share my promise with family, friends and neighbours.

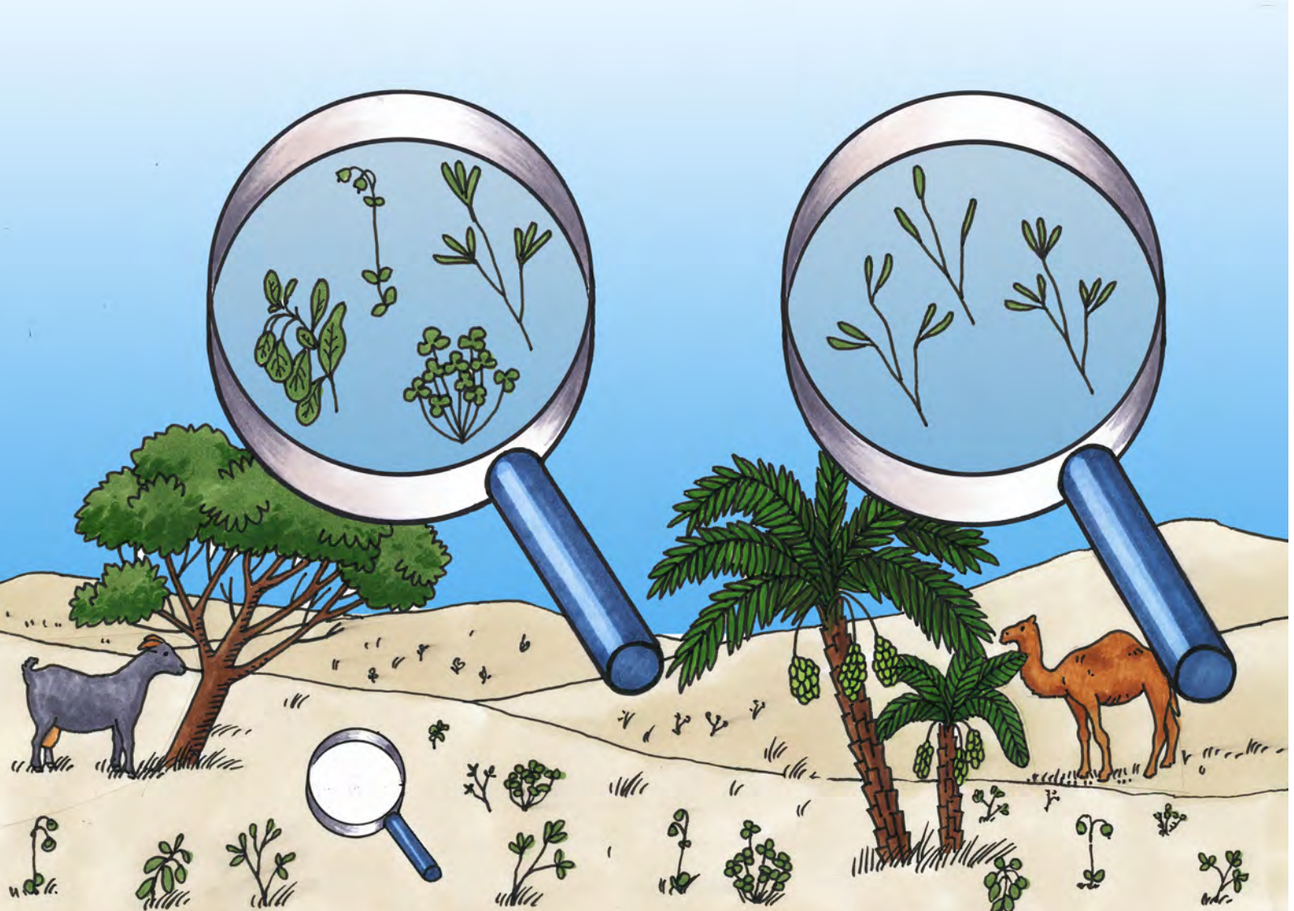
Name:.....

Date:.....

We live in the Sultanate of Oman and go to our local primary school.
Our favourite subject is science and we love learning about all the great things in nature - animals, plants, everything that's in the sea and even the tiny microbes we can see with a microscope.
Our teacher says all these things together are called biodiversity.

Join us at the Oman Animal and Plant Genetic Resources Center's Roadshow and find out more about Oman's biodiversity! They're our natural treasures.

Murjan means coral
Talah means little palm



The value of our biodiversity

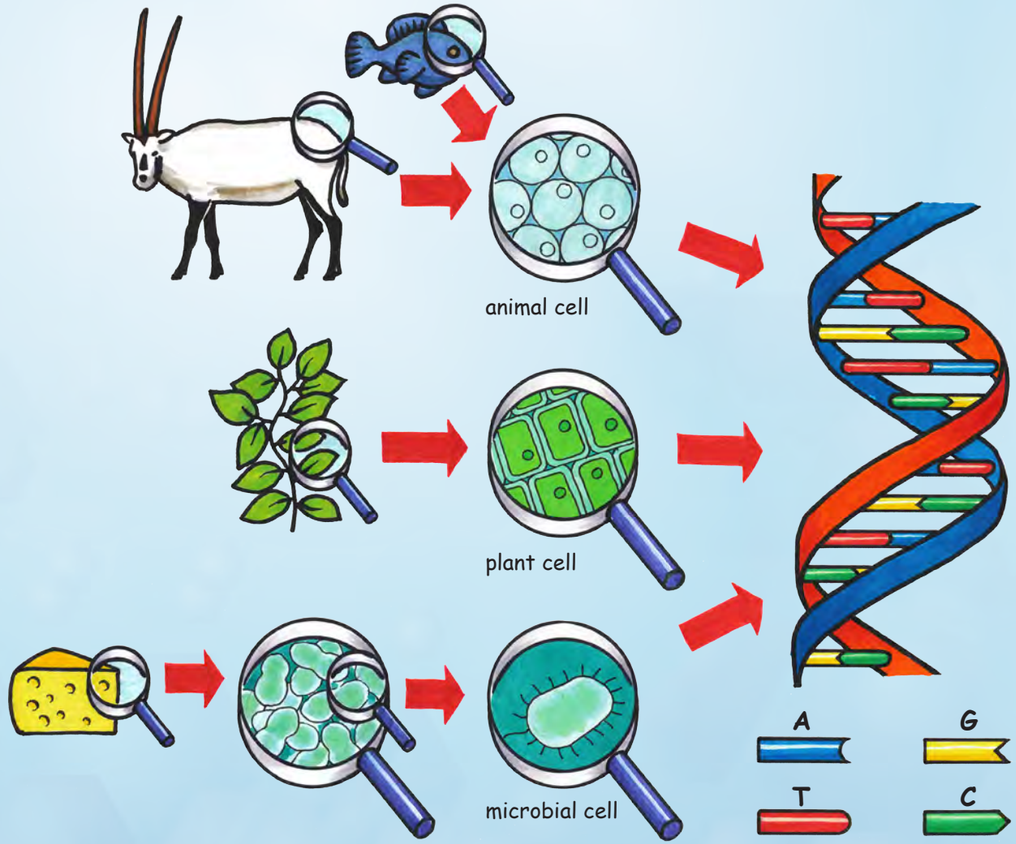
- Biodiversity can help us with food, health and energy. We haven't explored everything it can do for us yet!
- Therefor we need to protect the incredible genetic resources of our nation. Conserving biodiversity is beneficial to our life in many ways and it improves the quality of the environment.
- All the different species that exist ensures we have a strong ecosystem.

We need everybody to help in our important mission!

It will help us learn what genetic resources we have in every region, it will also help us record all the traditional knowledge about plants and animals so we can benefit from it in the future

Take care of nature and it will take care of you!

Oman Animal & Plant Genetic Resources Center



DNA

Scientists have discovered that every living organism has a special, unique code. This code describes every bit of every organism. It shows us how one thing is different from another. This code is DNA.

DNA describes all the ingredients and characteristics needed to make any living organism.

animal classification

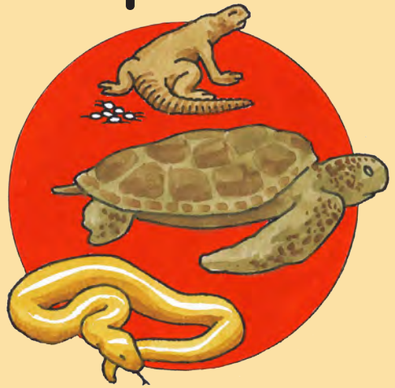
mammals

- have fur or hair
- need air to breath
- warm-blooded
- feed young with milk

birds

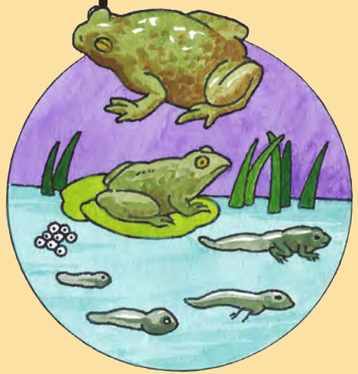
- have feathers and wings
- warm-blooded
- lay eggs
- have two legs
- have a beak

reptiles



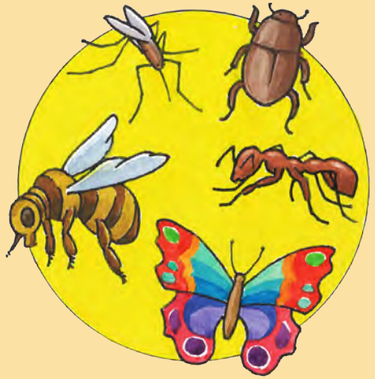
- have dry scaly skin
- lay eggs on dry land
- cold-blooded
- have four legs or no legs

amphibians



- have a slimy skin
- have webbed feet
- breathe with lungs and gills
- cold-blooded

insects



- have six legs
- have an exoskeleton
- three body parts
- hear, touch and taste with antennae

taxonomy

Taxonomy is the way to organize all living things into groups.

This is done based on the way they look and behave. For example, every warm-blooded animal that provides milk for their young belongs to the group we call 'mammals' and every creature that lays eggs and has feathers belongs to the group we call 'birds'.

advise from the scientists

Mrs. Hanan Al Nabhani
Museum Specialist
Natural History Museum

Sand skinks are desert lizards.
We can get oil from them and use it to threat different illnesses and medical problems. Our animals have lots of uses.

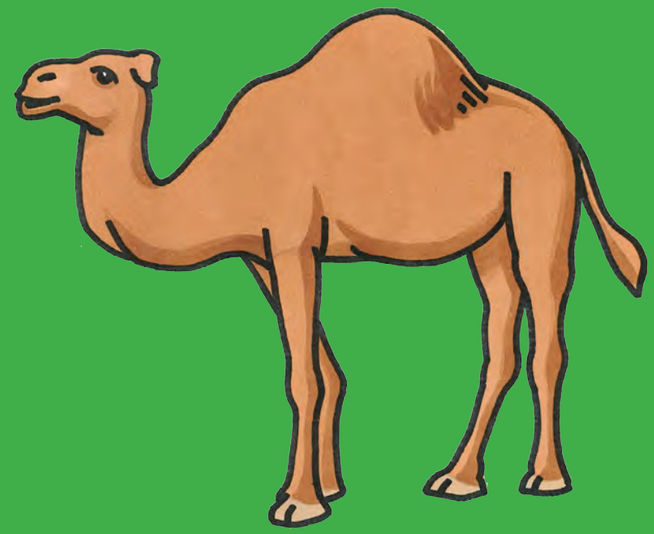
Dr. Senan Baqir
Assistant Professor,
College of Science
Sultan Qaboos University

Oman has a really unique biodiversity especially with its animals. But, sadly, some of them are in danger of extinction.
You, as a student and citizin of Oman, have a responsibility to help protect our uniqueness.
you can do this by:

- *not hunting and stopping others hunting*
- *looking after the habitat of our animals*
- *telling the authorities (Ministry of Environment and Climate Affairs or Royal Court Affaires) if you see an injured endangered animal so they can come and rescue it"*

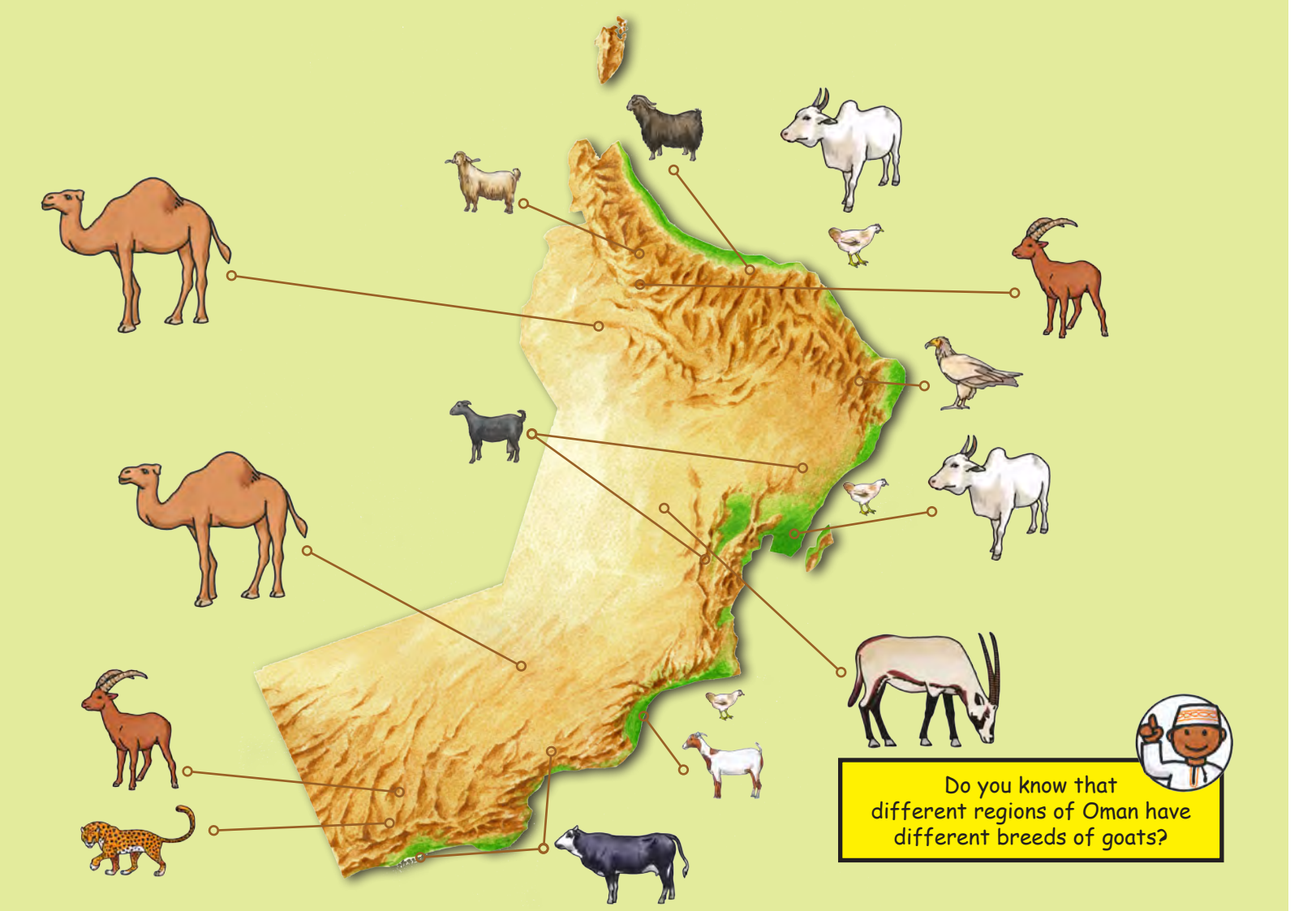
Dr. Ali Al-Wahaibi
Assistant Professor
College of Agricultural and Marine sciences, Sultan Qaboos University

"Without insects the world as we know will not exist.
People just don't understand the value of the products and services that insets provide us with!
For example, if bees don't pollinate we won't get all the fruit and vegetables we need.



the animal world

extinction is forever



Do you know that different regions of Oman have different breeds of goats?

Oman's animal world

Oman is blessed with over 47 species of land mammals, 10 livestock species and over a hundred types of birds. Although we know a lot about Oman's biodiversity, little is known about their genetic diversity.

What is genetic diversity?

In every species, each individual animal has a unique genetic code – this is what gives them their own special characteristics, like big feet, short feathers or a bright colour. We need to understand these variations so we can look after our animal world properly and make the best use of it.

Humans have been domesticating wild animals for thousands of years. The main types of animals that people in Oman farm and eat are cattle, sheep, goats, camels and poultry. The great majority of these are local but foreign breeds are used too, for example, as dairy cattle and on commercial chicken farms.

Meat and milk are the most important products from cattle, while meat is the most important product from sheep and goats. Poultry is used for its meat and eggs.

Cattle are the main source of manure in the country followed by goats, then sheep and poultry!

Animals play an important role in society. They are a source of energy, fertilizers and income. They are also valued as pets.

Animal genetic resources face a lot of threats from the environment as well as humans. Animals are important to us for our food and for our environment. We need to protect them.

Take care of nature and it will take care of you!

Oman Animal & Plant Genetic Resources Center

poaching

pollution

habitat loss

benefits of wild animals

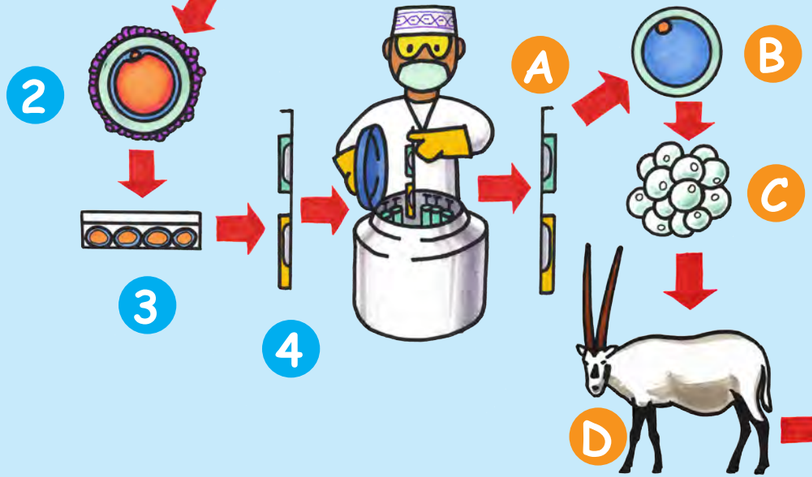
- they maintain the balance of nature
- preserve the vitality and the health of our environment.

do you recognize these animals?

How scientists can help endangered animals?

cryo-preservation

1. Scientists take a tissue sample from the animal
2. Out of the tissue sample they take one cell
3. The cell gets copied into a cell line
4. The cell line is slowly cooled down and stored in a liquid nitrogen container at -196 degrees celsius.
(This is so cold it can be there forever)

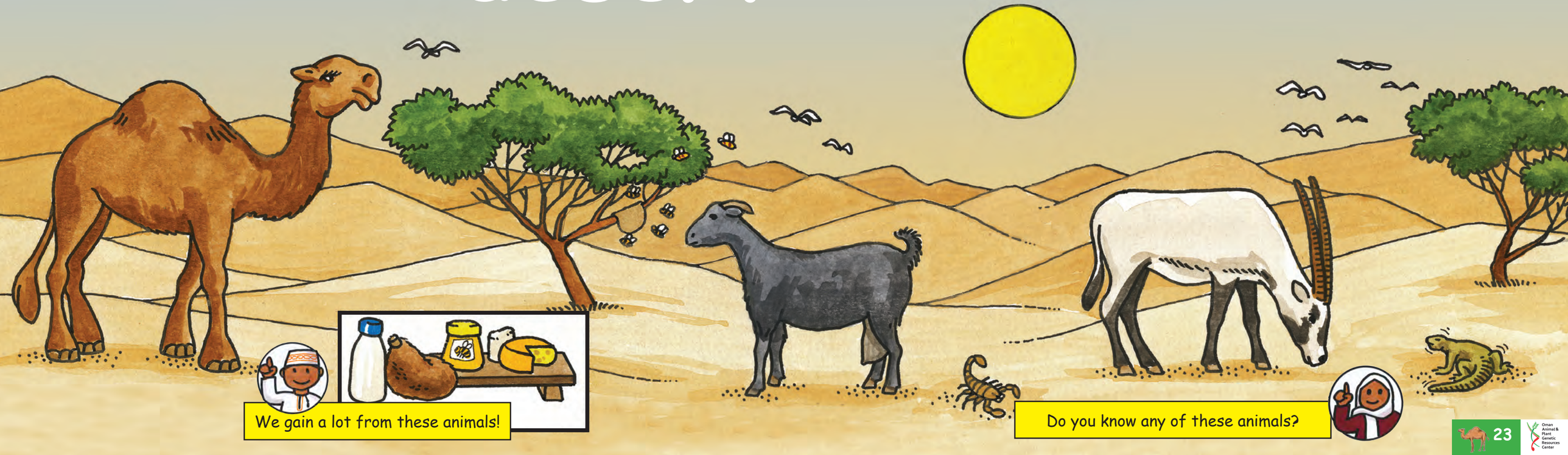


A. Scientists carefully remove the cells out of the liquid nitrogen
B. After defrosting the cell line, they manipulate the cells
C. They create an embryo with the cells
D. They implant the embryo into a healthy animal
E. A new healthy baby is born

Oman Animal & Plant Genetic Resources Center

desert

In the desert it is very hot and there is very little water and a lot of sand.
The desert is very important for Oman and you will be surprised to know how much diversity of life is there.

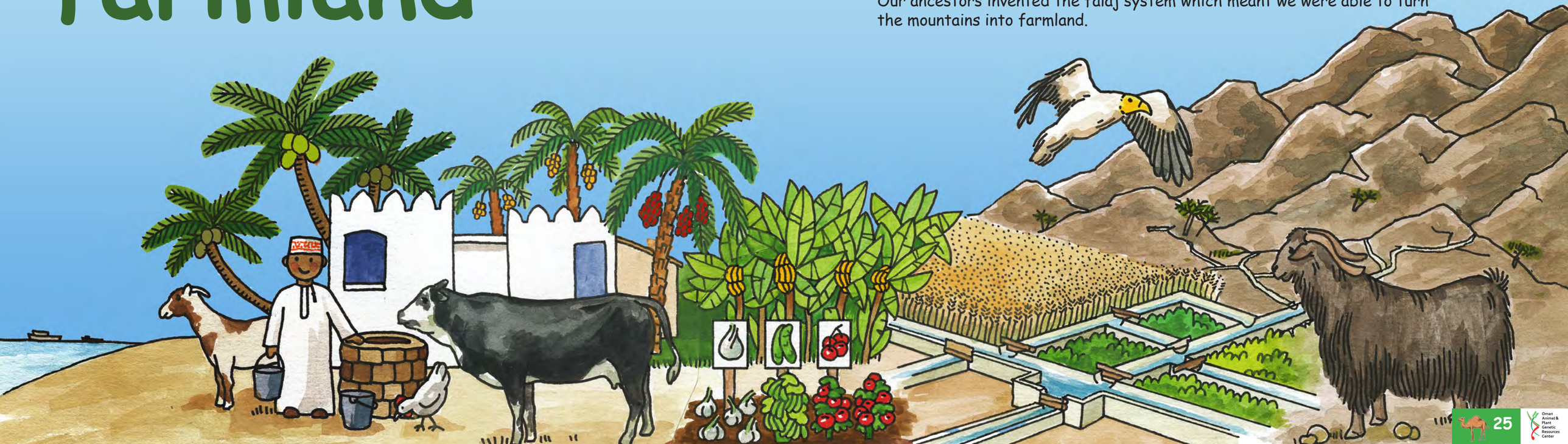


We gain a lot from these animals!

Do you know any of these animals?

farmland

A lot of farmland is found along the coast of Oman.
The main domesticated animals of Oman are camels, goats, horses, sheep, cattle,donkeys and poultry.
Our ancestors invented the falaj system which meant we were able to turn the mountains into farmland.



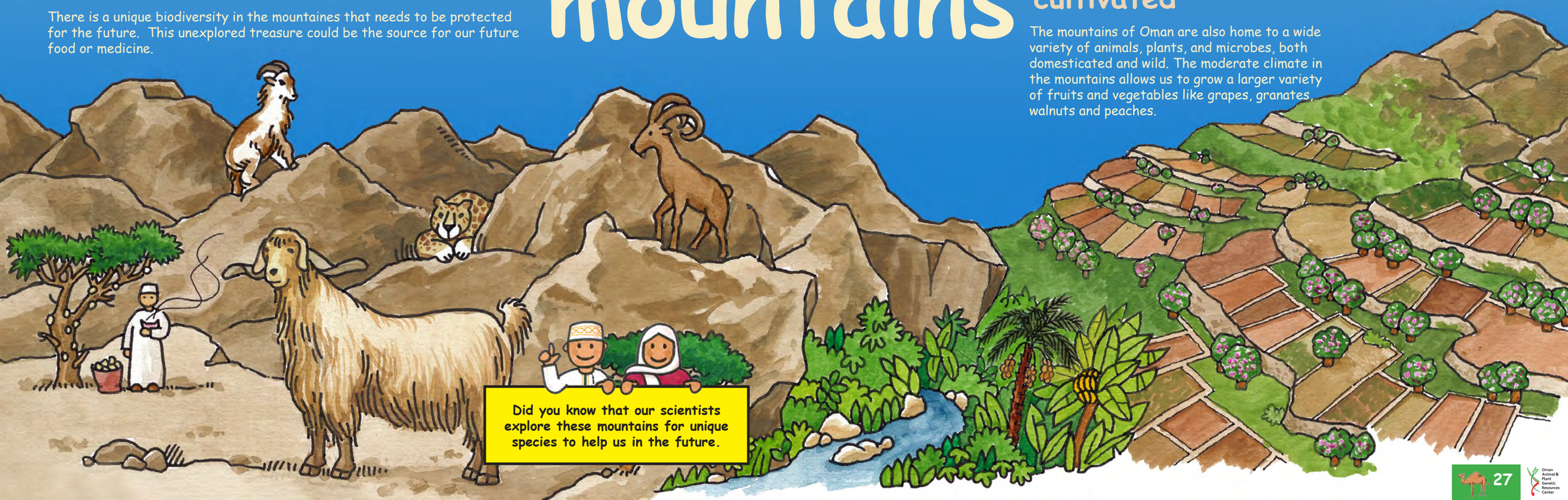
wild

There is a unique biodiversity in the mountaines that needs to be protected for the future. This unexplored treasure could be the source for our future food or medicine.

mountains

cultivated

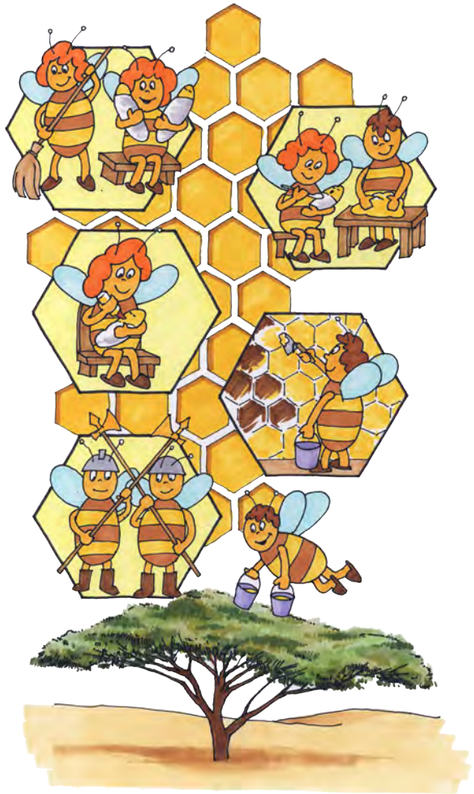
The mountains of Oman are also home to a wide variety of animals, plants, and microbes, both domesticated and wild. The moderate climate in the mountains allows us to grow a larger variety of fruits and vegetables like grapes, granates, walnuts and peaches.



Oman Animal & Plant Genetic Resources Center

buzzzzzy bees give more than honey

Omani honey bees are genetically equipped to survive and operate in a very hot and harsh environment. Certain plants, like the accasia tree, live in those hot and harsh desert. They depend on the pollination services of these Omani honey bees for their survival.
So more than honey, the bees keep life going in the desert.



pollination

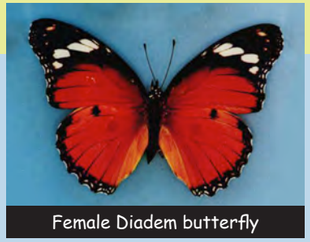
Flowers produce seeds after pollination and fertilization. Sometimes plants can do it by themselves (self-pollination) but most flowers need the help of the wind or insects to pollinate. When pollen is carried from one plant to another it is called cross-pollination. Cross pollination results in different varieties of flowers and plants.

Did you know that scientists imitate what insects do in nature, in the lab, to make improved varieties? These are called hybrids

butterflies in Oman

There are about 70 species of butterflies in Oman. There are more than 15,000 species in the world. Only the toughest ones can survive in our hot and dry climate!

To breed successfully in Oman, a butterfly must be able to find the correct plant food for its caterpillars, some of which can only survive in a single type of plant.



Female Diadem butterfly

plain tiger butterfly

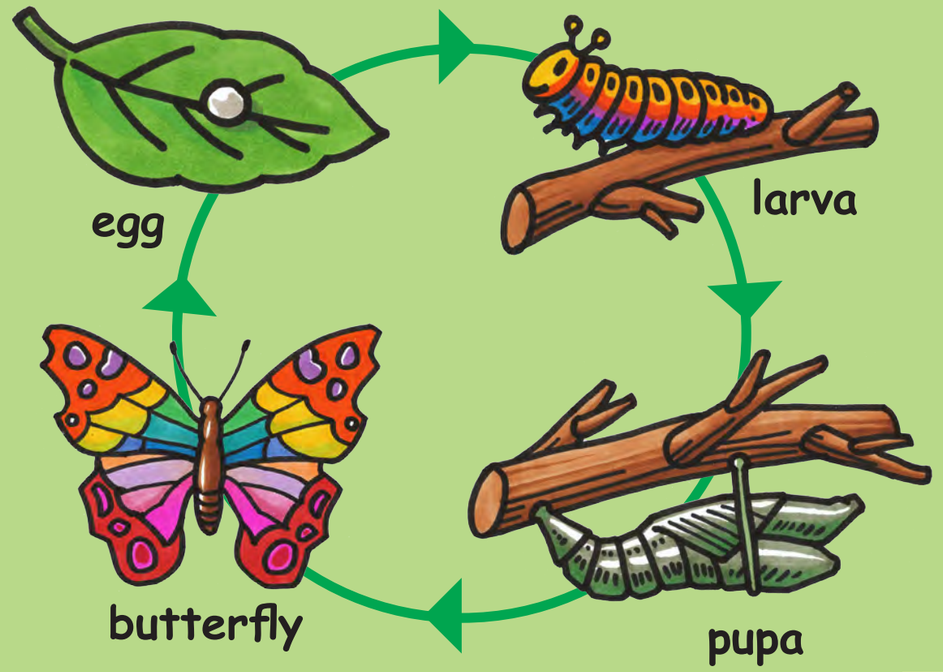
mimicry

The female diadem butterfly looks and acts a lot like the plain tiger butterfly.

This is an example of how butterflies copy, or mimic, each other.

Why do you think they do this?

life of the butterfly



advise from the scientists

Mr. Abdullah Hilal Al Balushi
Specialist monitoring and data collection, Oman Animal & Plant Genetic resources Center

Marine living resources that are considered as 'plenty' today may not be the same in the near future. It is well recognized that many fish stocks have been pushed to or beyond their regenerative capacity. The Food and Agriculture Organization of the United Nations (FAO) statistics indicate that almost 90% of known marine living resource are in status of overexploited or fully exploited and only 10% are still in good shape and may offer some future potential.

Let's participate in the global efforts in sustaining the marine living resources at a level that will generate the optimum economic benefits and ensure its sustainability for future generations.

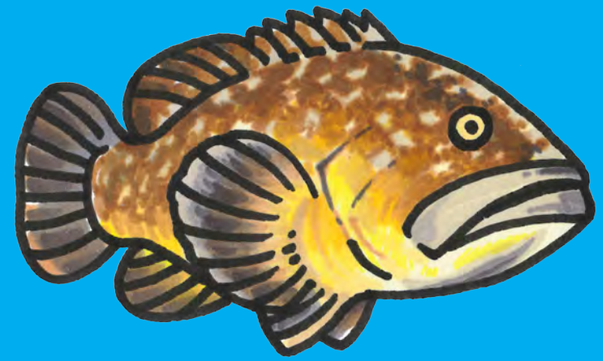
Mrs. Wahida Alamry
Specialist in molecular biotechnology
Ministry of Agriculture and Fisheries Wealth

Our beaches and our sea have so much biodiversity.
Please look after it by not throwing rubbish on the beach or in the sea.
And please take care of everything that lives in the sea as well as our birds.

Mrs. Zahra Al Habsi
Nature Reserves Specialist
Ministry of Environment and Climate Affairs

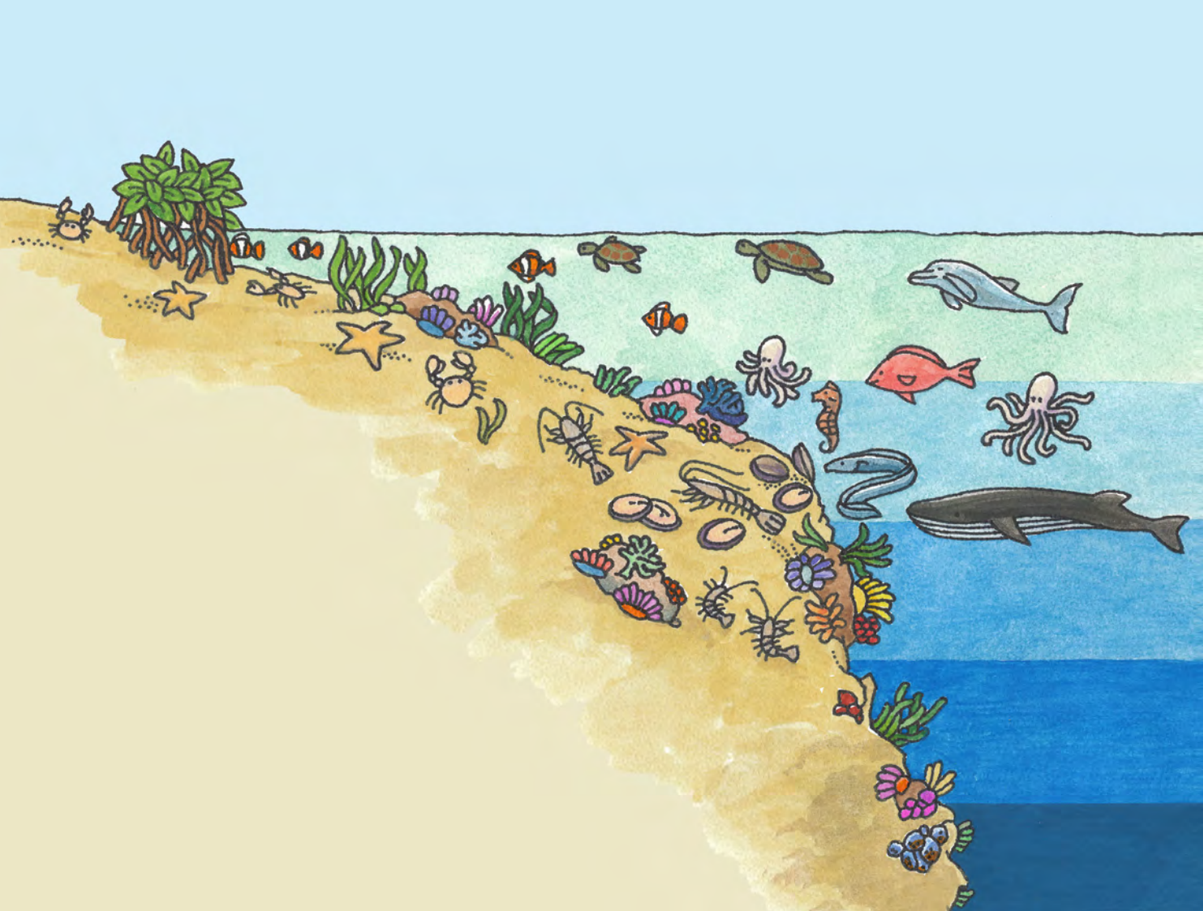
Our mangrove forests are really important to our ecosystem. They help look after the soil and the natural shelter for fish and all kinds of marine life.

One type of mangrove is called Avicennia marina and it's specially adapted to the environment in Oman and our lack of fresh water.



the marine world

into the blue!



the marine world

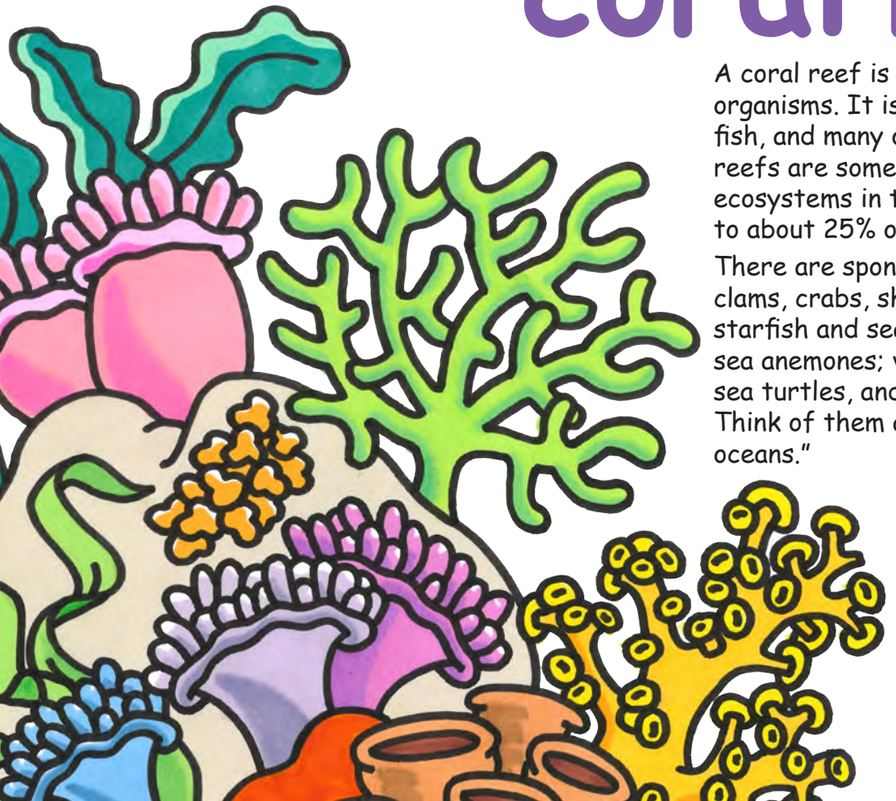
Oman, with its long coastline, has a treasure chest of marine life, with over 20 marine mammals, more than 1000 fish species, over 180 coral species and 5 turtle species.

How many things that live in the sea can you name?

A lot of work is currently going on to study marine diversity in Oman.

It is important that we protect our marine ecosystems, biodiversity and genetic diversity and make sure that we use them responsibly so they are still there for generations to come.

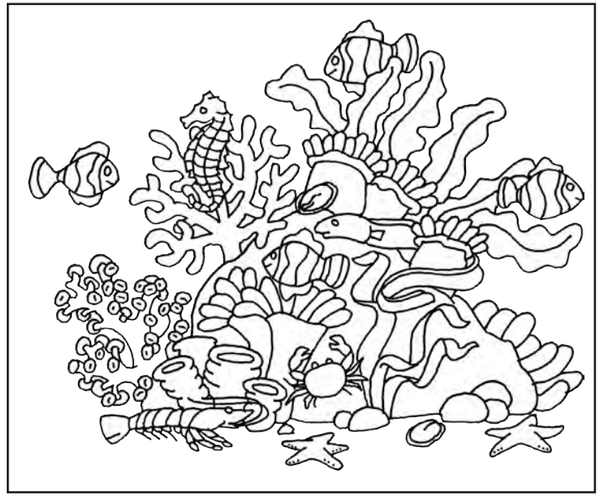
coral reef

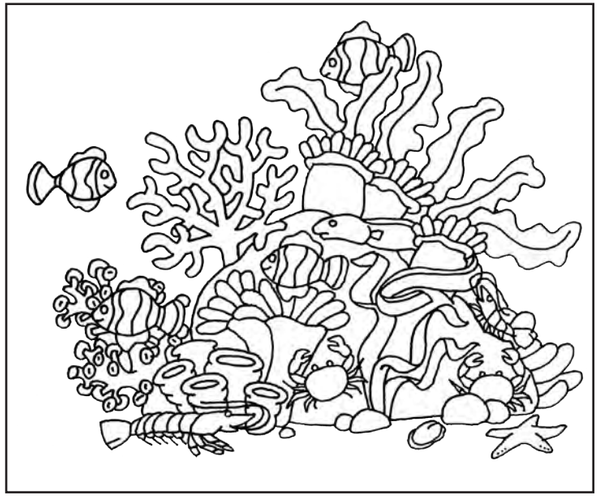


A coral reef is a community of living organisms. It is made up of plants, fish, and many other creatures. Coral reefs are some of the most diverse ecosystems in the world. They are home to about 25% of all marine life!

There are sponges, sea slugs, oysters, clams, crabs, shrimp, sea worms, starfish and sea urchins, jellyfish and sea anemones; various types of fungi, sea turtles, and many species of fish. Think of them as the "rainforests of the oceans."

find the 7 differences





turtles in Oman

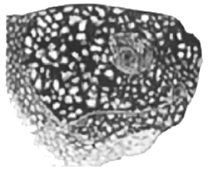
Did you know that turtles always come back to the same place they were born to lay their eggs?

Olive Ridley

Hawks bill

Loggerhead

Green Turtle



Leather back

The Olive Ridley is a small turtle that weighs about 40kg and feeds on seaweed and sea grasses and can lay about 100 eggs at a time.

The Hawksbill weighs about 70 kg and feeds on soft coral, sea grasses and seaweed. They lay about 100 to 160 eggs at a time.

Loggerheads weigh about 150 kg. They have powerful jaws which allow them to feed on hard shelled jellyfish. They lay about a 100 eggs at a time.

Green Turtles can weigh about 200 kg and feed on seaweed and other green plants. Green Turtles lay about 110 eggs at a time.

The Leatherback Turtle is a giant turtle reaching between 400 to 900 kg! It feeds on jellyfish. They lay about 80 eggs at a time.

sea gull

fox

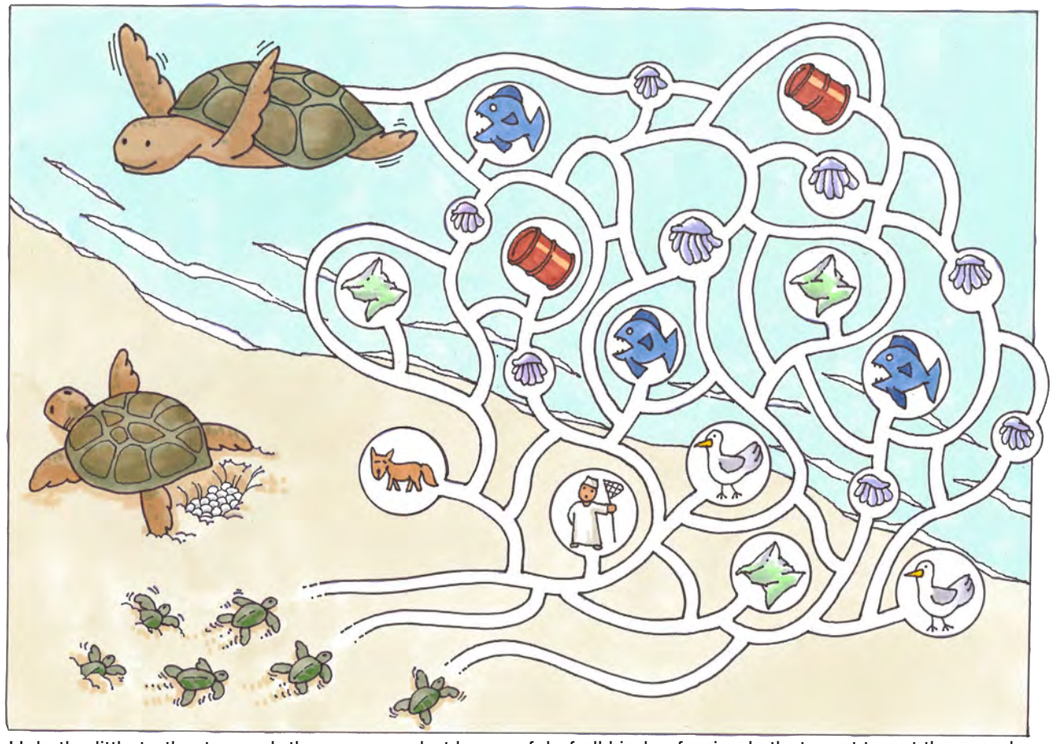
human

oil

fish

jelly fish

plastic



Help the little turtles to reach the open sea but be careful of all kinds of animals that want to eat them and Watch out for floating plastic they might mistake for food!

advise from the scientists

Dr Ali Al-Lawati
Plant Genetic Resources Expert
OAPGRC

Our beloved country has a lot of useful plants that used for food, medicine, clothing.

So let us conserve and use them for our future."

Dr Hamid Galoub
Policy and Data Analysis Expert,
OAPGRC

Oman is one of the most beautiful countries and has unique location and geography. This means we have a wide range of biodiversity in general and genetic resources in particular. Food security could be enhanced through conservation and sustainable use of agro-biodiversity"

Mrs. Safaa Al-Farsi
Head of seed research and plant genetic resources section
Ministry of Agriculture and Fisheries Wealth

We should all understand how important our plant genetic resources are and do everything we can to look after them and make sure we still have them in the future.
We have some plants here that are important not just to us in Oman but to everyone in the world! This is because they have special features, for example, they can grow in high temperatures and lots of scientists are very interested in this.

the plant world

planting for tomorrow

the plant world

Plant genetic resources are important to Oman, whether they are for agriculture or for things like medicine.

Oman is blessed with so many species of plants – more than 1,200! This biodiversity is because Oman sits between two regions – Asia and Africa. Because of this combination, Oman has been able to develop a big diversity of plant genetic resources.

The plants in the north of Oman are more like those of Asia and those in the south are more like those you can find in Africa and some plants you can only find in Oman.
That's why we have so many different kinds of fruits – from mangoes and bananas to pomegranates, plums and peaches. We have vegetables too and plants that animals like to eat.

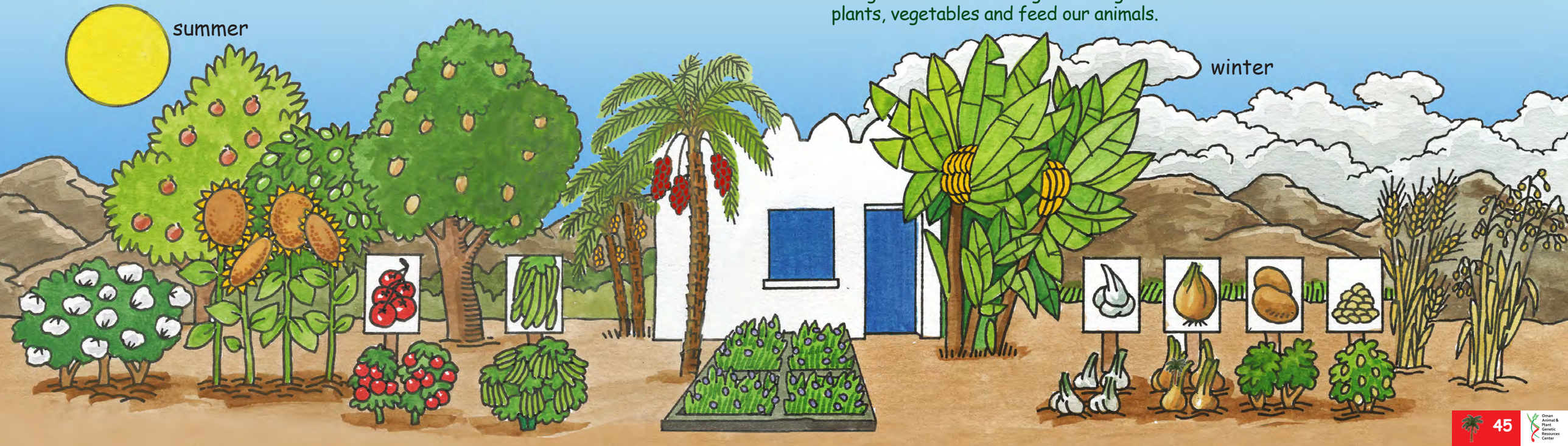
The Oman Animal and plant Genetic Resources Center is now collecting all the information about the plants of Oman and storing it in a database. Researchers can use this information to turn our genetic resources into value.

Like all genetic resources, our plants are under threat from us humans and the environment!

We need to protect and preserve our plants!

crops of Oman

Oman has two different seasons and each season has its own crops
Using well-water for irrigation we grow plants, vegetables and feed our animals.

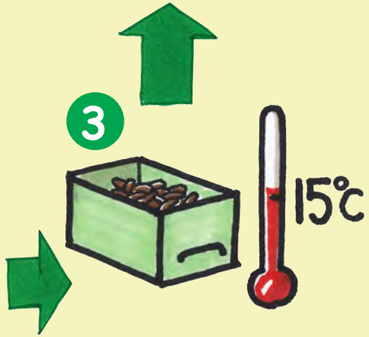


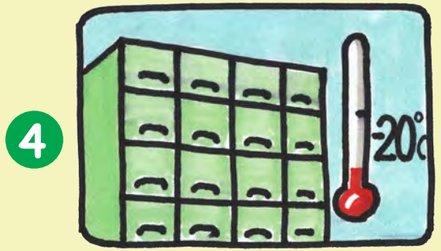
seed bank

Seed banks store seeds at low temperature to preserve the genes for future use.

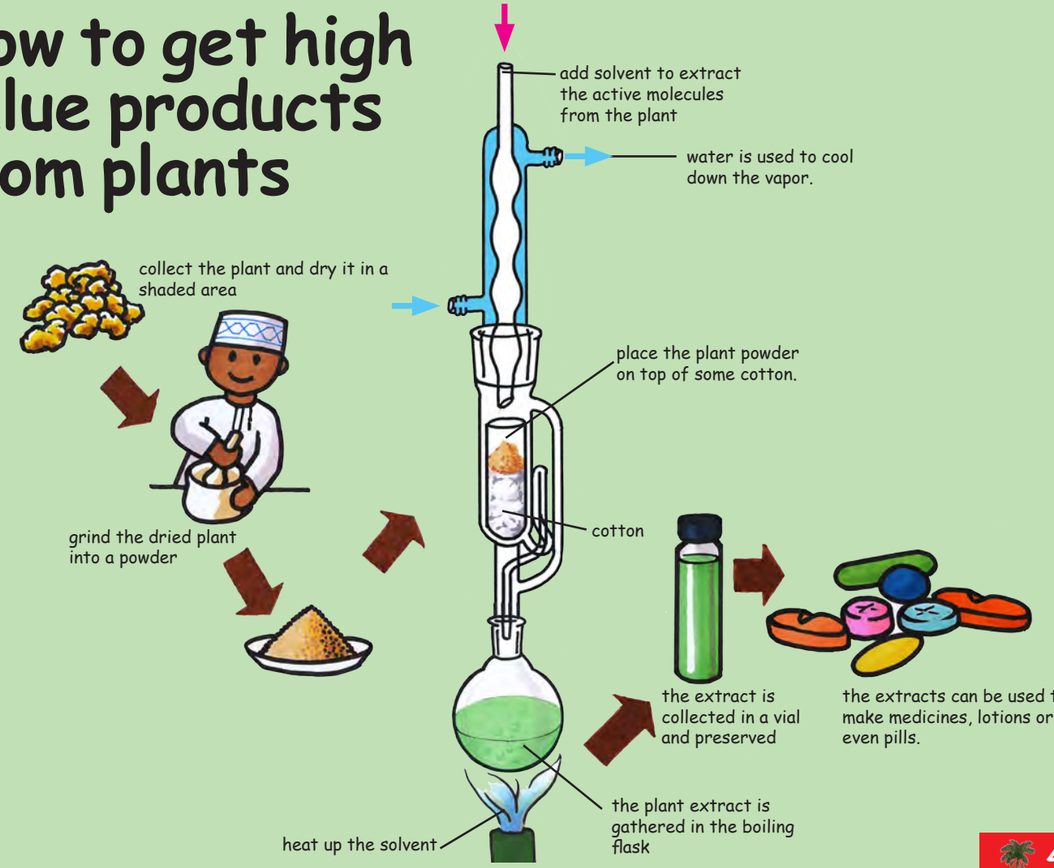
How does it work?

1. collect seeds
2. clean and test the seeds and record that information
3. dry and package the seeds
4. store the seeds in a cold room





How to get high value products from plants



citrus fruits

All citrus fruits contain citric acid and are rich in Vitamin C.

Vitamin C enhances the absorption of iron in our body.

Many varieties of citrus fruit grow in Oman.

Applying lemon juice to fresh fruit keeps it from browning.

Among citrus species, lime, locally known as 'lomi' is traditionally the most cultivated crop in Oman.

Limoo amani (dried Omani lime) is popular as a spice throughout Middle East.

Did you know?
Oman played a role in the spread of citrus fruit to the New World from its origin in Asia to Africa and Europe.

missany

cooley

sarraya

Wheat is a staple food in Oman and is a major crop in traditional farming systems.
It is a winter crop.The local cultivars include Sarraya, Missani, Cooley, Hamira, Greda and Walidi. The most popular among them is Cooley. It occupies about 80% of the area under cultivation of local wheat varieties.

Oman Animal & Plant Genetic Resources Center

The OAPGRC logo has two overlapping strands which are inspired by the DNA double helix. The two strands overlap so they look like a sheaf of wheat.
Did you know wheat is a really important crop in Oman?
Can you see part of the logo that looks like a seed or an egg?
We use red and green in our logo as they're the colours of the Research Council and they set up OAPGRC.
They're the colours of the Omani flag too.

how do we make bread?

collect and dry the wheat

grind the wheat

make the dough with water

knead the dough

bake the bread on a hot metal plate

enjoy!

advise from the scientists

Jackson Achankunju

M.Sc,M.Ed,M.Phil,Ph.D (ABD)

A'sharqiyah University, Ibra, Oman

- *Oman has a very special kind of biodiversity spread over tits plains, wadis, mountains, rock pools, deserts and seas.*
- *The diversity and potential of Omani species of bacteria, fungi, microalgae, seaweed and plants have not been explored yet. There is a unique collection of microbes in Oman's special habitats like hot springs and deserts. The hidden biochemical treasures in them have a lot of potential which need to be revealed by research.*
- *We could get some very valuable things from them which may benefit humanity and industry might be interested in. Algae might help with food and medicine for the entire world!*
- *I hope one day you become a scientist or entrepreneur and get involved in this!*

Dr. Abdullah Al-Sadi

Associate Professor of Plant Pathology
College of Agricultural and Marine Sciences
Sultan Qaboos University

Microorganisms play an important role in our life. Several species have direct and indirect benefits to humans. These include the ones that produce antibiotics, biocontrol agents of insects and diseases, ones that help plant growth and development, those that break down waste material and microorganisms used in food processing and biotechnology."

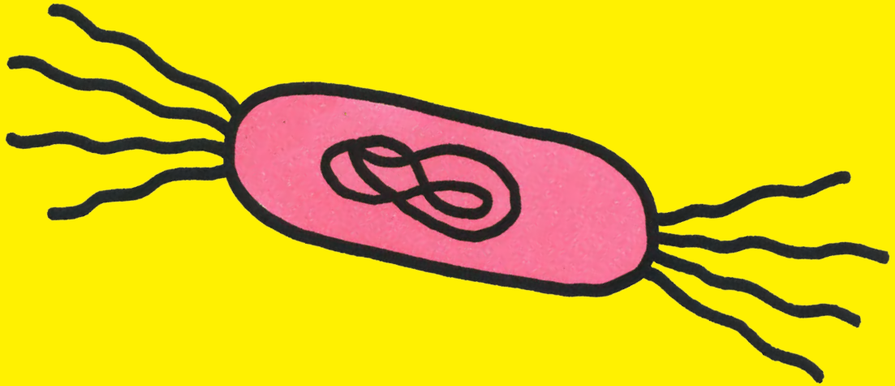
Dr. Oksana Chernysheva

Senior Scientific Coordination Consultant
Oman Animal and Plant Genetic Resources Center

- *Typically, there are approximately 40 million bacterial cells in one teaspoon of soil! Wash fruit and vegetables thoroughly before you eat them!*
- *Most antibiotics are made from bacteria.*

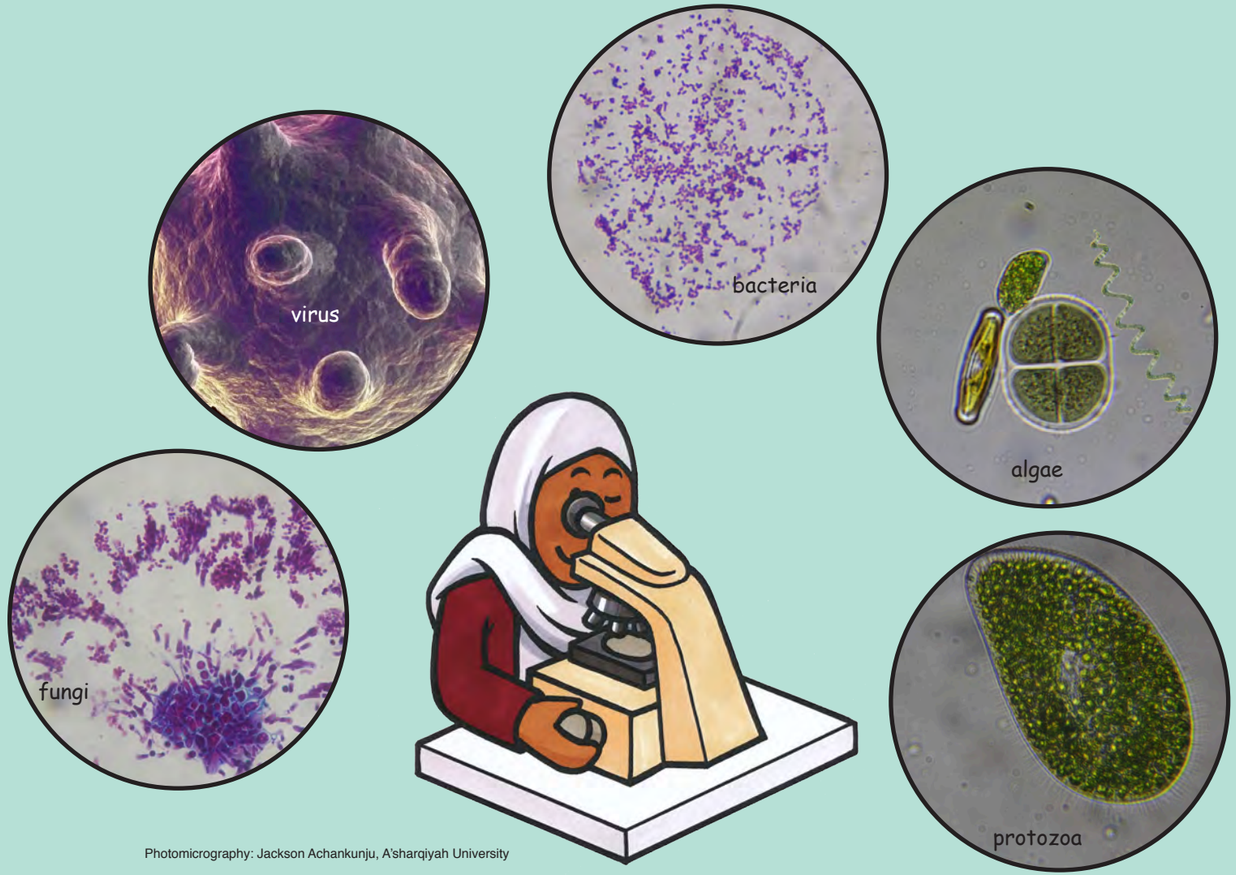
If you get sick and your doctor prescribes antibiotics, always follow doctor's instructions on how to take antibiotics. Remember. if you don't do what your doctot says, you could get worse!

Overall, the science of biology is amazingly interesting and has a big future. New fascinating scientific discoveries are waiting for you! Be a scientist and make the future!"



the microbial world

look into my world



Photomicrography: Jackson Achankunju, A'sharqiyah University

microorganisms

Microorganisms, or microbes, are tiny creatures that usually can only be seen with the help of a microscope. They are mostly just a single cell or made up of a cluster of cells.

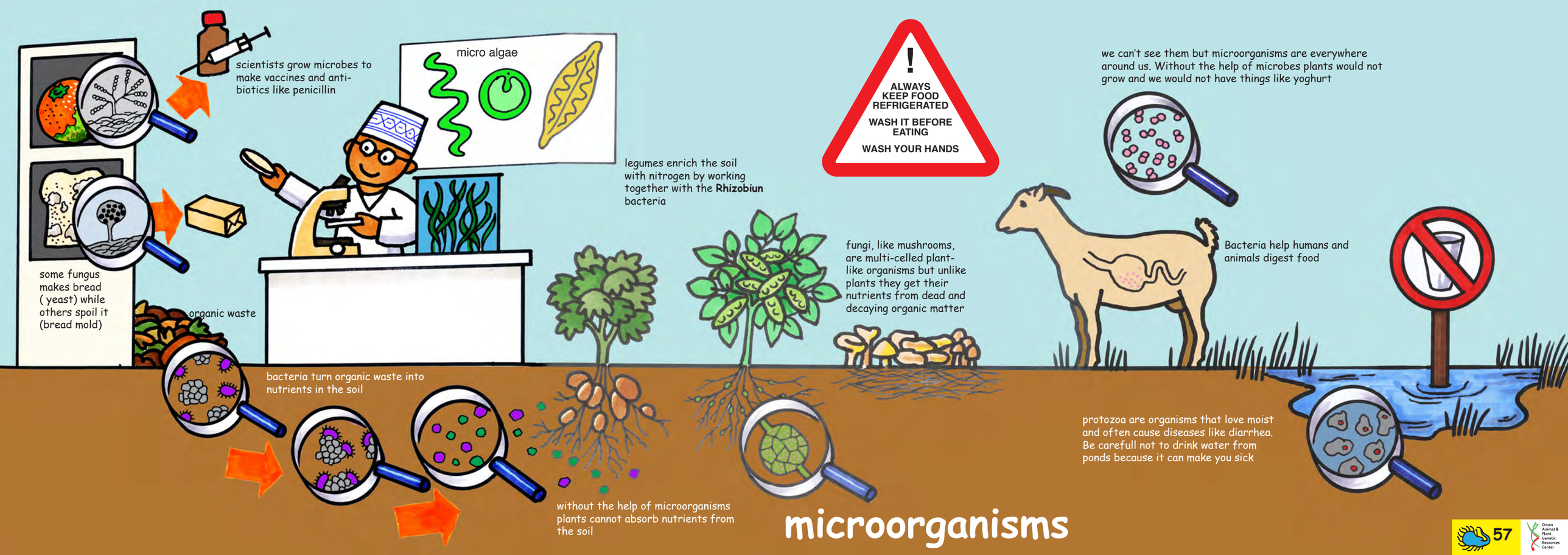
There are lots of different types of microbes. They include fungi and bacteria, as well as microscopic plants and animals.

You can find microbes in every place that has water such as soil, the atmosphere, the ocean floor… even on your hand!

Microbes play an important role in maintaining our environment and some are useful in our daily lives. They help us make our food, grow our plants and give us medicine. Scientists are even finding ways to use them in industry.

BUT some microbes are harmful! They can cause diseases to humans and other genetic resources. Luckily the good microbes give us medicine!

Microbial genetic resources are becoming more and more important because of all the help they can give us. Because of this we need to identify them and protect them… just like all our other genetic resources.



microorganisms

BACTERIA

Bacteria are unicellular (single-celled) microbes without a proper nucleus.

They can have various shapes - balls, rods, springs and even a comma shape.

They live as singles, doubles, chains and clusters.

Many of them have tails (flagella) for moving around.

They were the first organisms to appear on earth and they can live anywhere-in the air, water, soil and everywhere else you can think of.

They can do unimaginable things!!

Some of them live deep in layers of ice while others live in the boiling hot water springs like in Rustaq.

Bacteria can break down hard materials, generate electricity, clean up our surroundings, fight against pest and diseases of our crops and fertilize the soil with nutrients.

Some bacteria are used for producing vaccines and antibiotics.

VIRUSES

Viruses are the smallest types of microbes. We can't even call them organisms because they don't have a cellular structure like all other living things.

To survive they have to live inside the cells of plants, animals or bacteria.

They are so small that we need a very strong microscope to see them. It's called an electron microscope.

Some viruses are used for producing vaccines for diseases.

ALGAE

Algae (singular: alga) are a very diverse group of chlorophyll containing organisms in both fresh and sea water.

Algae can multiply fast by breaking up themselves and by producing spores .

Algae absorb carbon dioxide and photosynthesise and give out oxygen like plants.

The microscopic algae that float on water are called phytoplankton.

Seaweed is a type of algae. It provides habitat and food for marine ecosystems. They act as the carbon sinks of nature as they absorb carbon dioxide.Algae are the first link in the food chain as they provide food for aquatic animals like zooplankton.

FUNGi

Fungi are non-green plant-like organisms and grow on food and other organic matter.
A few fungi like yeast are unicellular and so tiny that they can be seen only under the microscope.
They cannot make their food by themselves.
Some of them start with microscopic threads but grow bigger and make umbrellas. We call them mushrooms.
Some of them are useful in making food items while others like Penicillium are the sources of antibiotics.
All of them help in cleaning up our surroundings!
But some of them cause diseases to plants and animals

PROTOZOA

Protozoa are single-celled animals too small to see with the naked eye. Most of them cannot make their food by themselves and have to live as predators or parasites. Some even survive on dead and decaying matter. They are hunter and grazer of other microbes.
The smallest of them measures around 5 microns.
Euglena is a protozoan which shares the characters of both plants and animals and it has long flagellum to move around. Amoeba move around with its pseudopodia (false feet).
They also help in cleaning up our surroundings and enriching the soil.
Do you know recently scientists start producing food supplements from Euglena?

Did you know that some bacteria are used to remove oil spills from the sea? They also help fight against pest and diseases our crops.

BAD MICROBES

bread mold

- Molds are fungi that are present in our homes.
- Some molds are dangerous to human and can cause diseases, they can form in breads or fruits after 3 or 4 days.
- When you see bread like this, please do not eat it!
- Always protect your bread and fruits from going off.

How to protect your food from mold?

- Keep your food in a clean area.
- Do not mix food left-over with other untouched food.
- Do not store food in wet containers and do not wrap food while it is still hot.

GOOD MICROBES

yoghurt

We use milk with the help of bacteria called **Lactobacillus delbrueckii subsp. bulgaricus** to make yoghurt. The bacteria changes the sugar lactose found in the milk to make lactic acid. This lactic acid is acidic and therefore changes the milk protein from the liquid texture to the thick texture and tangy taste of yoghurt we enjoy!

We have to make sure to use pasteurized milk to make yoghurt. Pasteurized milk is milk that has been heated up to high temperatures of around 80 °C to kill any other bad bacteria that might be in the milk.

Most supermarket milk is pasteurised.

the tiny plants that colour the waters of Oman!!

Algae are those "pond scums "which naturally colour all the water bodies. They are the pioneer oxygen producers to appear in the biosphere and still continuing as the primary producers of food for all living organisms. They are the major contributors to global biodiversity.

They vary in size from single celled **microalgae** to 60 metres long **macroalgae**.

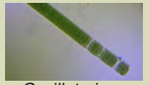
Algae can offer solutions to food, health and energy concerns of the world.!

Algae are classified primarily on the basis of their colour and size

microalgae

too tiny to see (phytoplankton)

blue-green

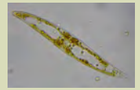


Oscillatoria

Gomphosphaeria

diatom

Navicula



Gyrosigma

macroalgae

big algae like seaweed

green

Ulva

Enteromorpha

brown

Padina

Colpomenia

red

Halymnia

Gracilaria

start week 1 week 2 week 3 week 4

organic waste like fruits and vegetables gets broken down by microorganisms and converted into nutrients for plants.

start week 1 week 2 week 3 week 4

plastic, like crisp bags, cannot be broken down by microorganisms and will pollute the soil.

plastics give us more problems than convenience!

- Plastics release toxins into the environment.
- Toxic substances are used to make nearly all types of plastic.
- Plastics are not biodegradable; they remain there for hundreds of years.
- They release toxins into our soil, lakes, rivers and oceans.
- The plastic bags we throw away are a threat to living creatures on land in the sea.
- Toxic from plastic bags accumulate in the body and then be tranferred to other links in the food chains.