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CURRICULUM - ALIGNED

Science & Agri-Science

Infant 2

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Bonus Offer Online

This book gives you access to additional Science & Agri-Science videos, quizzes, games and prizes on pennacool.com.

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Bonus Points Code: **SCIENCEFUN2023**

Author: Beverly-Ann Mitchell & Jeunisse Mohon
Design: Studio Curio

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A Note to Parents & Teachers

At pennacool.com we strive to motivate students by making learning fun, exciting and rewarding. We produce high-quality content by partnering with teachers and graphic designers to create online and printed content for all primary school students — ensuring no child is left behind.

This book's layout, illustrations and other visual elements have been carefully selected with the student in mind to make learning more enjoyable.

Key Features

Two Subjects, One Book (Science + Agri-Science)

- Lighter load for students' bookbags
- More affordable for parents
- More convenient for teachers

Website integration

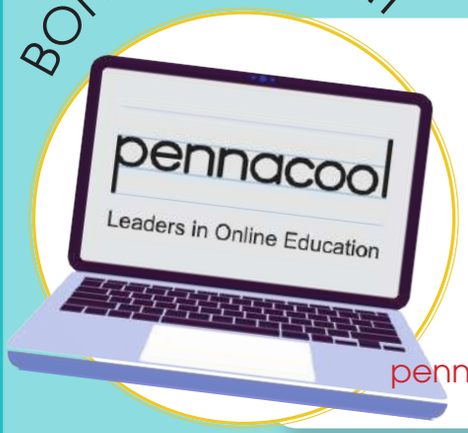
- Additional online videos, quizzes, and games available to students and teachers
- Gain points for a chance to win great prizes

Presentation

- Curriculum-aligned content
- Easy-to-read font
- Gamified content, eye-catching and visually appealing to students

Throughout this book you may see the following icons. Here's what they mean:

BONUS CONTENT



Online content that can be found on pennacool.com like: videos, quizzes and games. Teachers can also find printable worksheets that can be used in class. Follow the steps below to find the content as they appear in the book.

pennacool.com → Workbooks → Infant 2 Science + Agri-Science → Bonus Content

This icon represents an experiment that can be done.

EXPERIMENT

RESEARCH IT!

This icon lets you know that this activity requires you to do some research.

FUN FACT!

This icon indicates additional interesting information relating to the topic.

1. Living and Non-Living Things

Living Things

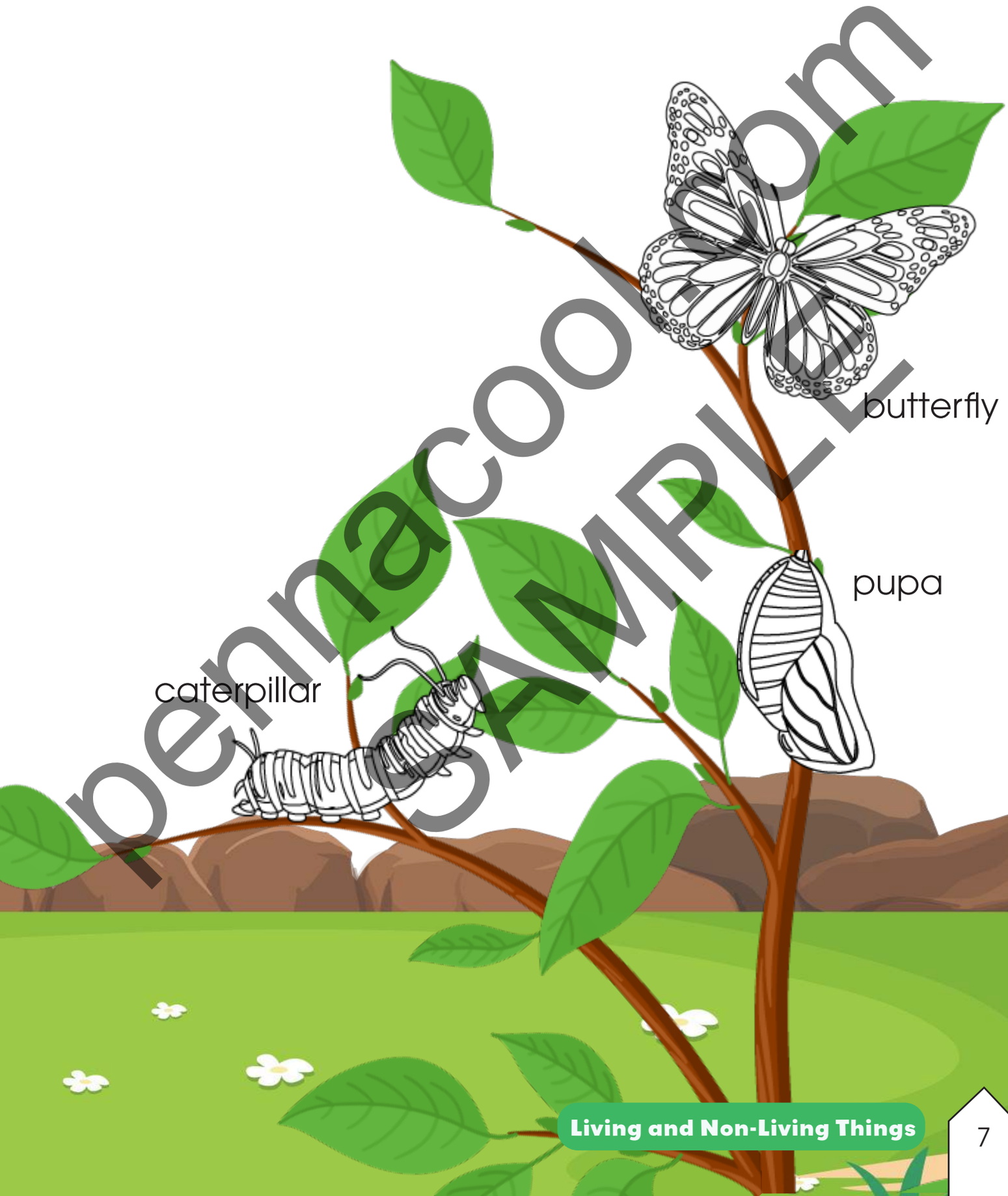
There are seven main things that all living things do.

1. Grow

Living things grow at different speeds. [redacted]

fastest grower and 3rd being the slowest grower.

Colour the picture below of the different phases of a caterpillar as it grows into a butterfly.



2. Reproduce

The next thing all living things do is **reproduce**.
This means [redacted].

There are different ways for living things to reproduce. Some make [redacted] others [redacted] and others [redacted].

Match the living thing to the way it reproduces.

[redacted]

Some animals have many babies at one time, whilst others only have one or two.

Below each picture, write whether the animal makes [redacted] when it reproduces.

Hammerhead Shark

_____

Pilot Whale

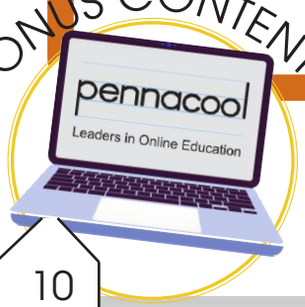
_____

Grouper

_____

Colour the image of the mother and baby monkeys below.

BONUS CONTENT



Pennacool.com → Workbooks → Infant 2 Science Workbook → Bonus Content

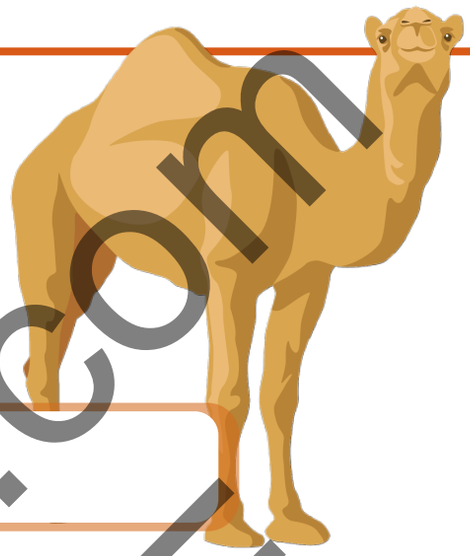
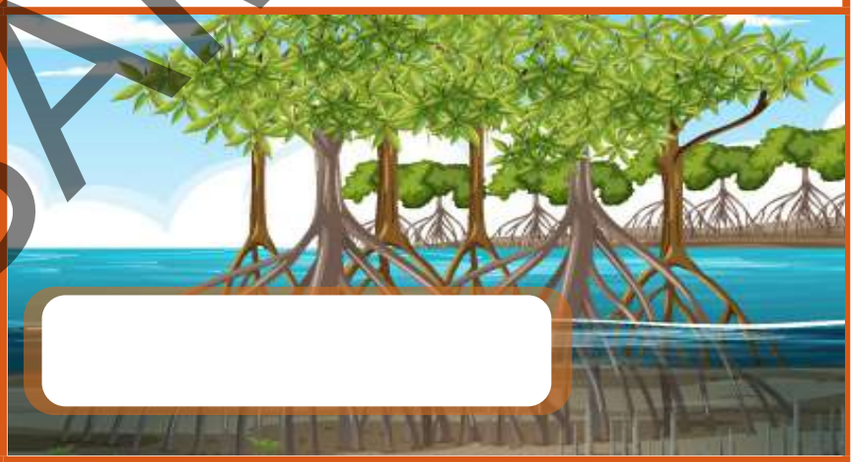
3. Be Sensitive to their Environment

Living things **are sensitive to their environment.** One way they do this is by [redacted] survive in different habitats. Removing them from their natural habitats can cause them to become sick or even die!

Colour the image of the living thing, that lives in Trinidad's Aripo Savannas.

This animal is a S _ V _ N N _ H _ W K

Read the description of each living thing and write whether you think the animal lives in a [redacted] climate.

Camels have large humps that store [redacted] food is sometimes hard to get.	
Polar bears have thick white fur that [redacted] and camouflage in the snow.	
Mangroves have many long roots that [redacted] in soil that is always soft and muddy.	
The aloe plant has thick leaves that store water.	

4. Move

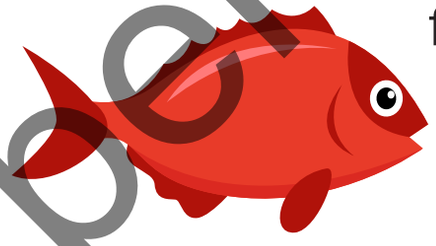
Next, all living things **move** in some way. Some can move really fast and others can move really slow. Some living things hop, others run, swim or fly and many crawl.

See if you can move like the animals below.

toucan

ant

tortoise



fish

dog

frog

5. Absorb Nutrients

Living things also need nutrients. Whilst some get their nutrients by [redacted] or [redacted] some get theirs through their [redacted]

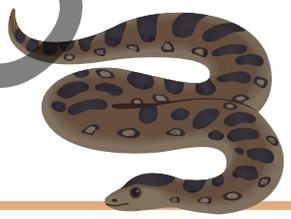
Look at the living things below and determine how they get their nutrients using the words in bold above.

mosquito

coconut tree

capybara

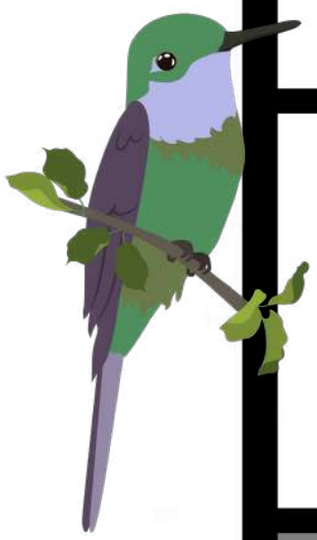
snake

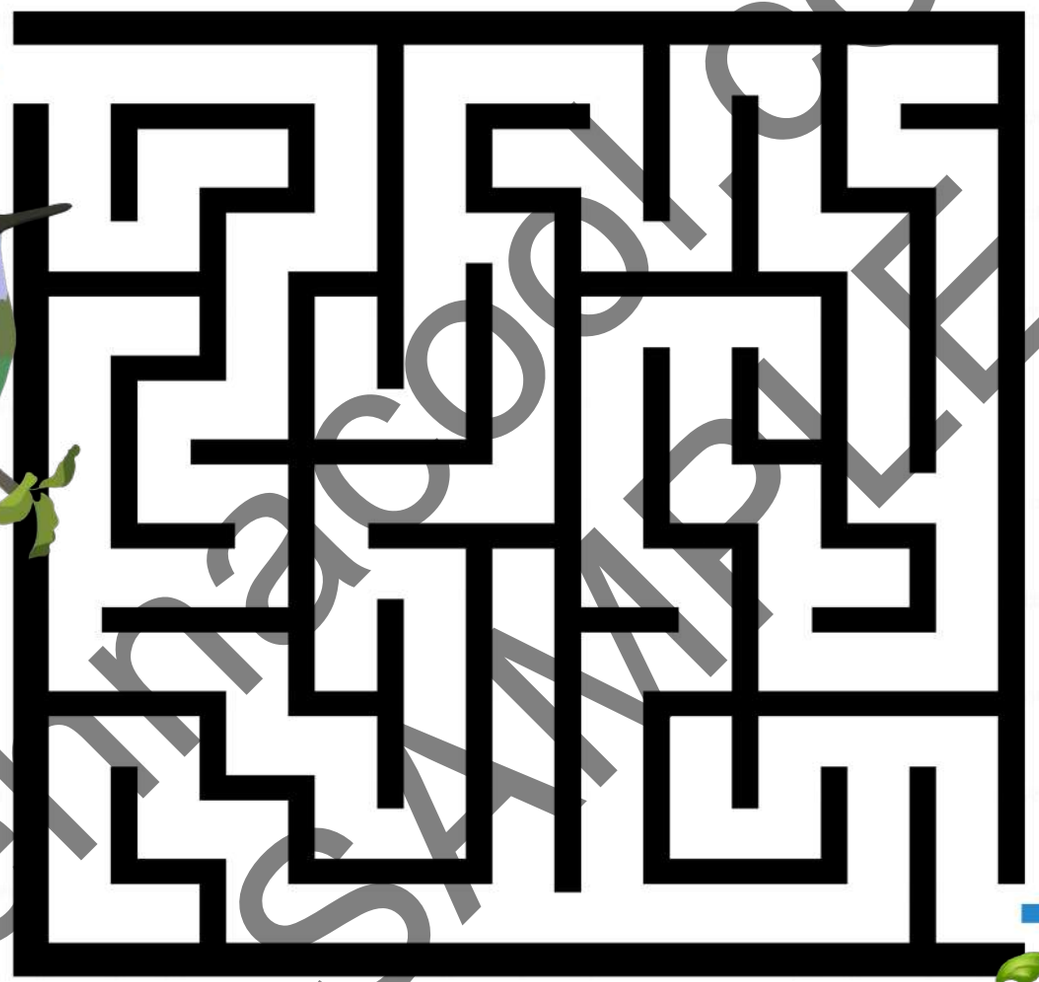


Help Hannah Hummingbird!

Hannah Hummingbird is looking for some flowers to get her nutrients for the day.

Can you help her get to the Hibiscus plant?





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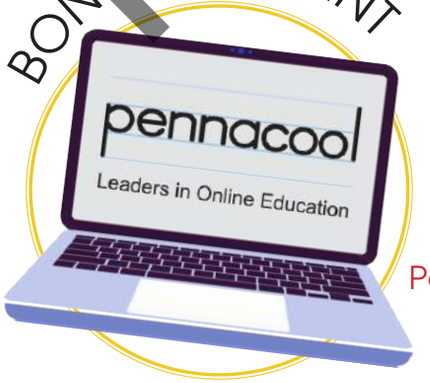

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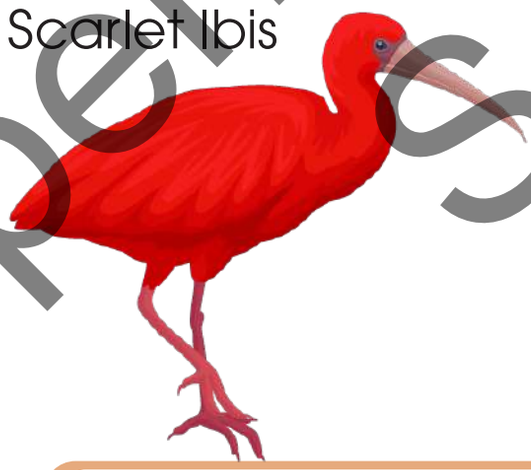
Different living things also get their nutrients from different food sources.

Some animals eat only plants and are called [redacted] Some eat only other animals and are called [redacted] When an animal eats both plants and animals, they are called [redacted]

Identify which of the animals below are [redacted] **or** [redacted]

dog

Scarlet Ibis



capybara

Let's review some of the words we have learnt in this lesson so far.

N	U	T	R	I	E	N	T	S	H	K	V
Q	C	R	C	Z	J	O	J	F	Z	W	P
C	A	R	N	I	V	O	R	E	A	C	H
H	E	R	B	I	V	O	R	E	I	J	Q
G	A	P	D	V	D	A	O	O	M	D	F
U	B	P	O	M	N	I	V	O	R	E	W
P	E	N	N	A	C	O	O	L	A	W	H
M	E	Z	V	O	D	A	N	A	N	I	Y

OMNIVORE

HERBIVORE

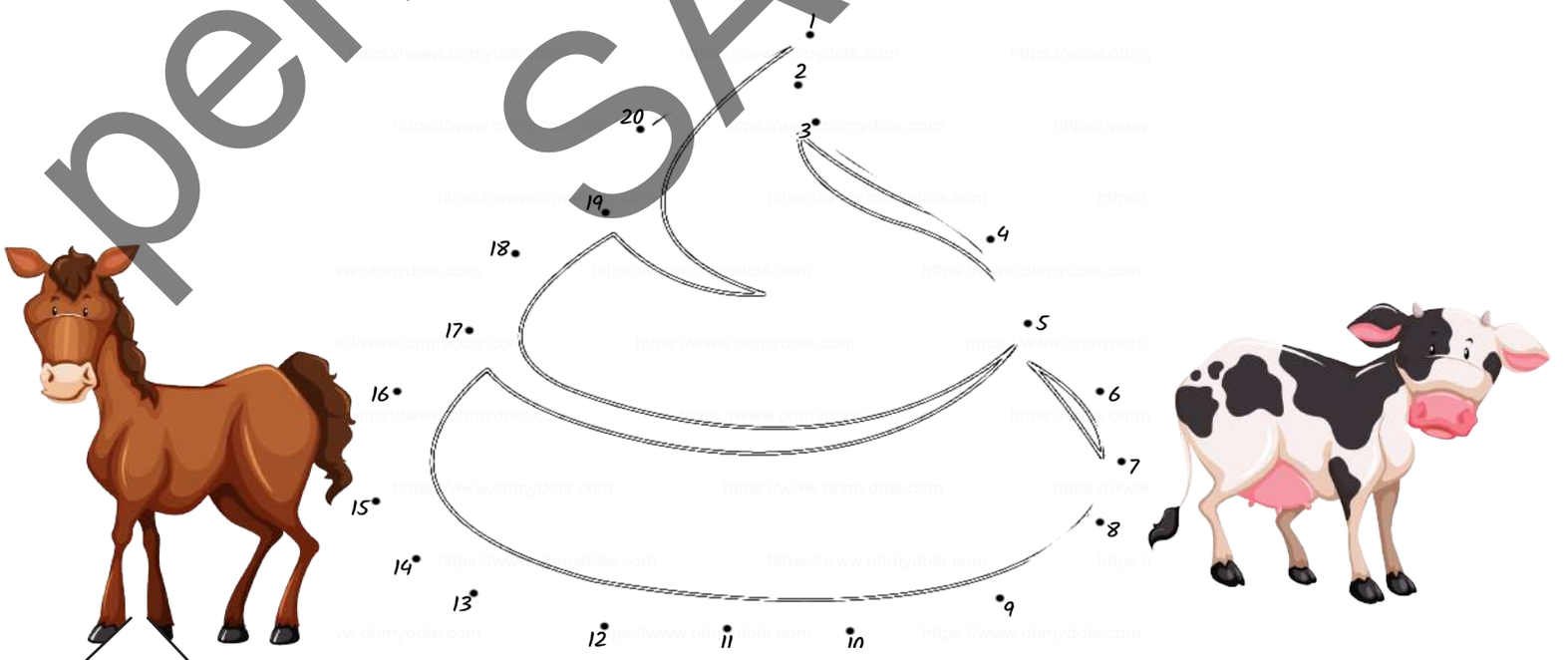
6. Produce Waste

Another thing living things must do is [redacted] **or produce waste.** This happens so that their bodies can [redacted] that they do not need.

Although the animals do not need these nutrients anymore, [redacted].

Animals such as rabbits, cows, goats, horses and sheep all produce waste that [redacted] This manure is used as nutrients for plants in gardens.

Complete the dot-to-dot picture and colour it in.



Colour-by-number the picture of the cow.
Work out the answers in the legend below.

Legend

= 9 + 8 =

Light Blue = 12 + ▮ =

Black = 3 + 8 =

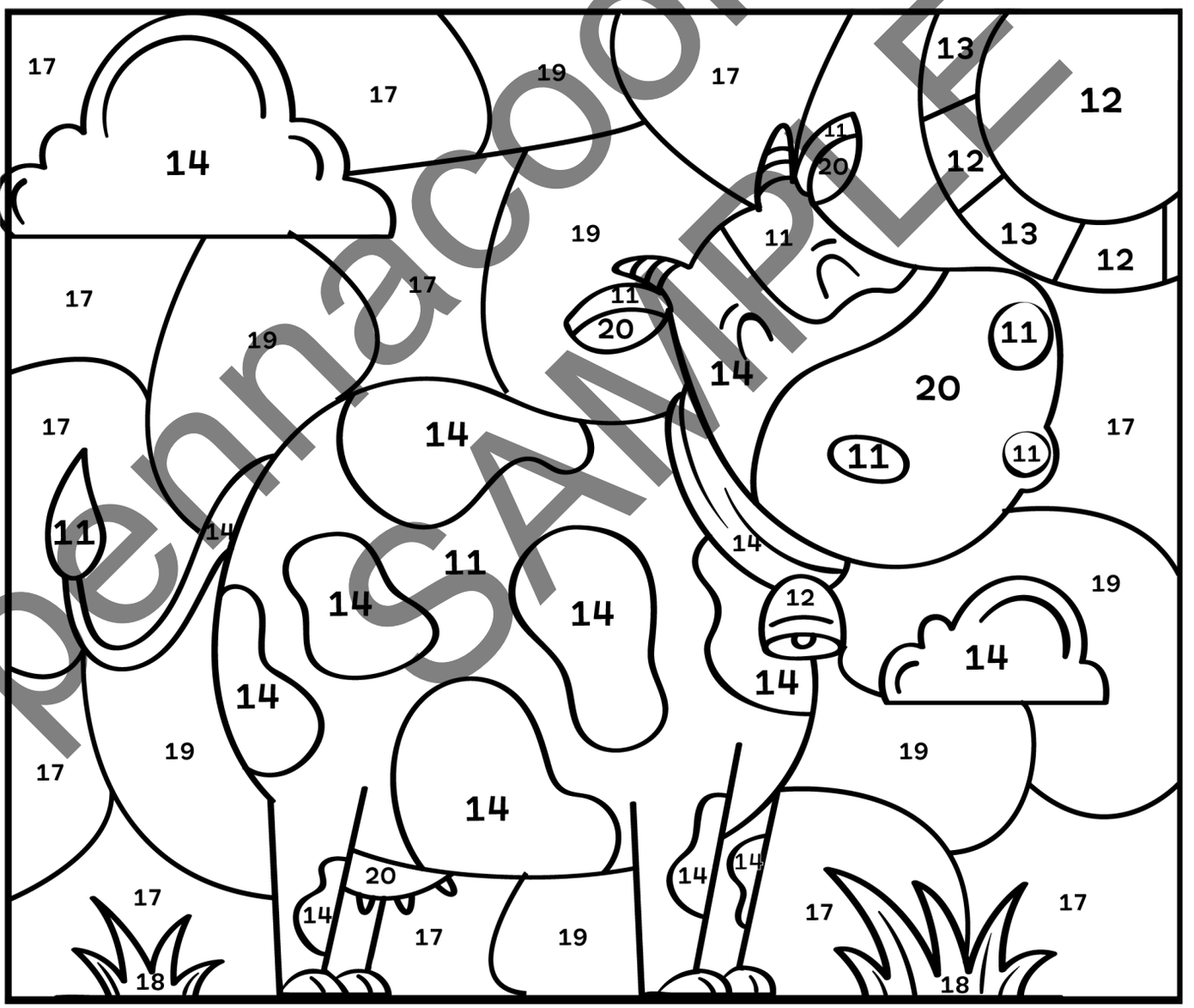
Yellow = ▮ + 6 =

Green = 10 + ▮ =

Orange = 6 + ▮ =

= 7 + 7 =

= 11 + 9 =



7. Breathe

The last thing that living things do is **breathe** [redacted].

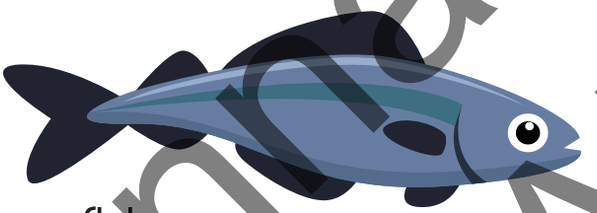
Some animals breathe using their [redacted] some use their [redacted] and others can breathe through their [redacted]

RESEARCH IT!

How do I breathe?

1. Do I have [redacted]

Circle the animals that breathe through their [redacted]



fish

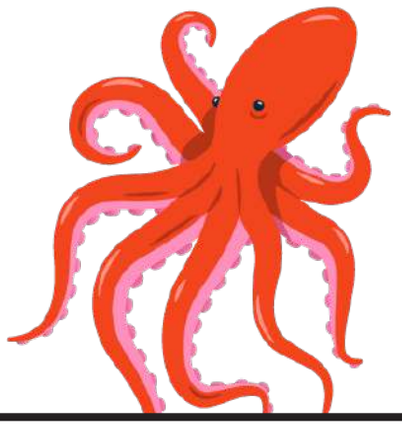
human

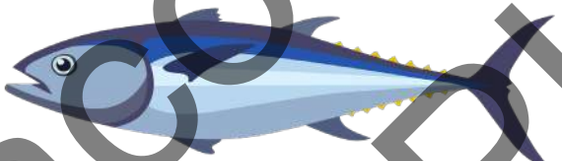
iguana

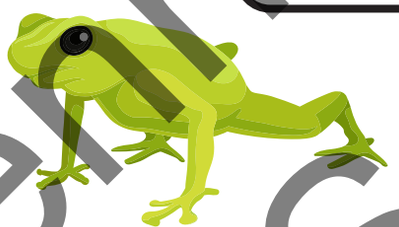
bee

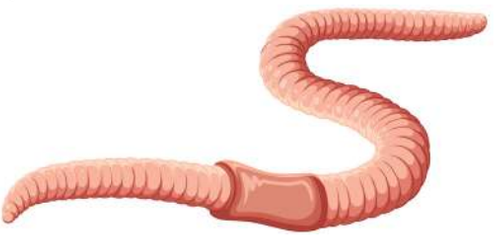
2. [redacted] or [redacted]

Below each picture, identify whether the animals breathe using [redacted] or their [redacted]









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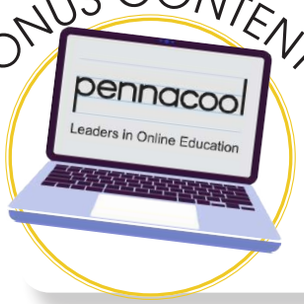

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Connect the dots to see what other critter breathes through its skin.

Critter name: _____

We can tell if something is living when it does these seven things:

1. Grows

2. Reproduces

3. Is sensitive to the environment

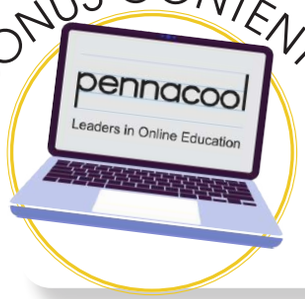
4. Moves

5. Eats (needs nutrients)

6. Produces waste

7. Breathes

BONUS CONTENT



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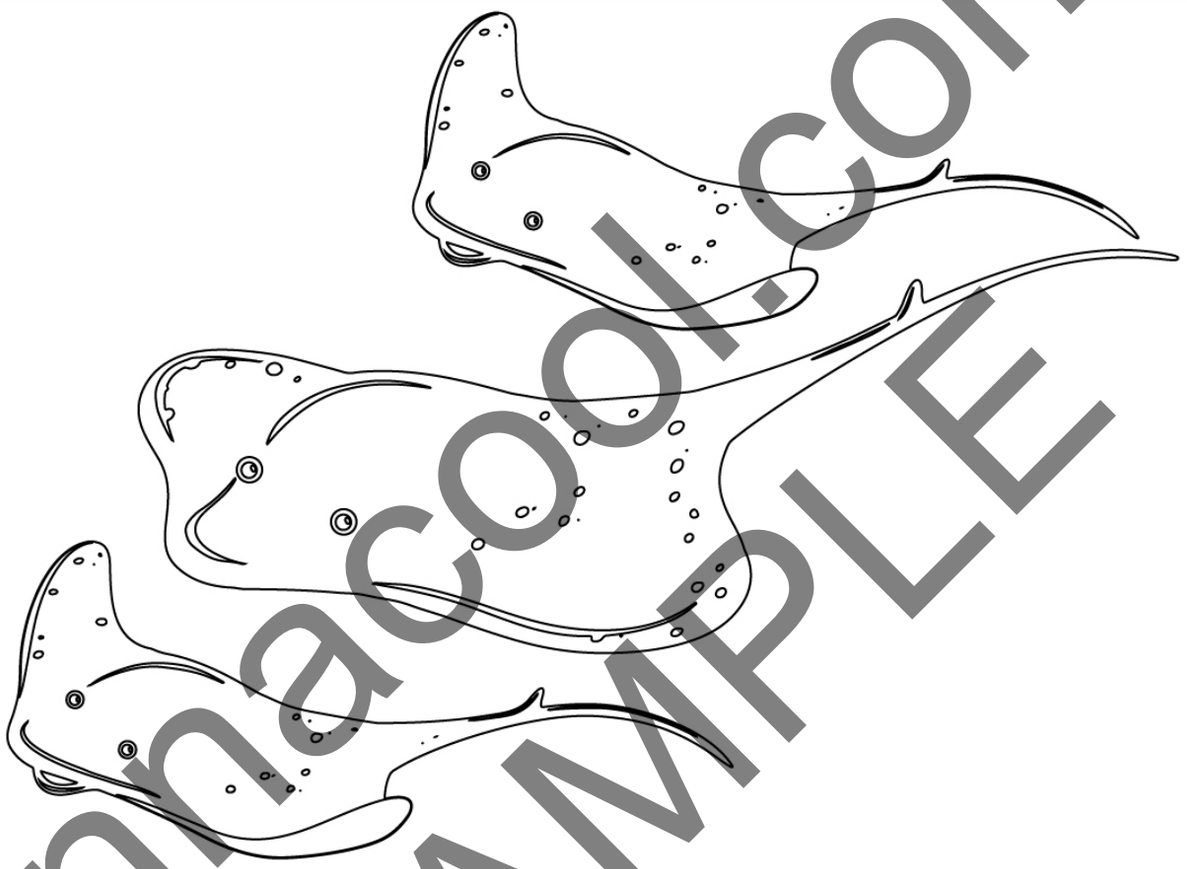
Colour the living thing that lurks within the [redacted]!



It is a _____

Can you find the new words you've learnt in this lesson?

I	B	R	E	A	T	H	E	C	U	R	O
Y	S	E	N	S	I	T	I	V	E	E	Q
A	S	Y	Q	B	U	S	K	A	Z	S	J
E	X	C	R	E	T	E	D	J	X	P	U
O	X	T	U	L	I	V	I	N	G	I	L
R	E	P	R	O	D	U	C	E	R	R	I
R	P	I	T	W	M	L	Z	O	R	E	A
E	N	W	Y	L	C	I	N	J	G	Z	W

BREATHE

LIVING

RESPIRE

Living and Non-Living Things

Now that we know what living things are, what do you think are [redacted]?

That's right!

Non-living things do not do any of those things that living things do.

In the boxes below put an `[redacted] by the [redacted] and an `[redacted] by the [redacted]

Colour and identify the non-living thing that moves.

This non-living thing is a

_____

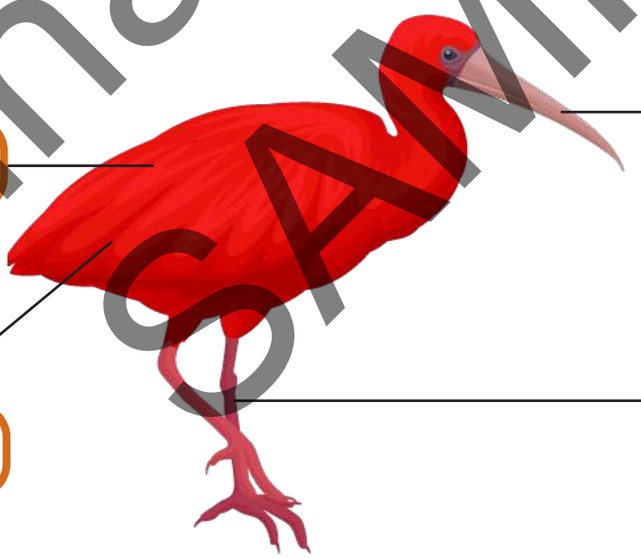
2. Animal Characteristics

Do you know that there are different types of animals? When you examine them with your eyes, you can see similarities and differences.

Some have [redacted] some have [redacted] some have [redacted] and some have [redacted] They even look different with their body coverings.

Can you label the two animals below?

1. Scarlet Ibis

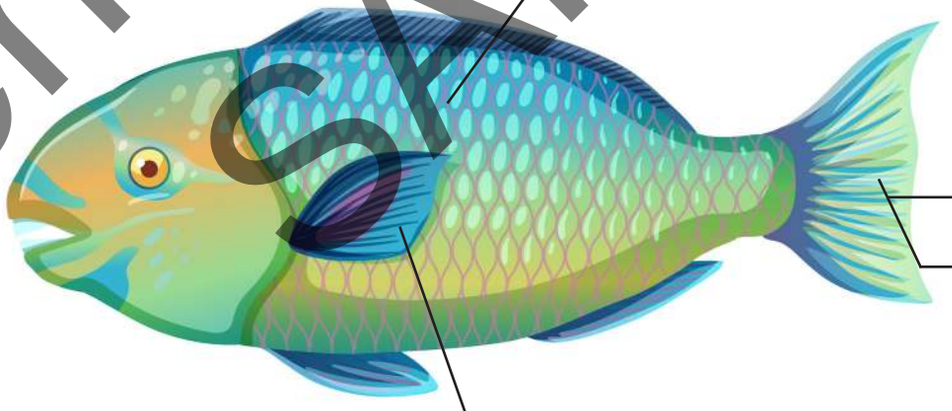


[redacted]

2. bee

It's getting a bit fishy down here!

Can you tick the correct answer for each of the fish's parts?



☐ legs
☐ tail

Body Count

I am an iguana.

I have _____ (s).

I have _____ (s).

I have _____ (s).

I am a toucan.

I have _____ (s).

I have _____ (s).

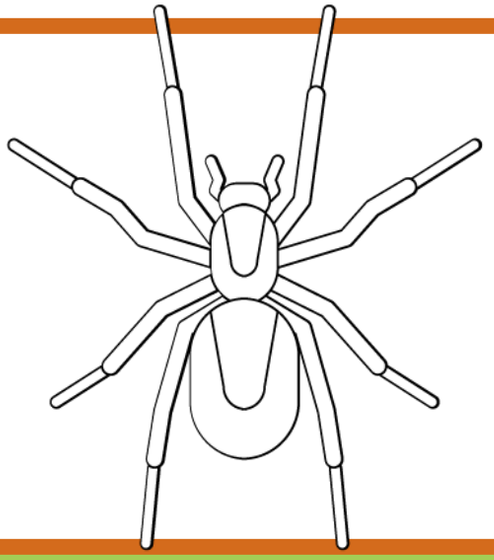
I have _____ (s).

I am a spider.

I have _____ leg(s).

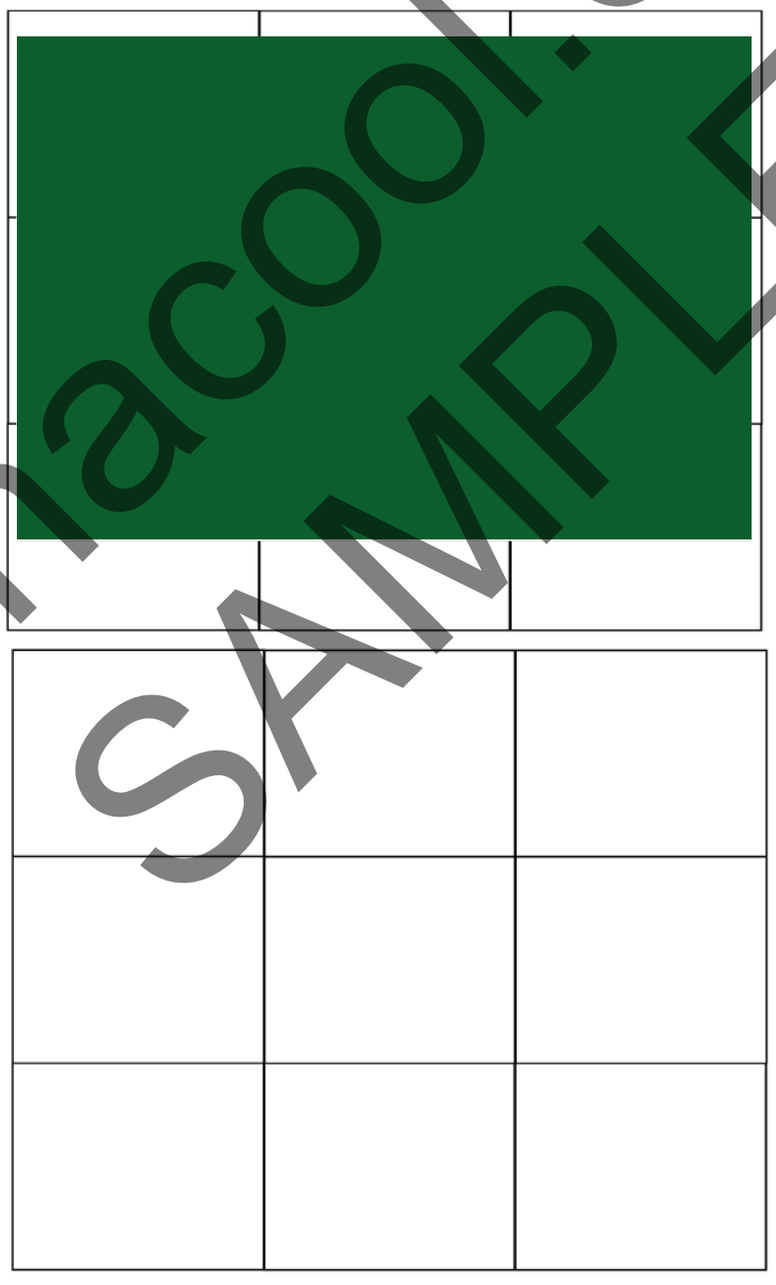
I have _____ abdomen(s).

I have _____ eyes.



Does the [redacted] have scales or a shell? _____.

Draw and colour one here. Use the grid to help you.



3. All About Plants

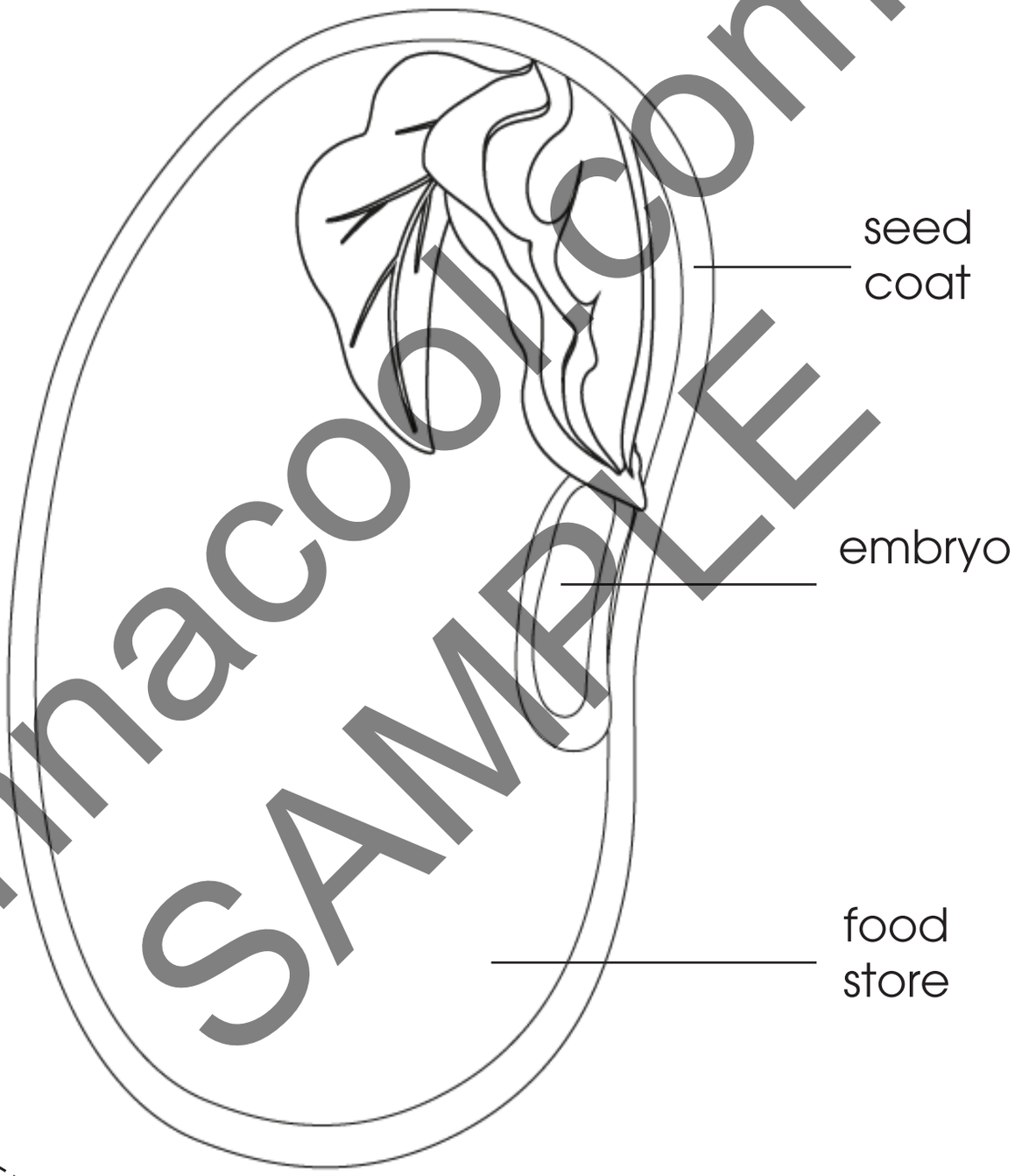
Seeds are [redacted] The plant is asleep inside of a tight blanket of skin. To get it to wake up, a shower of water can help!

Stick or draw pictures of seeds that match the descriptions below the boxes.

Smooth	Rough	Furry	Spiky
Small	Large	One Colour	Multi Coloured

Changes in the Growth of a Seedling

The baby plant is asleep inside of the seed coat. Colour it appropriately.



BONUS CONTENT

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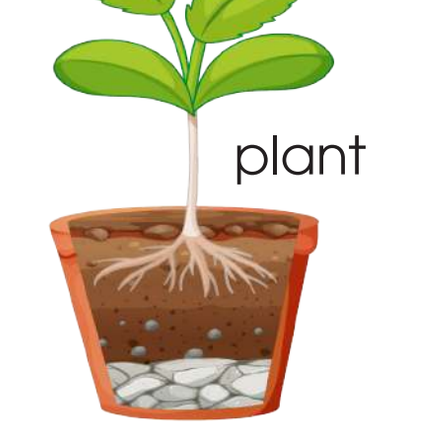
Germination is when a plant goes from a seed to a seedling. This occurs in four main steps.

Label the sequence of steps in the correct order.



Things that are alive sometimes do not look the same as other things that are alive and moving.

Corals are [redacted] Not only are they [redacted] but they are also [redacted] They are made up of thousands of tiny animals called **polyps**.

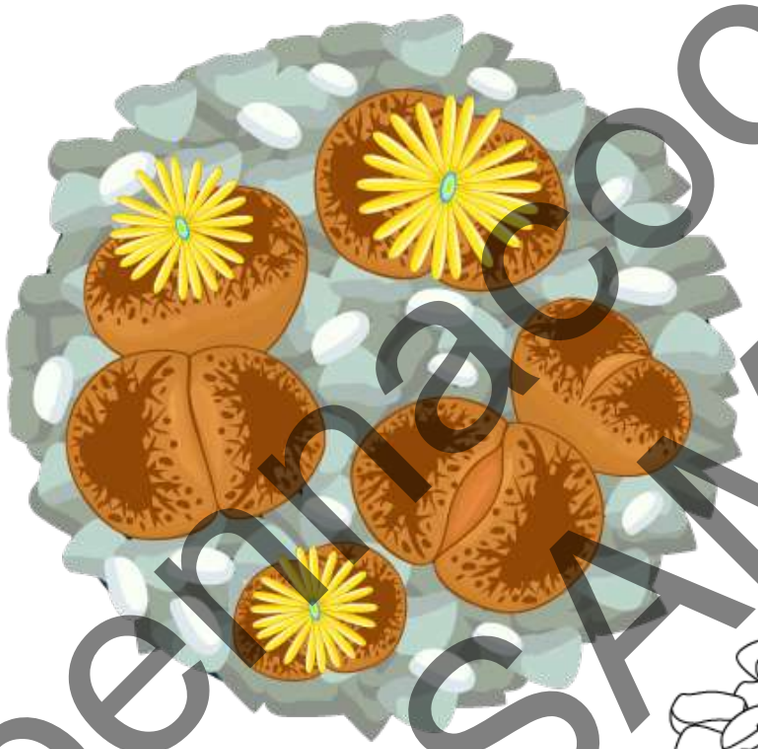
FUN FACT!

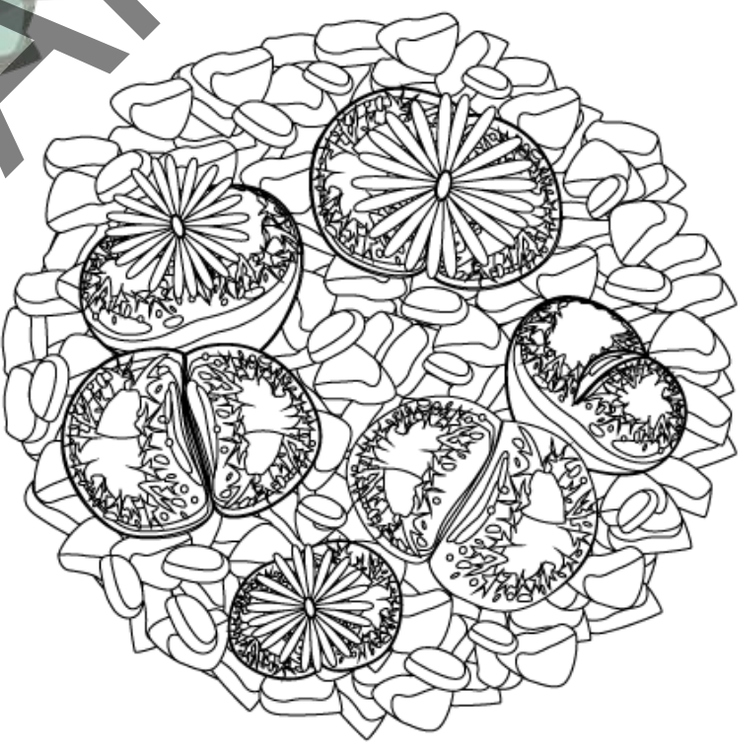
Colour the Coral Reef!

Lithops are camouflage masters of the desert.

They are known as **living stones** or [redacted]. These little succulent plants blend in with rocks to [redacted]. Lithops only bloom when the sun is shining the brightest.

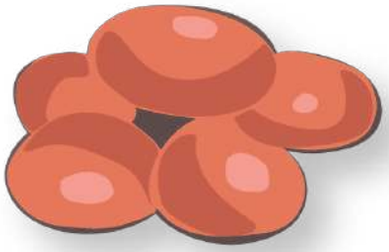
Can you replicate the colours of the flowers before and after they bloom?





Giselle and Her Seeds

Giselle loves to plant. She has various types of seeds.



lentil seeds

pumpkin seeds

kidney beans

1. Do you think her seeds will all grow at the same time?_____(yes/no).

2. Do you think that all of her seeds will grow to the same height? _____(yes/no).

Try the following activity with Giselle:

1. Gather [redacted] different types of seeds.

2. Place each seed in a clear cup with some paper towels laid at the bottom. You will have [redacted] cups each with [redacted] seed.

3. Give the seeds a little [redacted] every day.

Keep a drawing journal. At the end of each week, draw or stick a picture of your plant's progress.

Week 1

Week 2

Week 3

Week 4

Spot the Difference

Can you spot the [redacted] differences between these pictures? Circle them when you find them.

BONUS CONTENT

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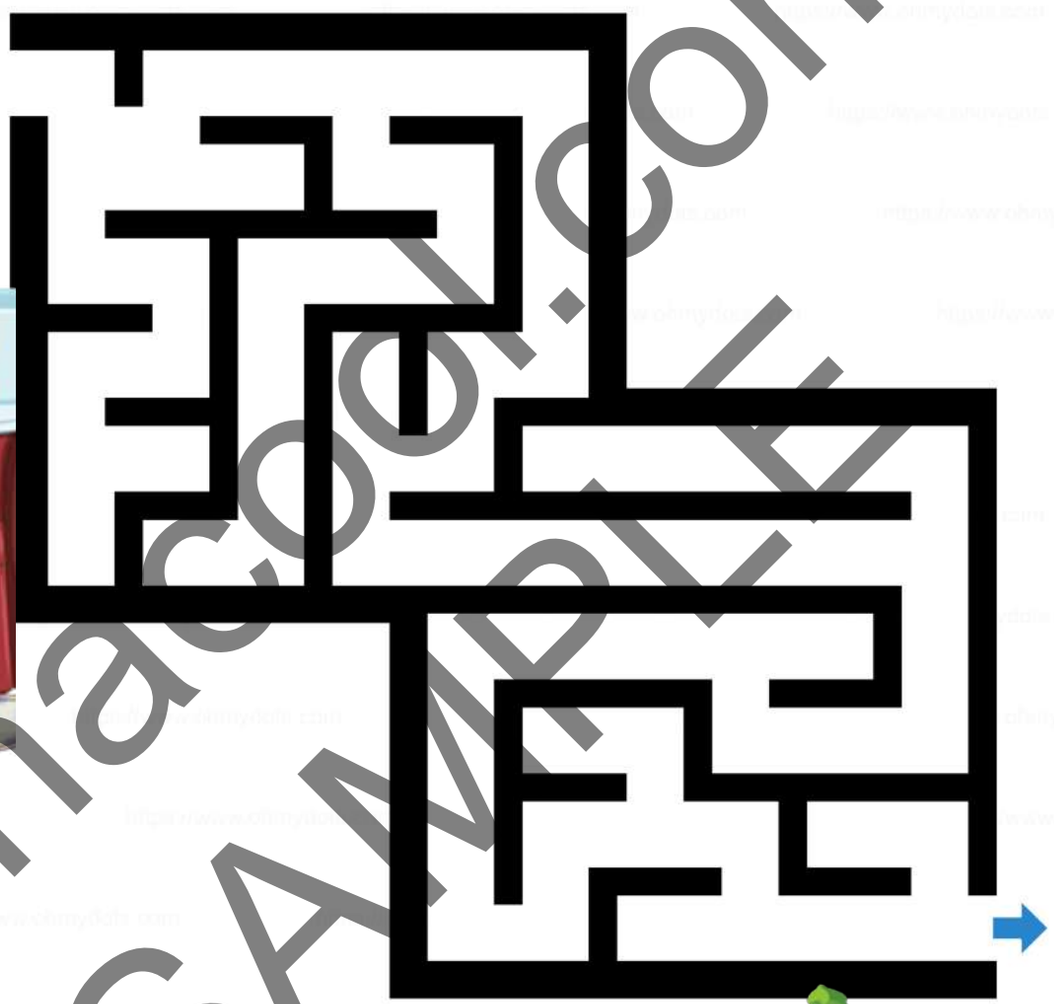
4. Healthy and Unhealthy Foods

Healthy foods give us vitamins and minerals that our [redacted] Unhealthy food does not give us these vitamins and minerals, and our bodies become weak and cannot fight diseases.

Put a tick (✓) on the healthy foods and an ✗ on the unhealthy foods.

Granny is going to the market on Saturday to get some healthy foods to cook. Unfortunately, her path has changed and she needs some help. Can you help granny get to the market before it closes?



Leah and her mom are going grocery shopping. Leah wants to get all the healthy foods she has learnt about at school.

Help Leah come up with a grocery list to take to the market.

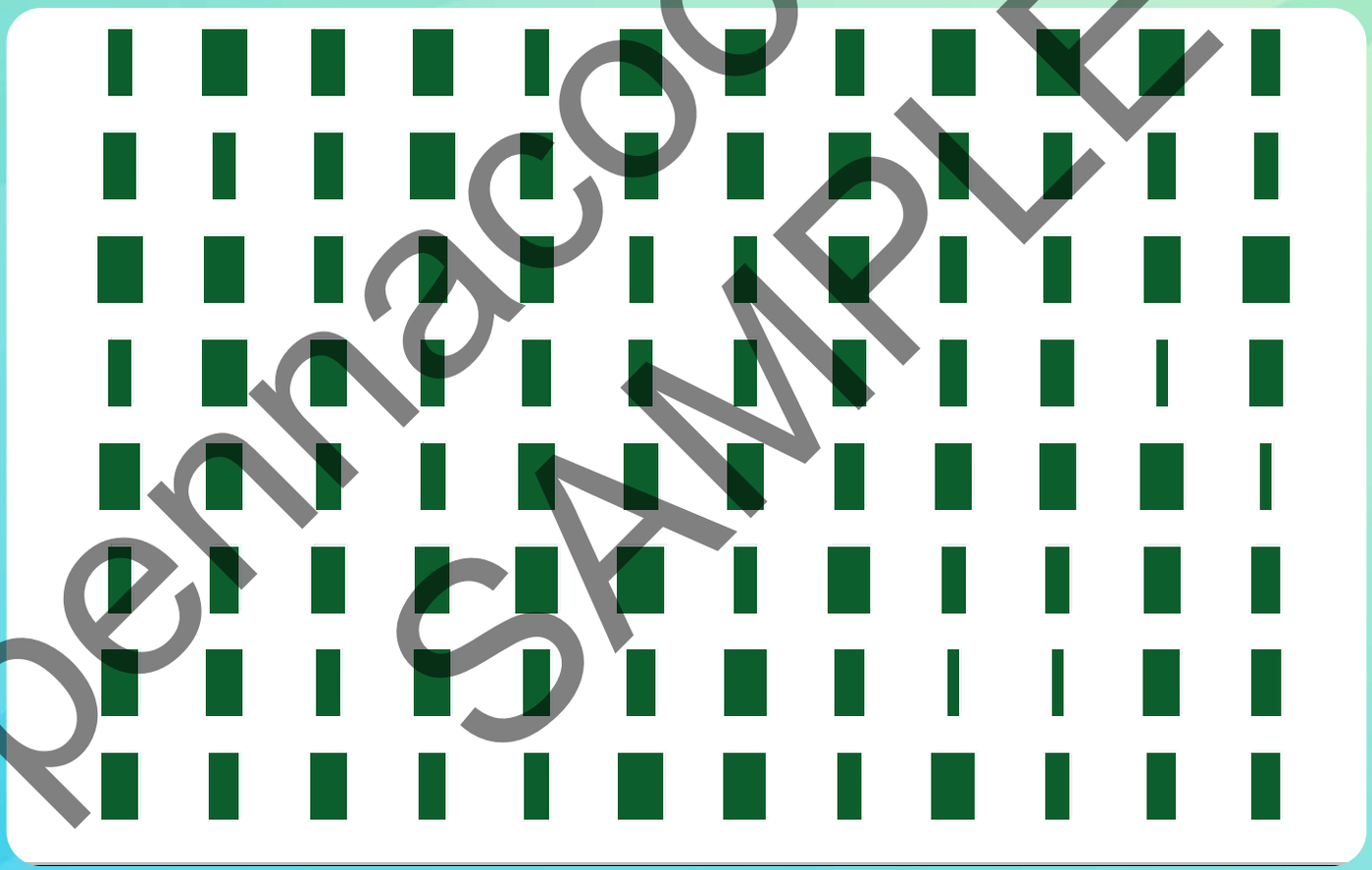
Leah's list:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

World Food Day

World Food Day is celebrated every year on **October 16th.** It is a time for people across the world to come together and find ways to help solve world hunger.

Gabriel is making a poster for World Food Day. Help him find some local foods that he can use in his poster.



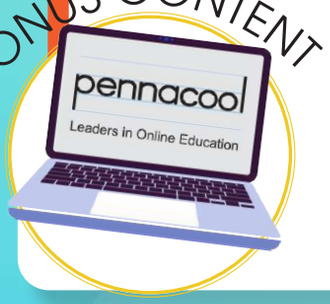
BAIGAN
BHAJI

CALLALOO
CASSAVA

GREEN FIG
OCHRO

Draw Gabriel's poster here.

BONUS CONTENT



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Food Donation Box

With the help of your teacher, get a large decorated cardboard box for your class.

Ask your parents for donations of food items to place in the box. When the box is filled, give it to someone in need.

Possible items to go in the box may include:

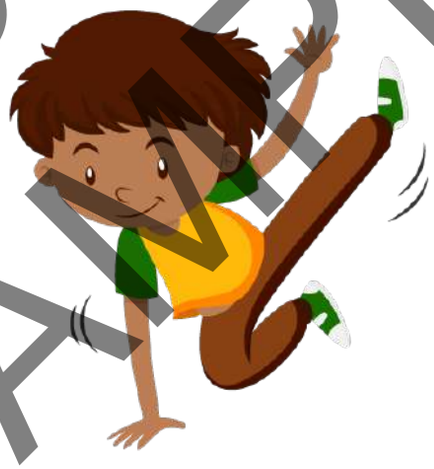
- [redacted]
- Oil
- Flour
- Sugar
- Milk
- Tin or pack peas
- Ketchup
- Seasoning / spices

Consequences of Eating Unhealthy Foods

When we eat too many unhealthy foods, our bodies [redacted] to make us strong or fight off diseases.

This can look like [redacted], and always getting the flu.

Circle the pictures of children who are eating too many unhealthy foods.



Food Pyramid Challenge

This is a food pyramid. We should eat lots of food from the bottom of the pyramid and less from the top.

Work in groups to make 3 nutritious meals for yourself for one day.

Breakfast	Lunch	Dinner
_____	_____	_____
_____	_____	_____
_____	_____	_____

Food Rainbow

We should aim to eat foods of all colours to get all the [redacted] we need.

Cut and stick pictures of healthy foods in the colours of the rainbow. Use the colour guide below.

Yellow

Orange

Purple

Blue

Green

5. Solids Based on Physical Properties

Solids are objects that cannot change their shape. This means that they cannot flow like water and you cannot pass your hand through them like air.

In the table below, write '**yes**' or '**no**' based on whether the object passes each test. Then, write whether you think it is a **solid** or **not a solid.**

	Test		
Object	Can [redacted]	Fingers [redacted]	[redacted]
Book			
Pencil			
Juice			

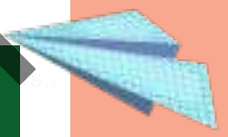
Pennacool.com → Workbooks → Infants 2 Science Workbook → Bonus Content

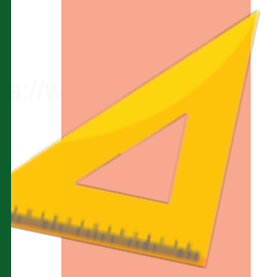
Look around your classroom. What are some of the solids you see?

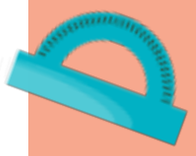
Write them in the table below and put what solid shape or shapes they are made up of.

Material	Solid Shape
Eg. marker	cylinder

Connect the dots to see what solid shape can be found in your classroom.







6. Types of Forces

Objects that move can be caused to move faster by forces. These forces can either [redacted] or [redacted] an object to speed it up or slow it down.

Activity	Explanation
In an open area, you and two of your friends stand in a triangle with a football. You begin kicking the ball to one another. After a while, one of the players will stop the ball with their foot.	The initial force of pushing the ball with your foot (kicking) caused the ball to move from rest to motion. The force acting on the ball has caused the ball to move from motion to rest.
You and your friends resume playing. This time, one of your friends is going to turn and kick the ball outside of the triangle.	Your friend has used a pushing force to change the direction of the ball.

Activity	Explanation
Once again, you resume playing. This time, another player will slow down the ball by pulling it back towards them instead of kicking it forwards.	This player has used a pulling force to slow down the movement of the ball.
You resume playing one last time. This time, a player will kick the ball harder than everyone else.	This player has used a pushing force to speed up the movement of the ball.

Have fun and be careful!

7. Aquatic and Terrestrial Habitats

The areas where living things live are called habitats. There are two main types of habitats, [redacted]) and [redacted]).

Under each picture, write the words [redacted] and [redacted]

Coral Reef

Rain Forest

River

Tropical Savannah

Some ecosystems, such as swamps, have both terrestrial and aquatic habitats. Two of the largest swamps in Trinidad and Tobago are the Caroni Swamp and Nariva Swamp.

FUN FACT!

Name one animal that can be found in the terrestrial part of these swamps and one animal that can be found in the aquatic part.

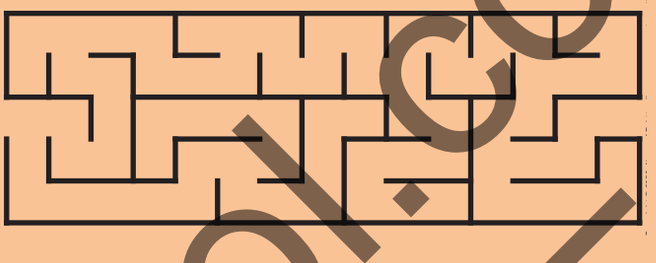
Stick or draw a picture of each animal in the spaces provided.

Caroni Swamp		
Nariva Swamp		

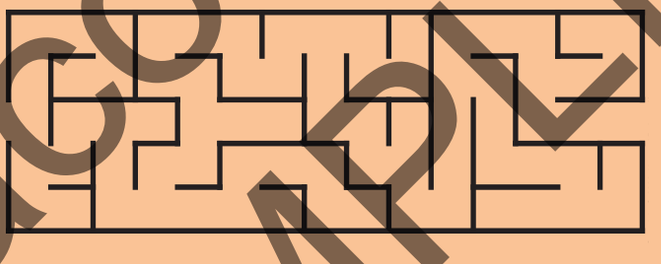
Several animals have lost their way home. Can you help them through the maze to get to the correct destination?

Some of the animals live in aquatic homes. Others live in terrestrial homes.

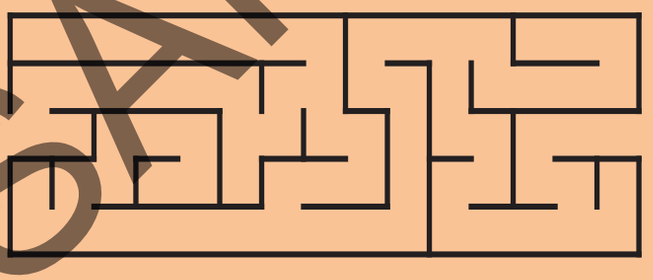

Quenk

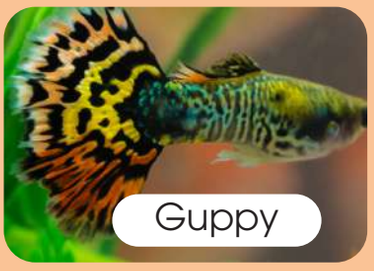


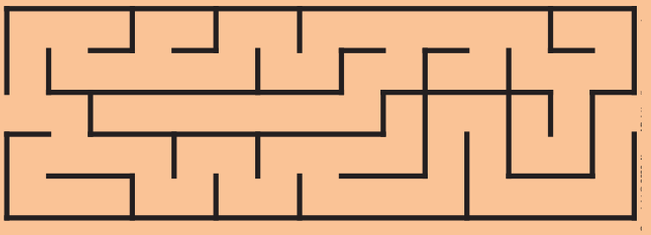

Stingray




Agouti




Guppy



Pretend you are one of the animals from the previous exercise.

What does your daily routine look like? What are some of the things you do and eat?

I am a _____

Colour the animal that can be found in [redacted]

This animal is a _____ .

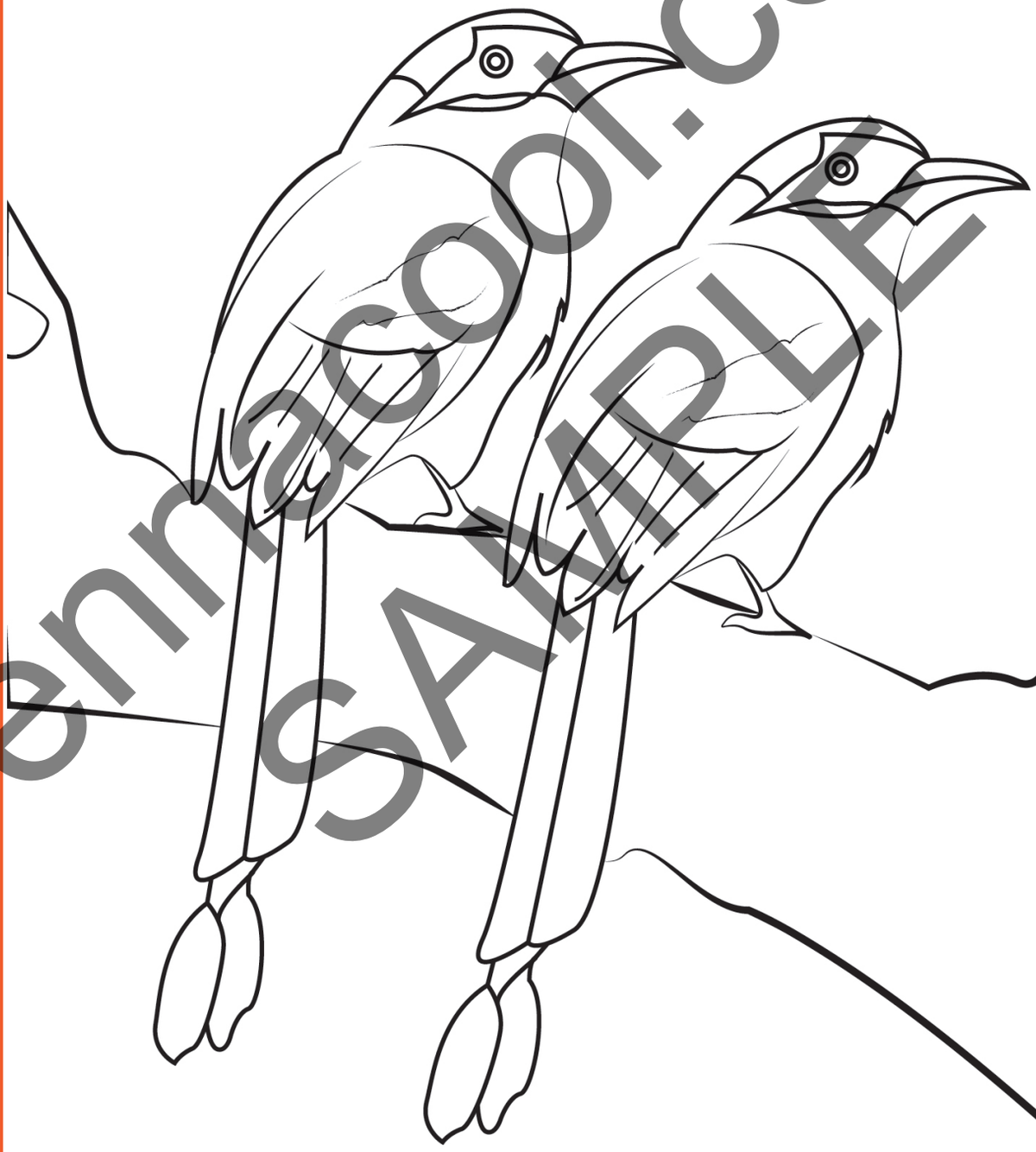
Let's review some of the words we have learnt in this lesson.

B	O	R	E	E	F	K	U	V	U	Z	F
T	E	R	R	E	S	T	R	I	A	L	O
P	N	X	B	A	Q	E	Y	U	D	B	R
B	E	V	C	J	O	R	D	O	N	P	E
G	I	H	A	B	I	T	A	T	X	Y	S
C	Y	O	S	W	A	M	P	N	V	I	T
T	A	U	A	Q	U	A	T	I	C	B	J
V	K	L	A	K	A	R	W	V	P	C	R

Reef
Habitat

In the Main Ridge rain forest of Tobago, which is a terrestrial habitat, you can find the beautiful Trinidad Mot-Mot bird.

Colour in the picture of the Trinidad Mot-Mot below.



8. Energy Conservation

Energy is the ability to do work. There are different forms of energy. They are light, chemical, kinetic, thermal, and sound.

Draw a line to connect the type of energy with its correct picture.

[redacted] **energy**
allows us to see things and is used by plants to make food.

[redacted] **energy**
comes from substances such as food.

[redacted] **energy**
allows objects, animals and plants to move.

[redacted] **energy**
keeps things warm.

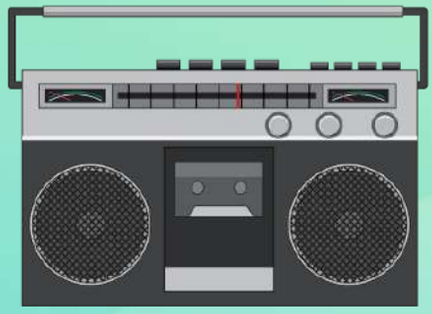
[redacted] **energy**
allows us to hear different sounds.

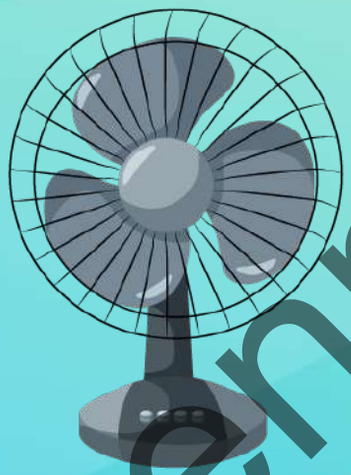
As we move about our daily lives, energy changes from one form to another.

Underneath each picture below, write down which type of energy is shown in the pictures. Note how these forms of energy change based on the actions.

We use electrical energy everyday.

Circle the items that use electrical energy. Cross out those that do not use electrical energy.





Let's review some of the words we've learnt in this lesson.

I	U	J	K	I	N	E	T	I	C	K	T
U	S	O	U	N	D	T	P	U	A	G	H
U	R	N	Y	S	A	T	Y	A	W	P	E
A	Q	W	R	L	I	G	H	T	Q	J	R
I	O	Q	G	S	J	N	L	Q	M	J	M
C	C	H	E	M	I	C	A	L	R	A	A
X	P	O	L	N	X	Q	D	Q	F	H	L
W	D	R	Z	N	C	J	A	H	L	V	I

CHEMICAL
LIGHT
THERMAL
KINETIC

One of the most important energy transfers happens everyday between the sun and plants. Plants use light energy from the sun to make fruits, vegetables, and grain that we eat in the form of chemical energy.

FUN FACT!

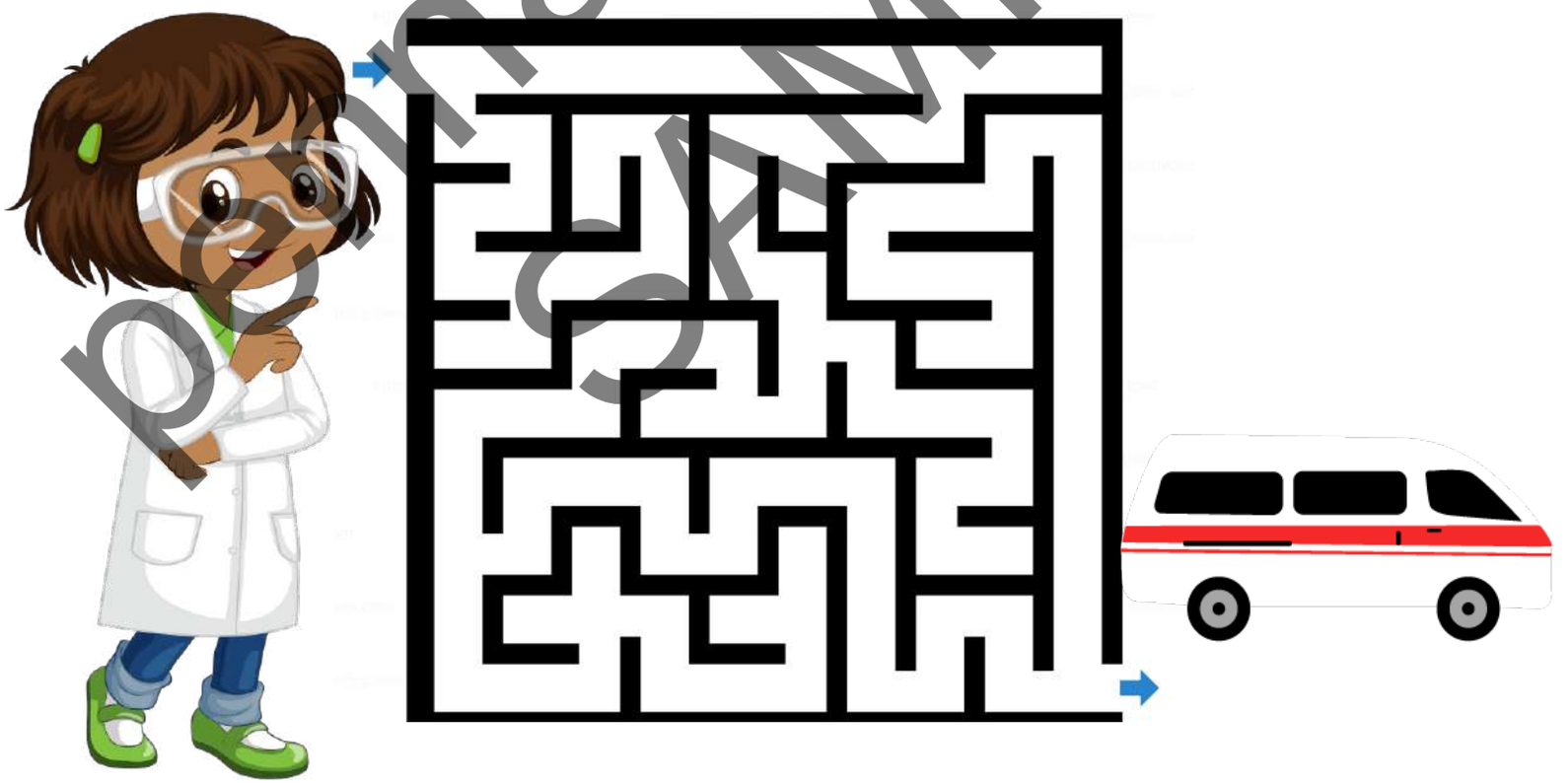
Colour the fruits and vegetables that come from this process.

9. The Importance of Scientists

World Science Day

Every year on **November 10th**, the world recognizes World Science Day. [redacted] learn more about our environment and to help us [redacted].

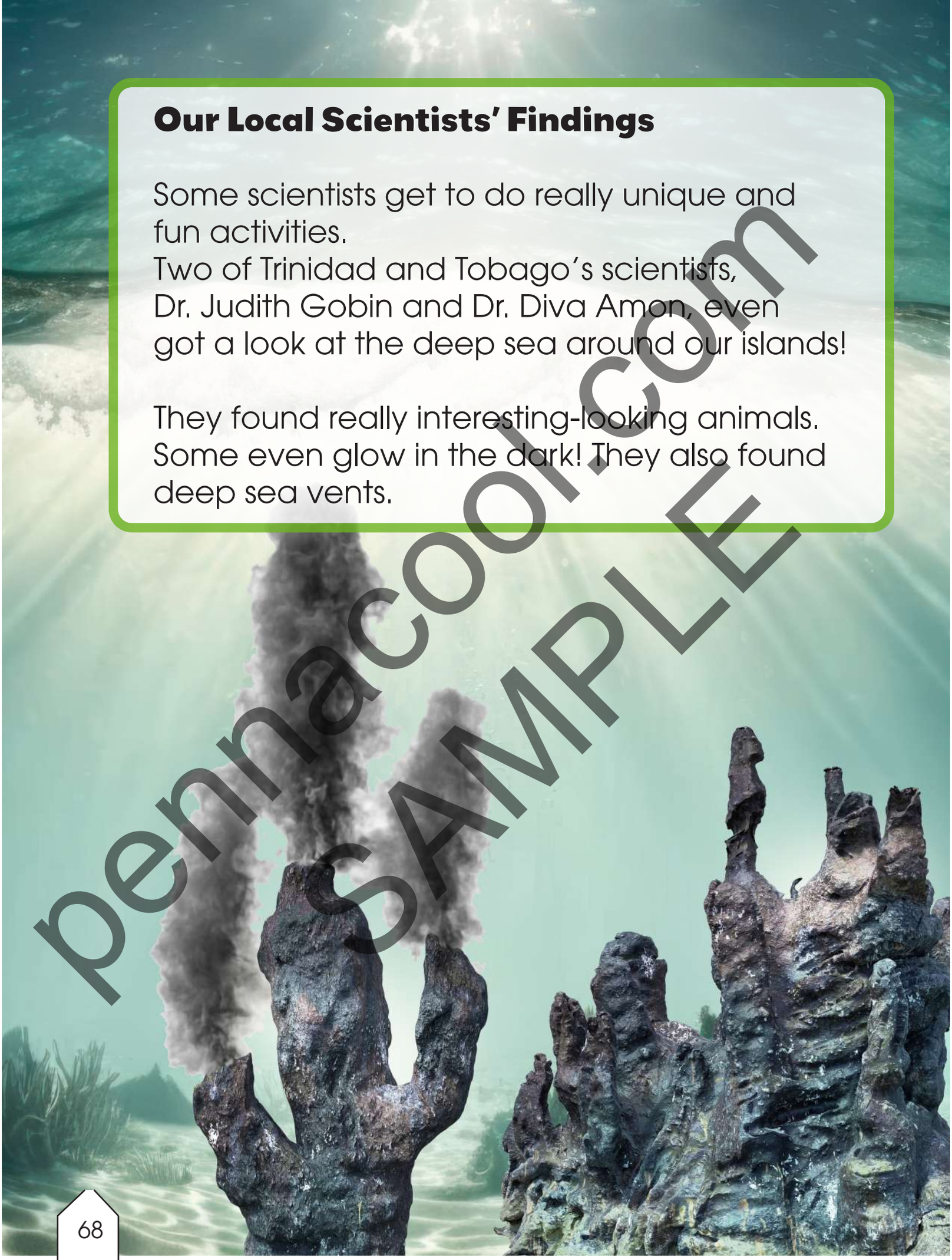
Skai is running late for her World Science Day class field trip! Can you help her get there before the bus leaves?



Our Local Scientists' Findings

Some scientists get to do really unique and fun activities.
Two of Trinidad and Tobago's scientists, Dr. Judith Gobin and Dr. Diva Amon, even got a look at the deep sea around our islands!

They found really interesting-looking animals. Some even glow in the dark! They also found deep sea vents.



Scientists have important tools that they use to help them with their work. Colour the tool below.

This tool is a _____

AGRICULTURAL SCIENCE

1. Growing a Plant

Plants need 5 important things to grow.

In the space below, draw a picture of a garden that has all these things.

Let's Grow a Plant!

To grow plants in soil, there are **five main steps** you should follow. As you and your class grow your plants, cut and paste pictures of yourselves in the correct sequence doing each activity as it is described.

1. **Ground Preparation**

[redacted]

OR

Container Preparation

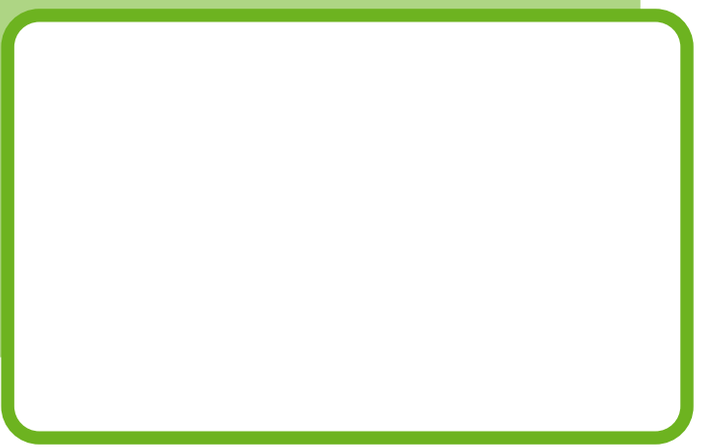
Prepare a mixture of soil [redacted], [redacted] (1 part) and place it in a container.

2. Sow seeds or transplant seedlings.

3. Water plants.

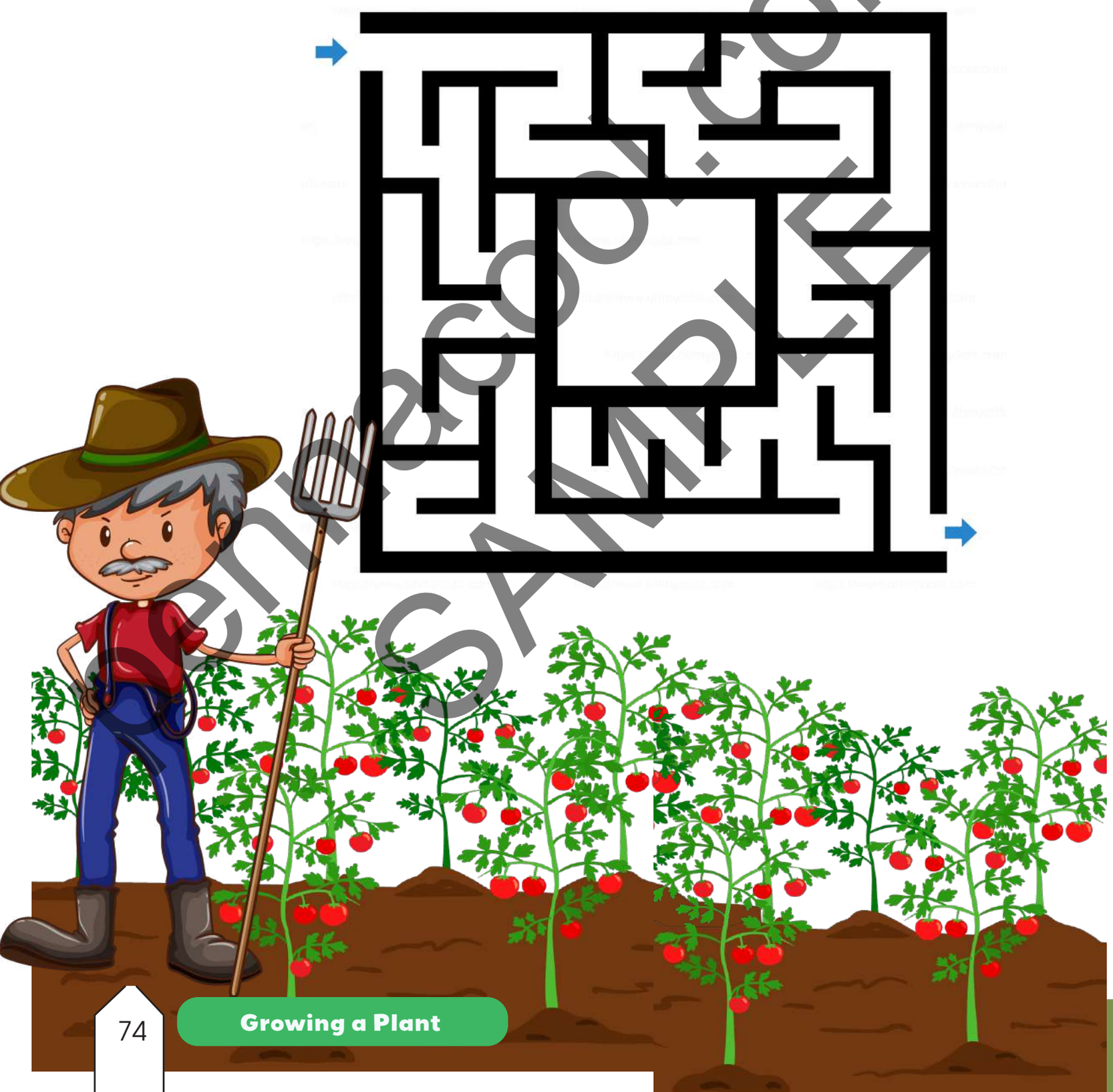
4. Add nutrients such as manure and mould plants.

5. [redacted]



Uh oh! The farmer has grown so many crops that he can't find his way to the tomatoes!

Guide the farmer through the maze to get him to his tomatoes.



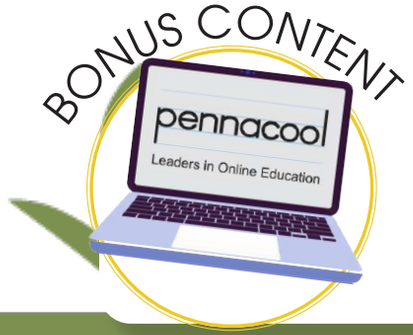
How many words can you find?

H	A	R	V	E	S	T	W	K	T	G	T
E	H	G	F	O	U	C	J	H	L	A	K
A	A	W	M	O	U	L	D	Y	B	Q	X
A	N	A	N	D	A	Y	T	I	L	L	W
S	E	E	D	L	I	N	G	M	V	X	N
R	C	L	B	D	P	Q	B	D	F	D	X
D	T	R	A	N	S	P	L	A	N	T	F
O	J	L	D	M	I	X	T	U	R	E	Y

MOULD

SEEDLING

TILL



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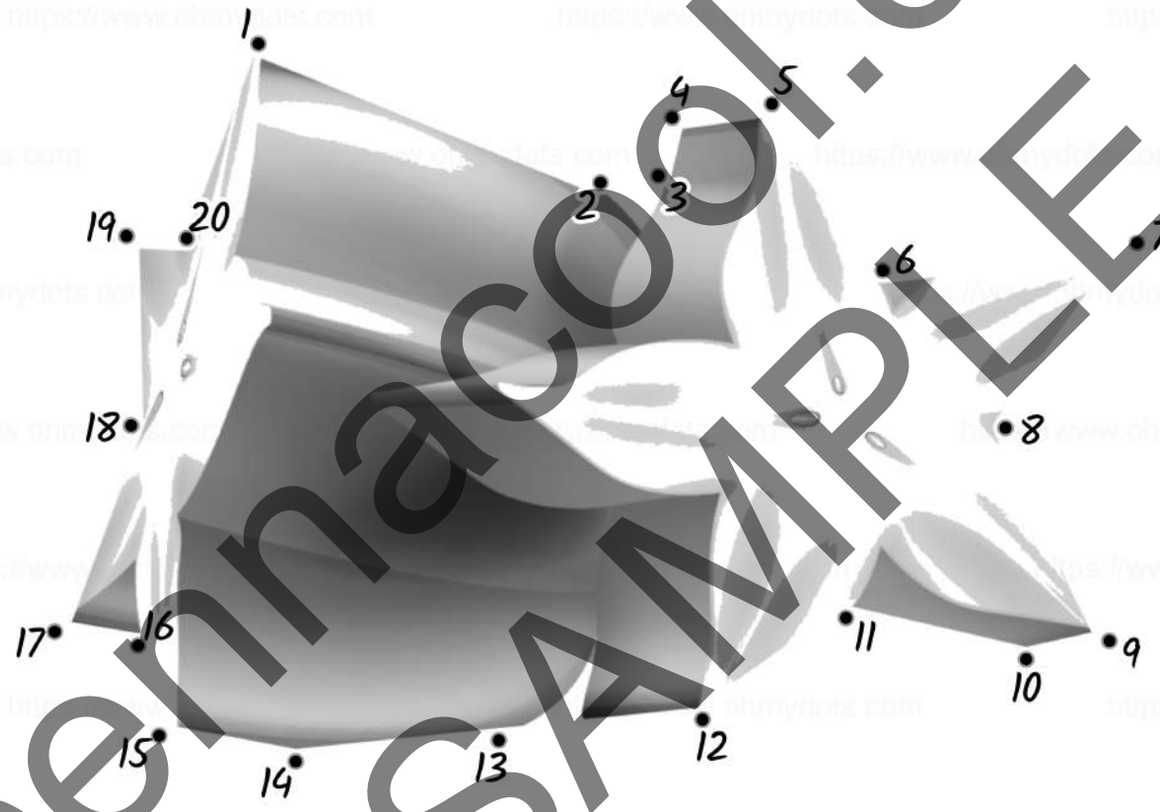
Happy Harvest!
Connect the dots to see what food was harvested from the garden this week.



The harvest was a _____

Identify the activity happening in the picture and colour it in.

In this picture, _____ .

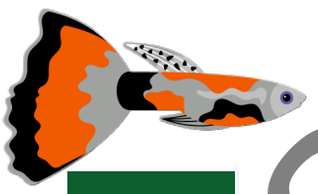
Describe the emotions you felt as you grew and harvested your plants.

Did you enjoy it? Why or why not?

2. Rearing Ornamental Fishes

Ornamental fish are [redacted]. Usually, they are kept in an aquarium or small pond. Some locally kept fishes include [redacted] and corydoras.

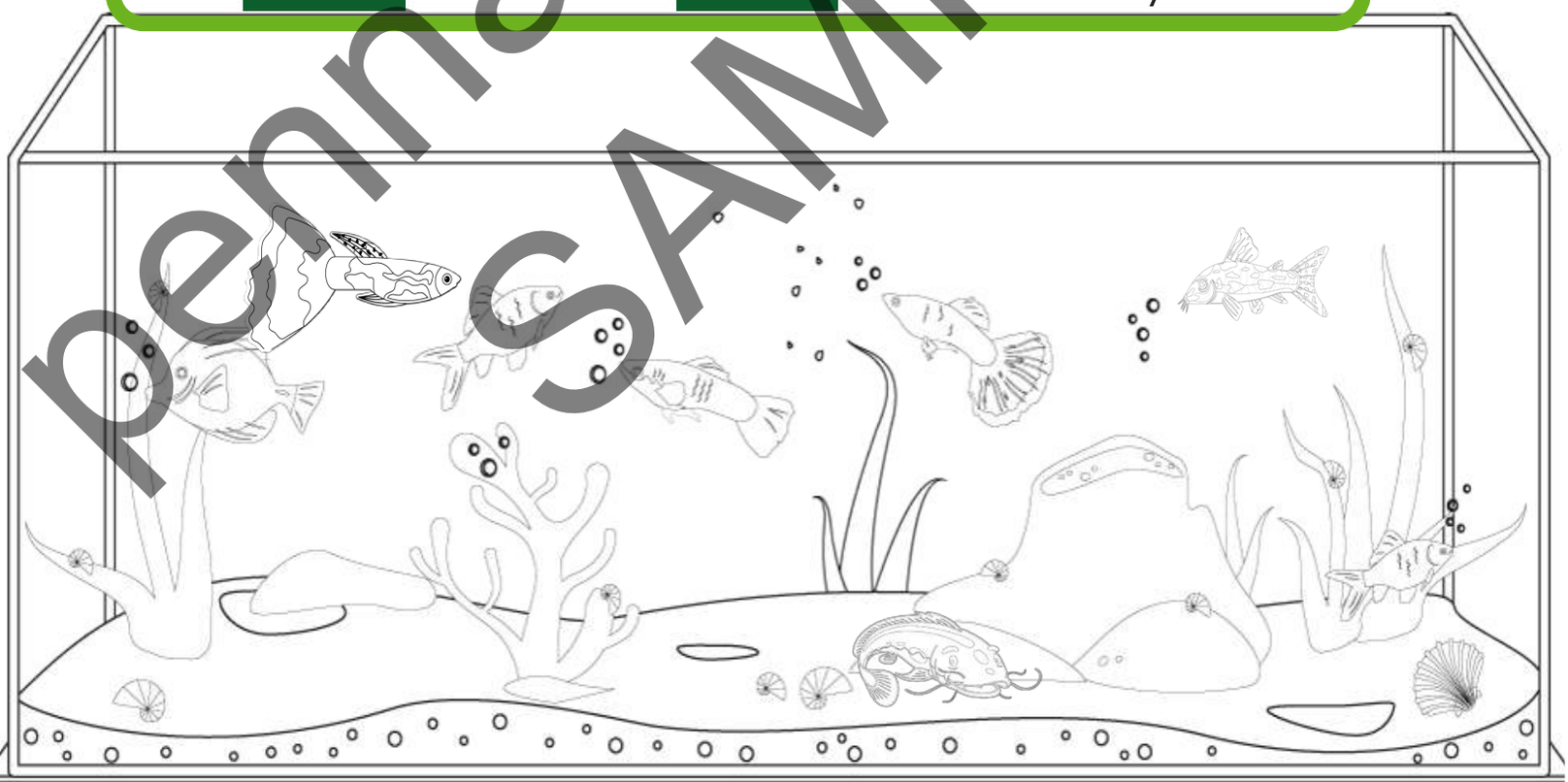
Look at the fish guide given. Find the matching fish in the aquarium and colour them in the colours shown.



[redacted]

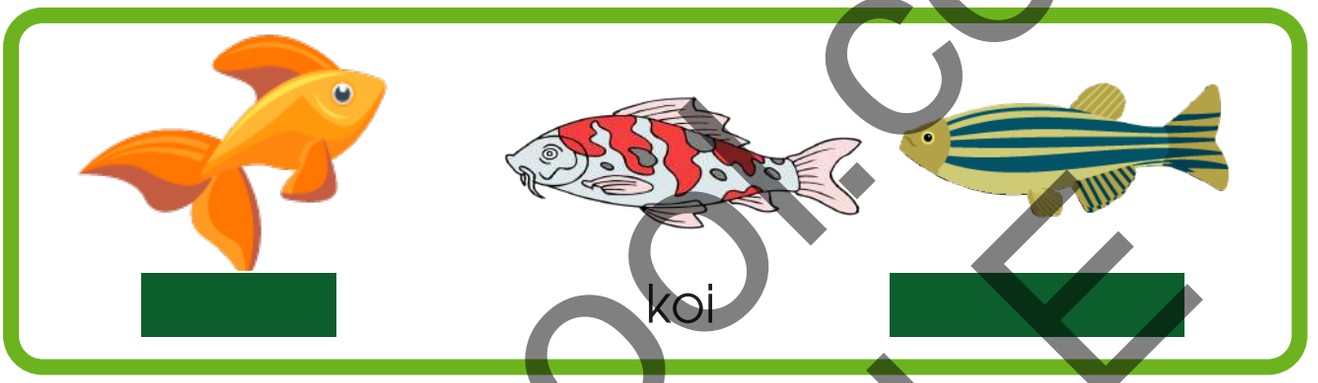
[redacted]

corydora



Some exotic fishes kept in aquariums include [redacted] koi and [redacted].

Look at the fish guide given. Find the matching fish in the aquarium and colour them in the colours shown.



Do not release exotic fishes into rivers or canals. When this happens, foreign species of fish compete against local fish for food and shelter. Protect our local fishes!

IMPORTANT FACT!

RESEARCH IT!

With the help of your teacher, set up an area in your class to rear a fish and complete the following activity.

As you rear your fish, stick or draw pictures of yourself completing each step.

1. Choose what type of fish you are going to rear.

2. Select your aquarium and the proper [redacted] you will need.

3. Feed your fish with [redacted] throughout the day.

4. Keep your aquarium out of direct sunlight to avoid algae growth.

5. Change out small amounts of water from your aquarium often.

Rules keep us safe!

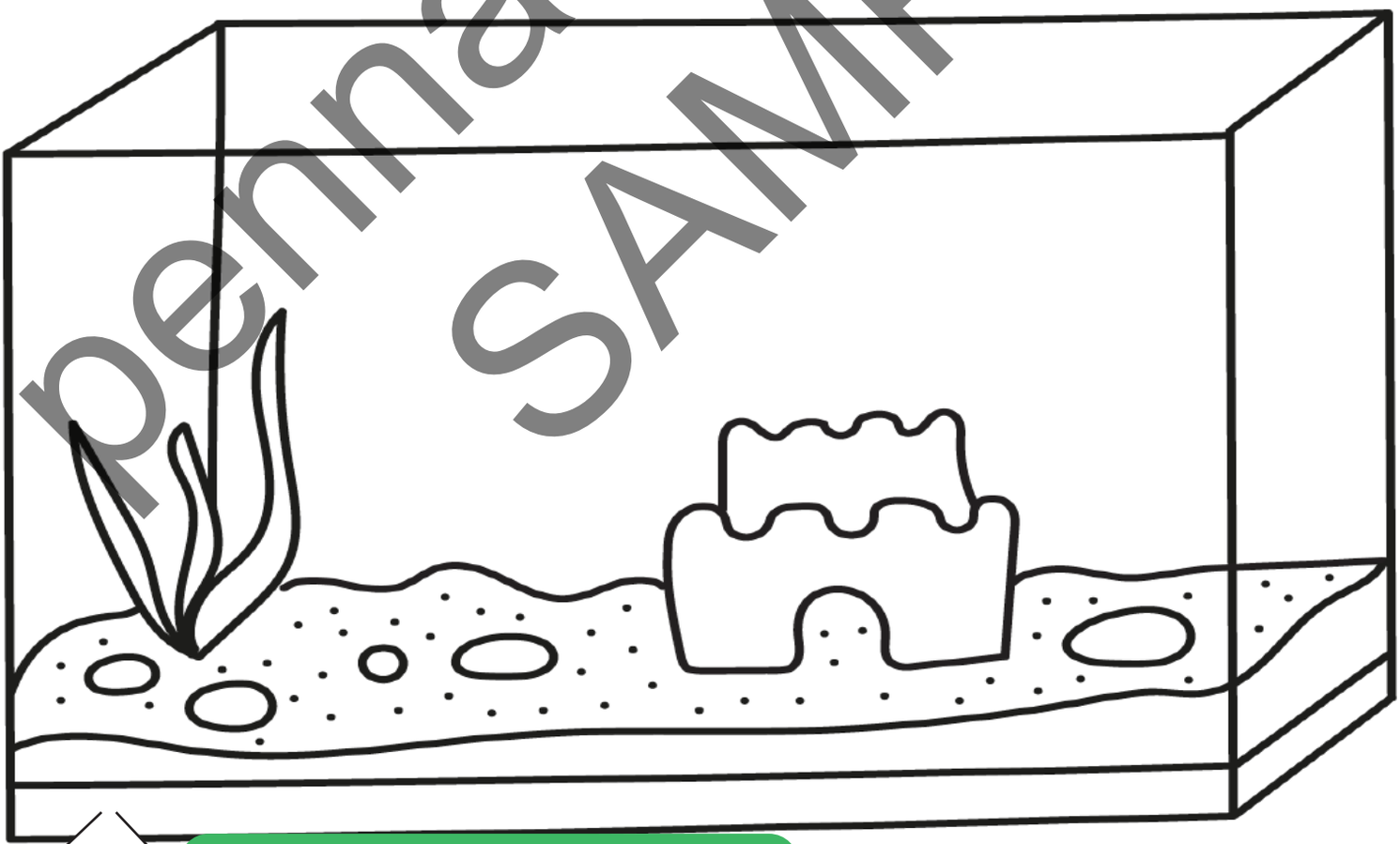
A fish in an aquarium cannot look after itself. With the help of your classmates, create at least 3 rules that will help you to keep your fishes safe.

1. Keep the tank out of direct sunlight.
2. Do not feed the fish with your snacks.
3. _____.
4. _____.
5. _____.

Did you know that saltwater fish can also be reared in tanks? The tank will need to be filled with saltwater!

Some common species can be found below.

Fill in the aquarium with saltwater fish that you might want. Stick or draw pictures of them here!



Cascadoo

Sweet cascadoo,
Oh, how I love you,
You are useful in curry stew,
You are scaly like a dragon,
Shiny like a diamond,
And precious like one too.

by Joel Mitchell

[redacted] you can see.

There are _____ cascaduras.

3. Handling and Preparing Plant Produce

When handling plant produce, it is important to make sure [redacted] to keep you and others from getting sick.

Act out these good practices for handling produce:

1. Harvest produce early in the morning before it gets too hot.

2. Never leave your freshly-picked produce [redacted]

3. Harvest your produc [redacted], but not when it is still too green.

4. Keep the area where you store your produce [redacted]

What are some of the items you might need to correctly handle your produce?

Discuss with your classmates and list them below.

1. _____

2. _____

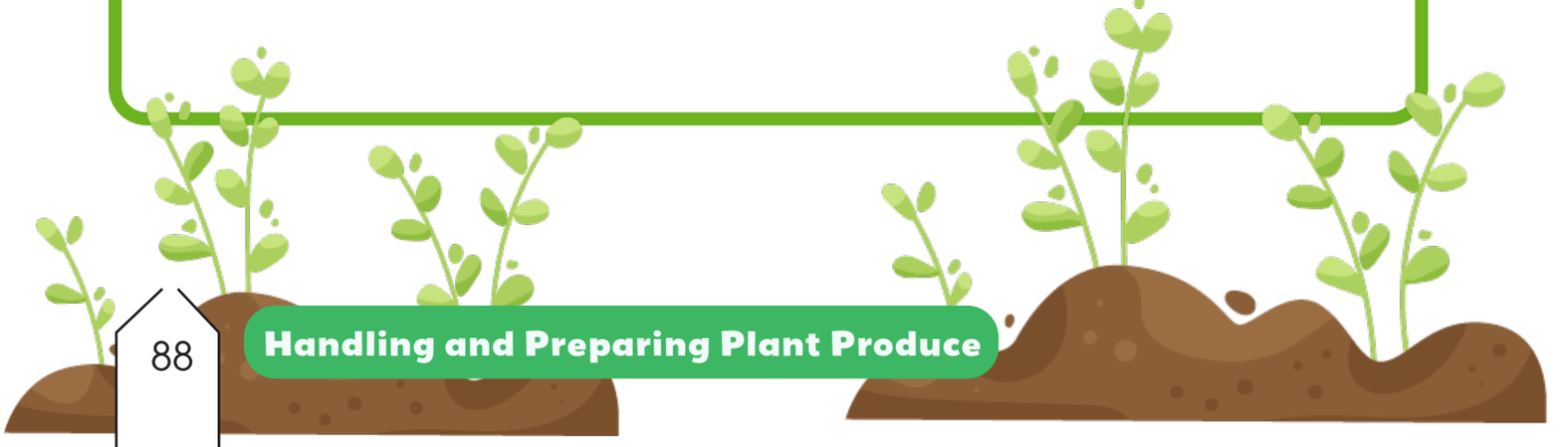
3. _____

4. _____

5. _____

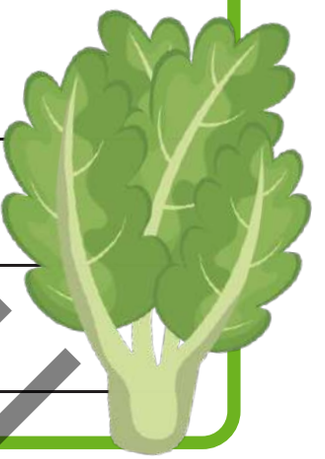
6. _____

7. _____



Tyann and her mother are at the market. They notice that most of a farmer's lettuce and kale is very wilted.

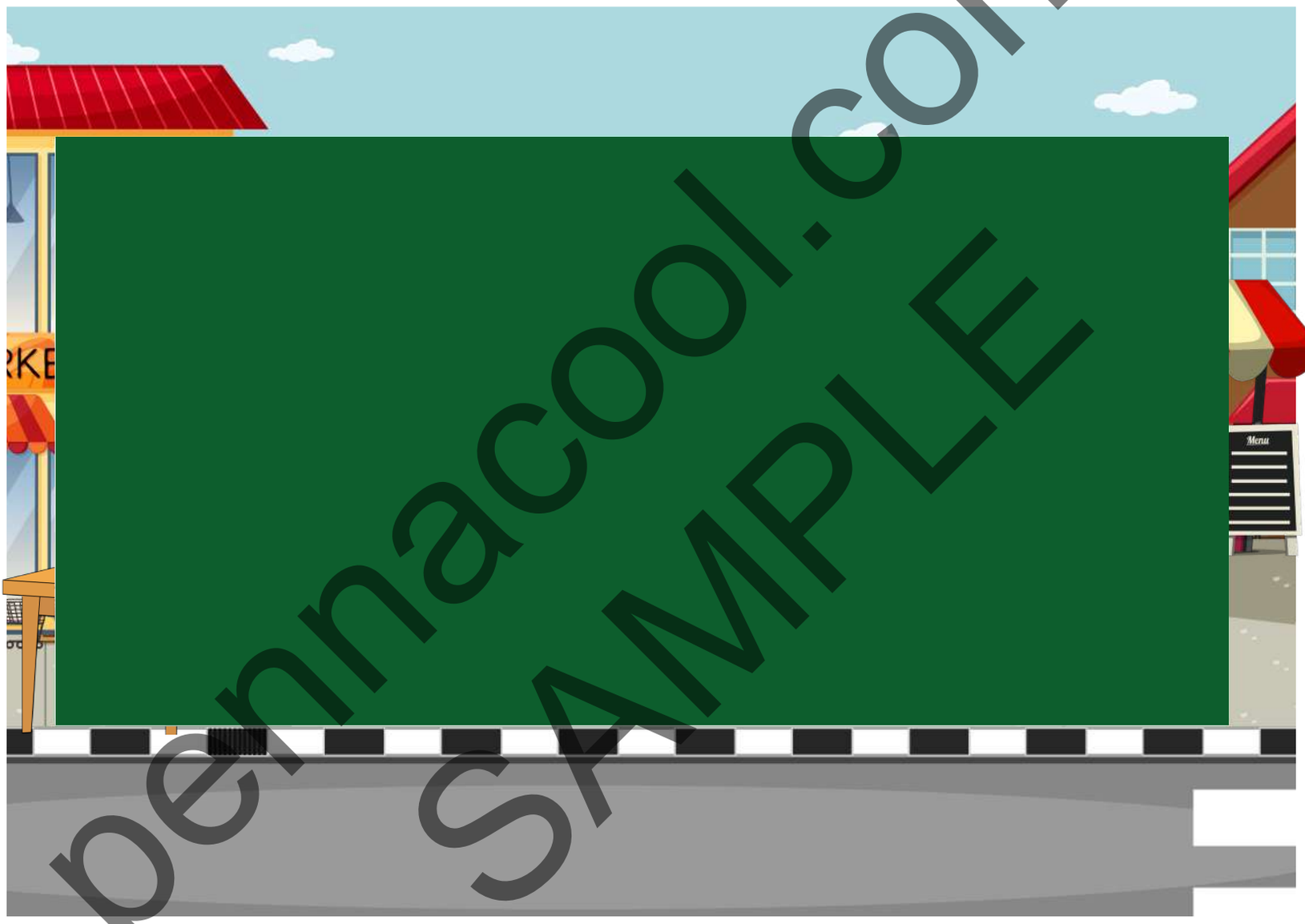
What practice for handling food do you think the farmer did not follow?



Tyann's father brings home a paw paw that he got from a fruit stall. It is nice and orange on the outside.

What mistake do you think the fruit vendor made?

There are 4 wacky food handling practices in this picture. Can you spot them all?



BONUS CONTENT

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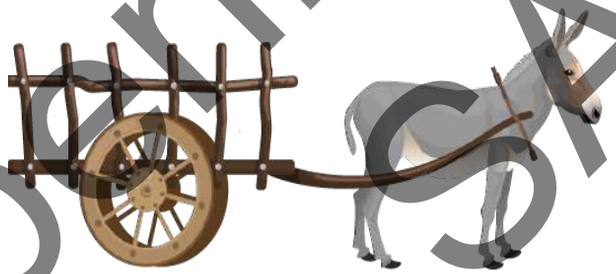
4. Transporting Foods

Most people are not farmers. This means that their food has to travel from the farm to a place like the grocery or market, where it can be bought.

Local food has a shorter distance to travel than food from other countries.

The Journey of Local Foods

1. The crops have just been harvested. Circle the best way that the farmer can carry them from the farm to the market.



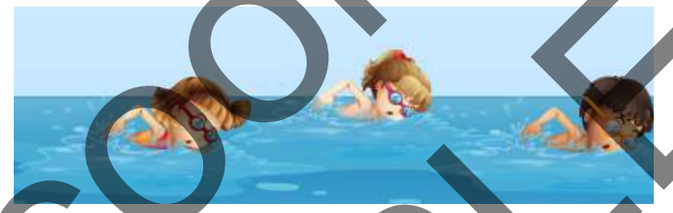
Why did you choose this mode of transport?

For one of the modes you did not choose, state why.

2. Now that the goods are at the market, they need to go to the customer's house. [redacted] goods to the house.

Why did you choose this mode of transport?

3. Our farmer just received a call to deliver some goods from Trinidad to Tobago. What do you think is the best mode of transport to deliver the goods? Circle it below.



Why did you choose this mode of transport?

Based on your choices, draw a flow chart of the modes of transport to get goods from the farm to the market, and from the market to your home.

The Journey of Food From Other Countries

The apples in Canada are ready to be shipped to Trinidad.

1. [redacted]

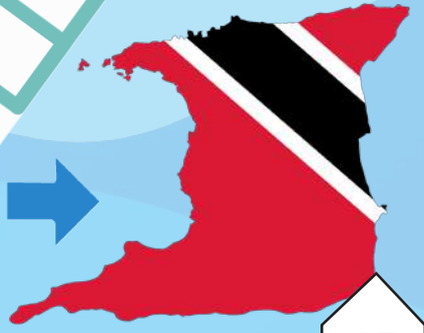
Why did you choose this mode of transport?

2. Now that the apples are at the port, they need to get to the supermarket.

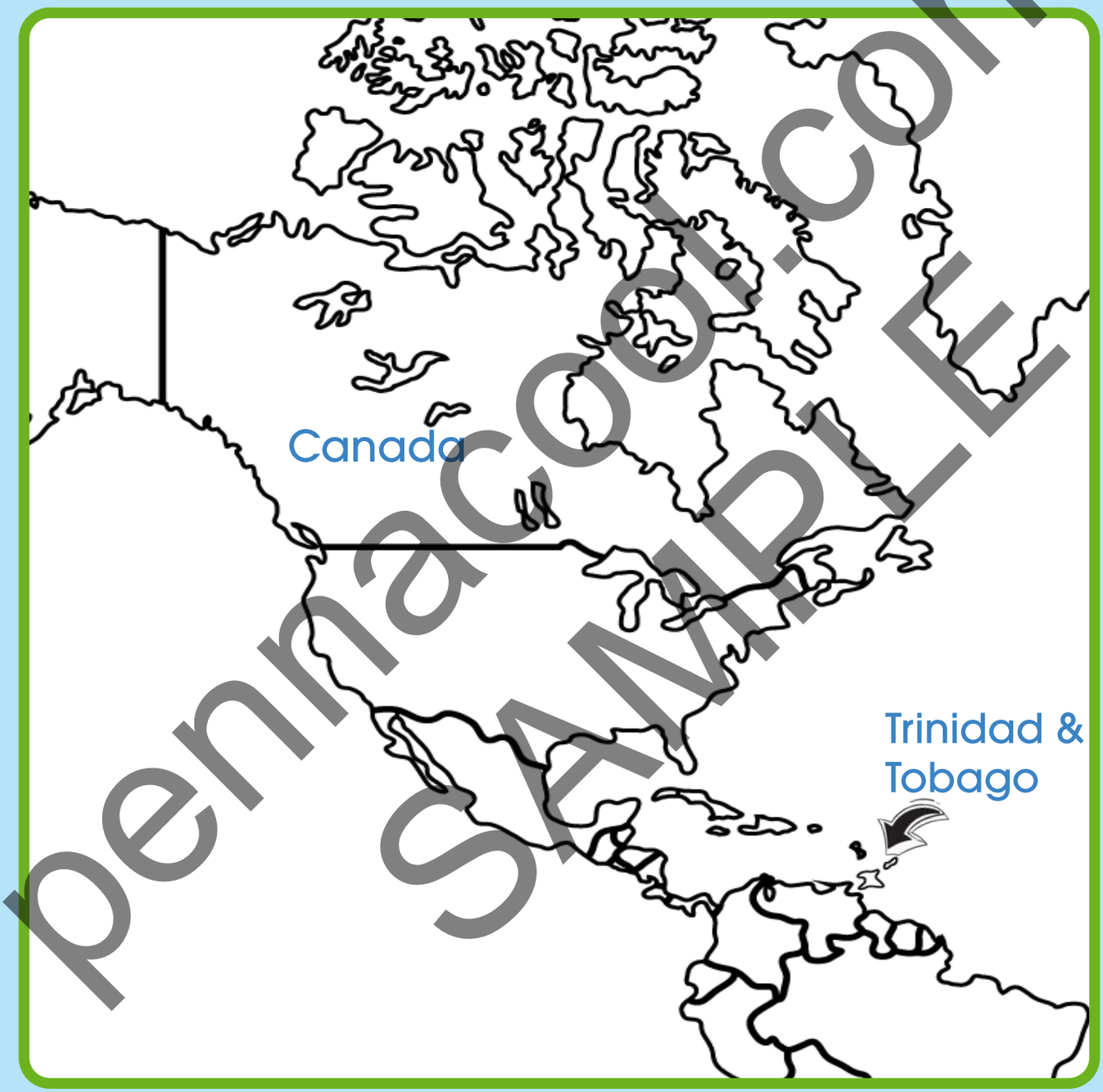
[redacted]

Why did [redacted]

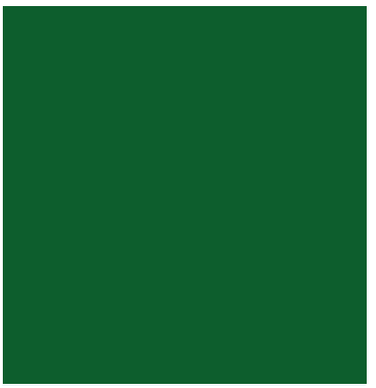
Uh oh! The ship got lost on its way from Canada to Trinidad. Help the captain steer the ship across the Atlantic Ocean.



On the map below, draw a line to show the trail that the goods might take from Canada to Trinidad and Tobago.



Jayden is an [redacted] He was born in [redacted]
He has now grown big and ripe and is about to go on an adventure. He will be travelling from Canada to Trinidad and Tobago!



Write a story about Jayden's adventures.

RESEARCH IT!

Colour the Map of Trinidad and Tobago below. Label the bodies of water.