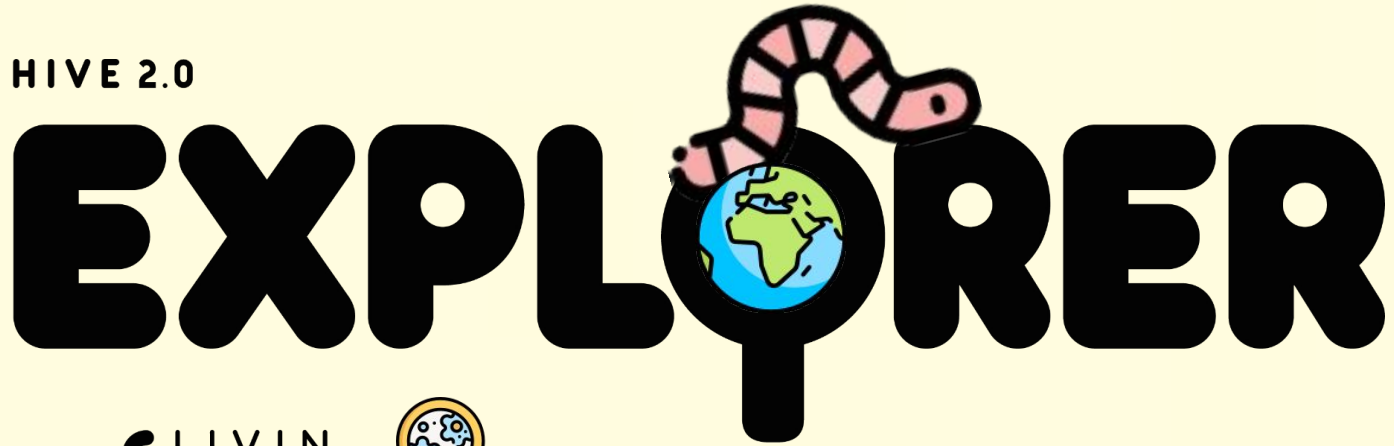


HIVE 2.0

# EXPLORER

The word 'EXPLORER' is written in a large, bold, black, rounded font. The letter 'O' is replaced by a small globe showing the continents of North and South America. A pink and white striped worm is curled over the top of the globe.

by <sup>LIVIN</sup>  
farms 

# What if we told you ...

... that food is connected to all three of our biggest challenges



=

## The Greatest Challenges of our time



Climate change

Depletion of  
Natural Resources

Overpopulation

# Food Waste: pollution

*“If food wastage were a country, it would be the third largest **greenhouse gases (GHG)** emitting country in the world.”*



1



2



3



# QUIZ TIME

*Where is most of the food waste coming from?*

A. From Supermarkets



B. From our homes



C. From Farms



# Animal-derived foods: resources

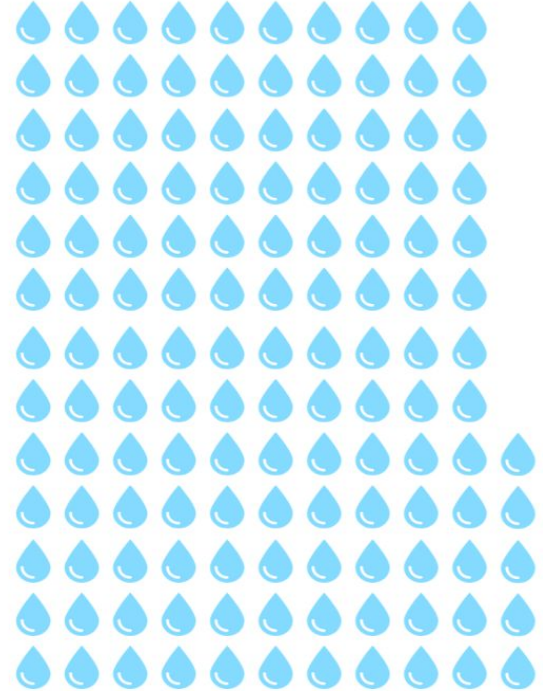
Can you guess how much water it takes to make one kilogram of beef?

1 kg of beef = 2 steaks



1kg Beef

=

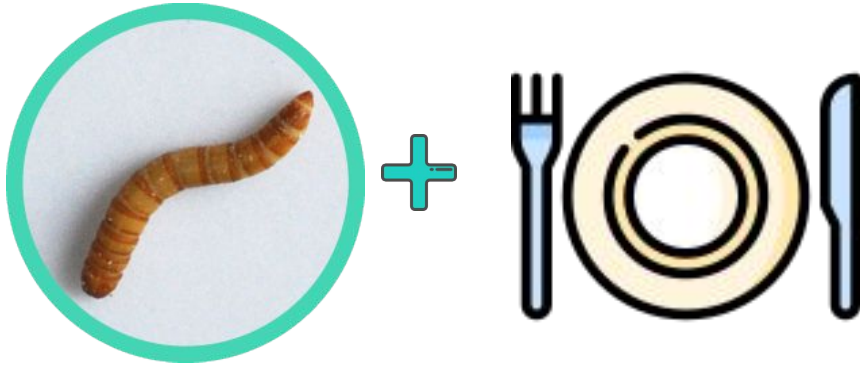


132 showers

The equivalent of...

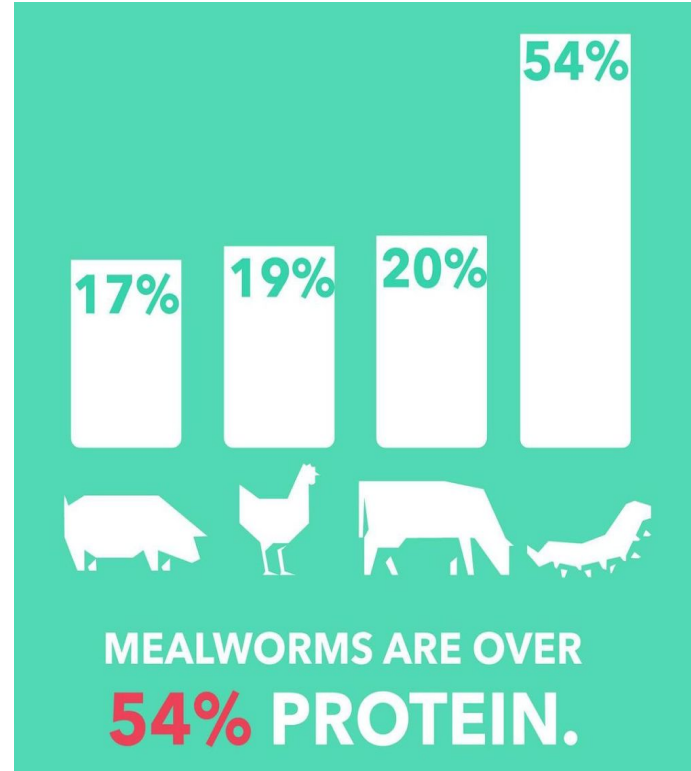
- A. 998 showers!
- B. 55 showers!
- C. 130 showers!

# The future of food

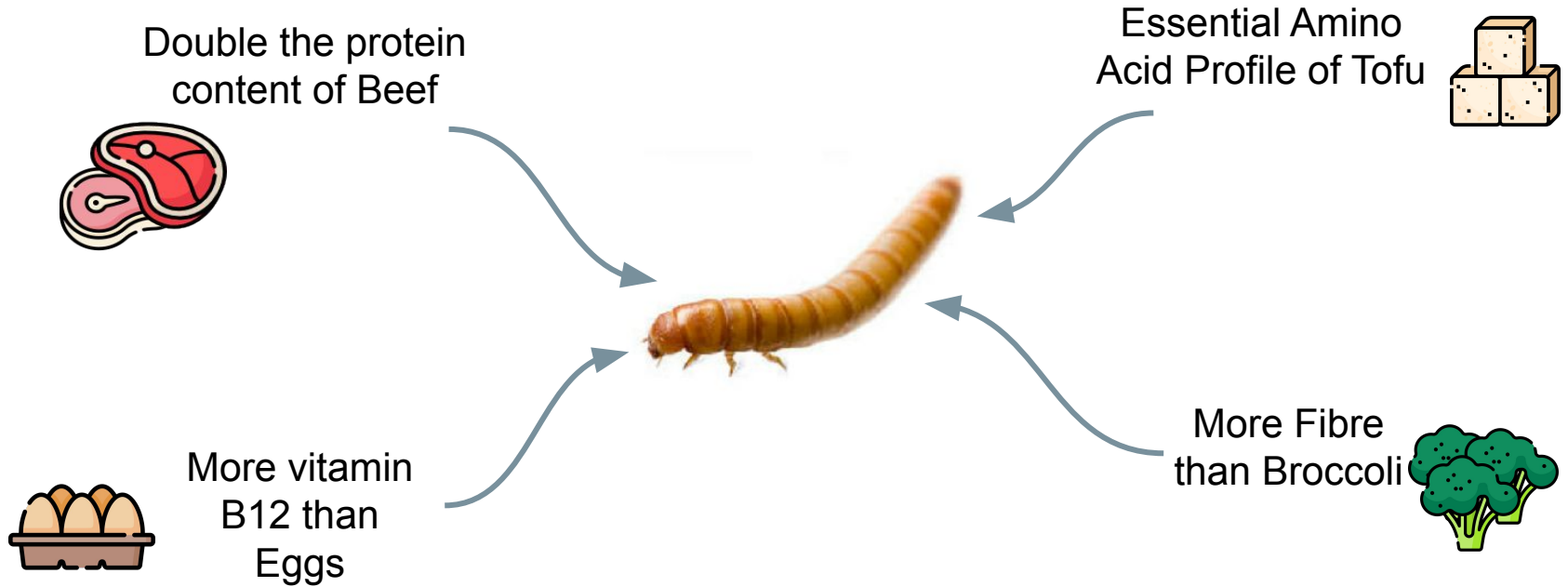


Insects are a good source of protein. Beef has 20% of protein. Insects (mealworms) have:

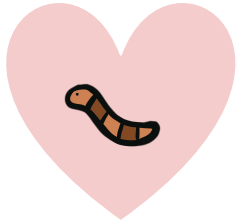
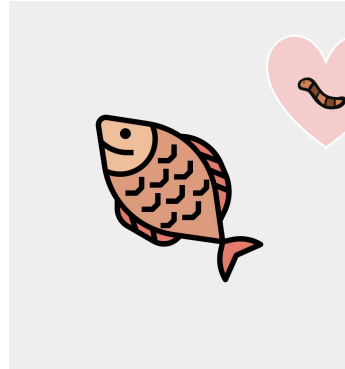
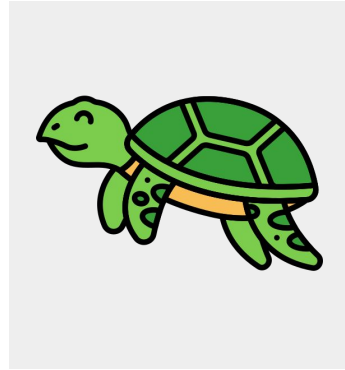
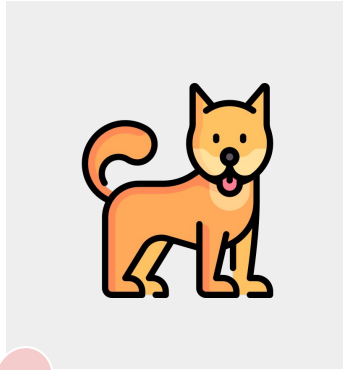
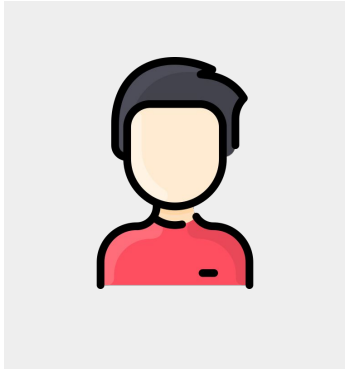
- A. 54%
- B. 92%
- C. 35%



# The future of food

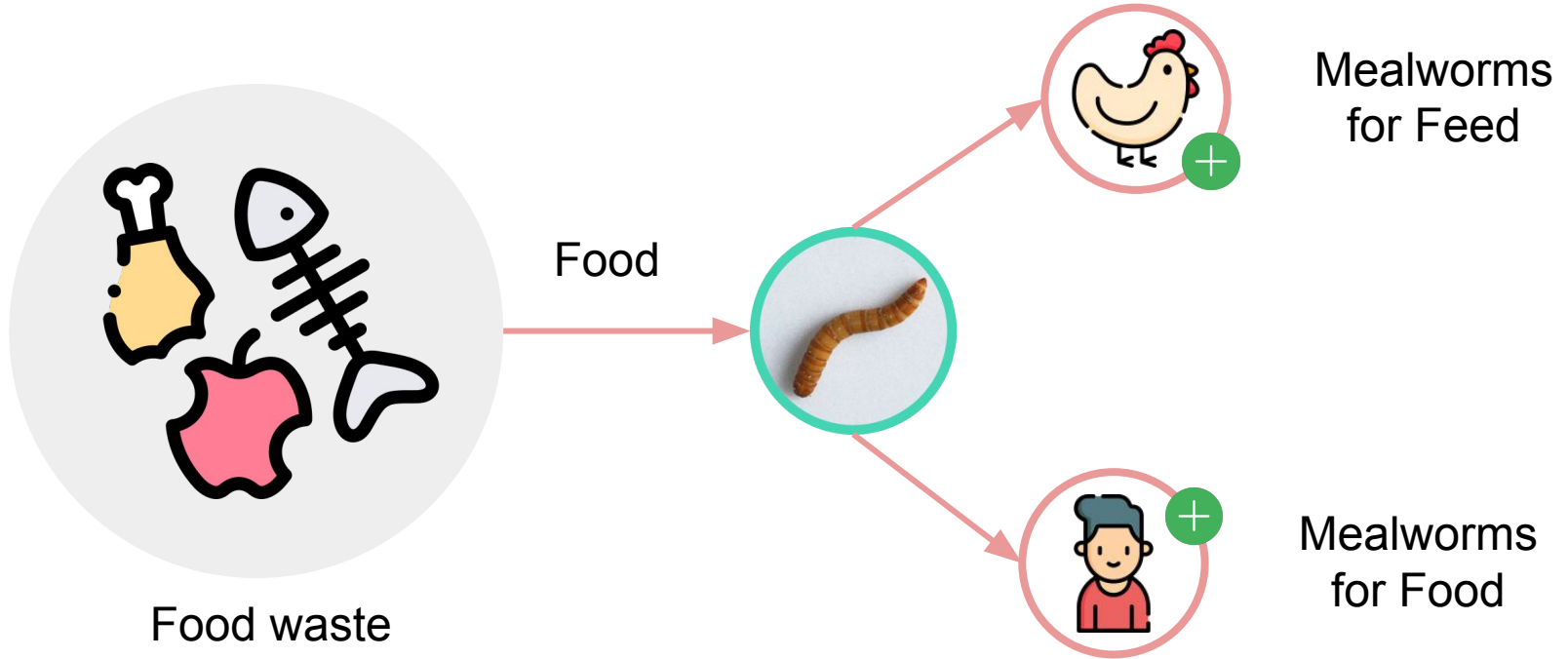


# Who can eat mealworms?





# Food Waste to Food



# Fertilisers and pollution

A **fertilizer** is something that has **nutrients** for the soil.

Not all fertilizers are the same.

Some are **natural** and some are **chemical**.

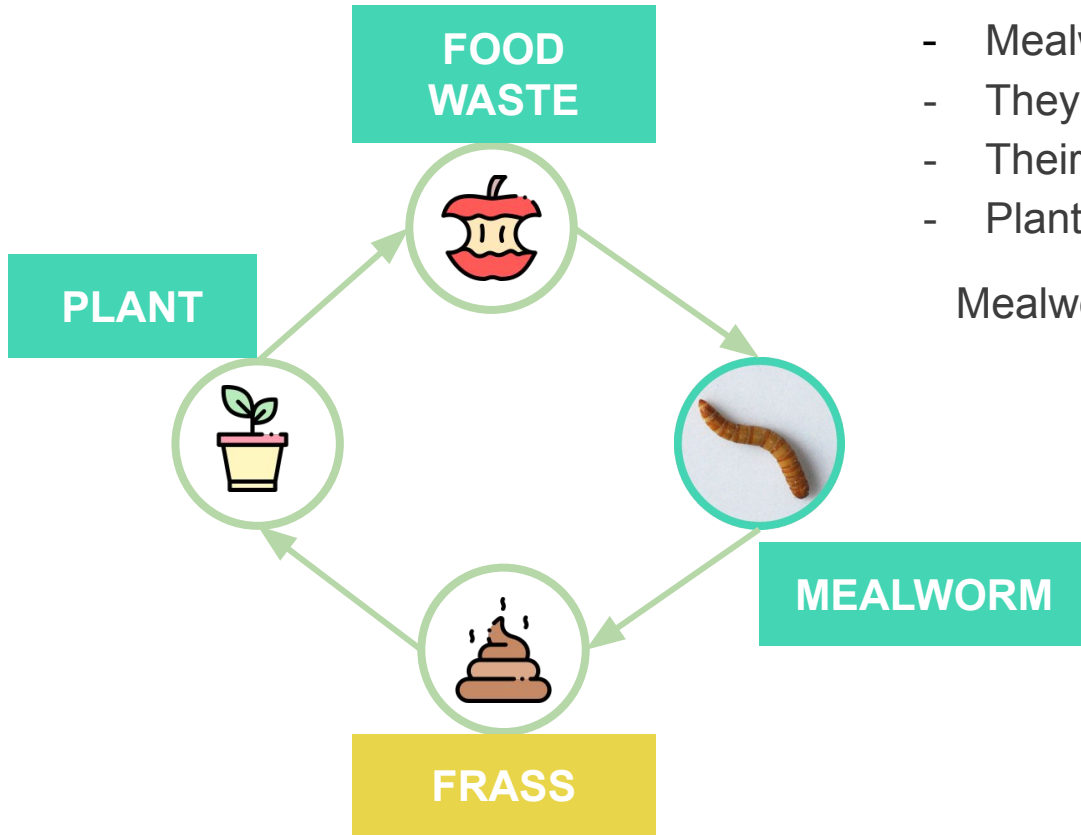
- + **Natural fertilisers** feed the soil slowly, they are healthier.
- **Chemical fertilisers** can pollute the soil and also water.



[Illustration by Jarðgerðarfélagið](#)

Mealworm poop = Natural fertiliser

# Mealworms to the rescue!



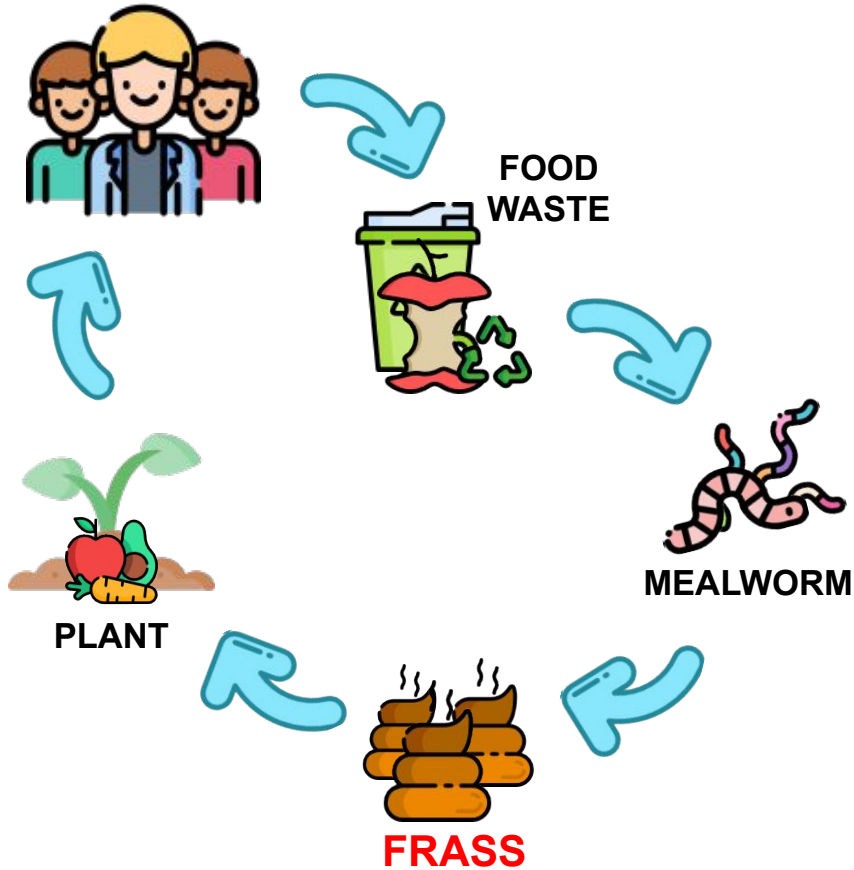
- Mealworms eat food waste
- They poop
- Their poop is fertilizer for new plants
- Plants will give us new food

Mealworms help us **upcycle** food waste into fertiliser!

What is the name of mealworm poop?

- A. Fres
- B. Fries
- C. Frass

# Mealworms to the rescue!

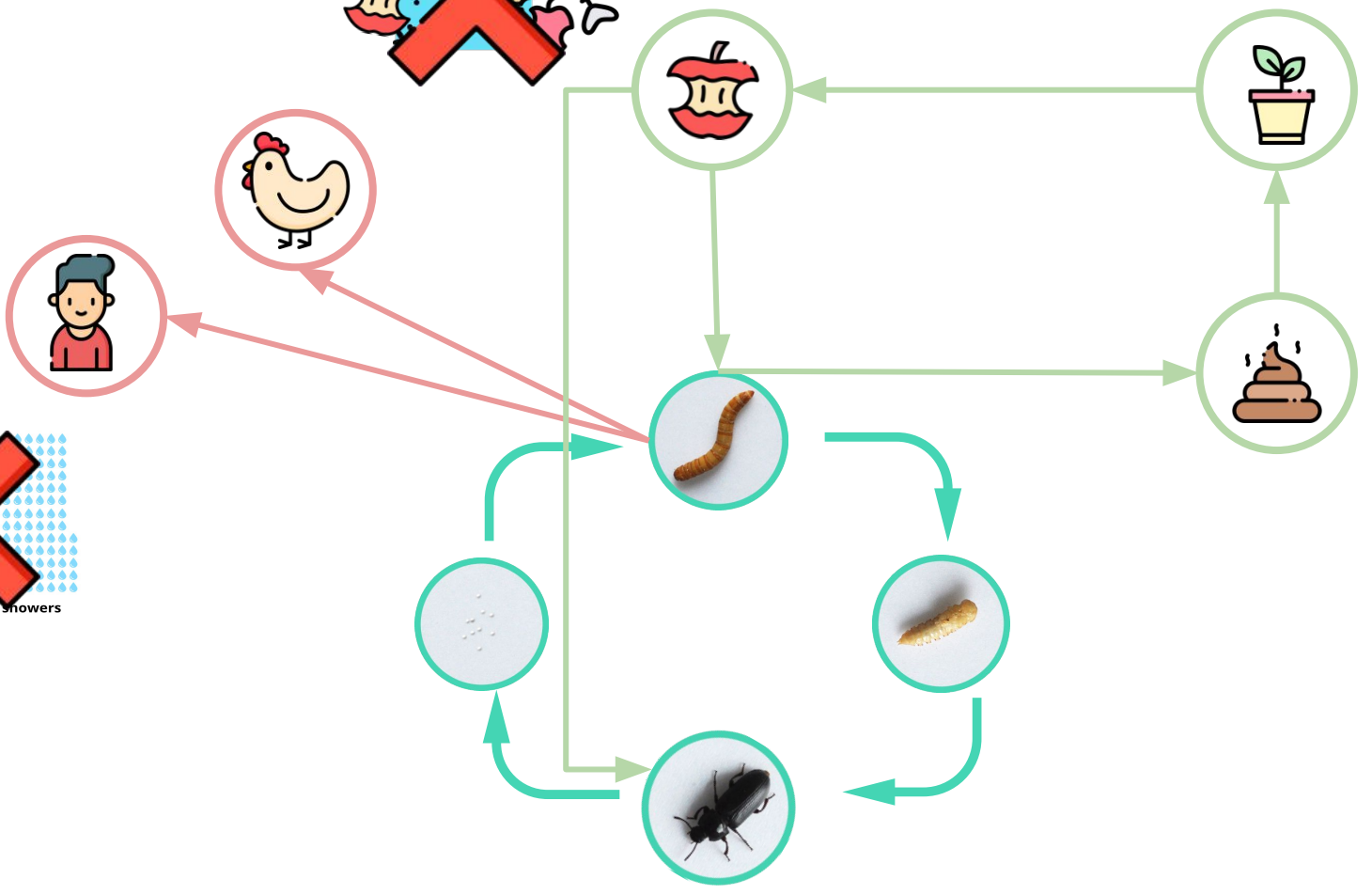


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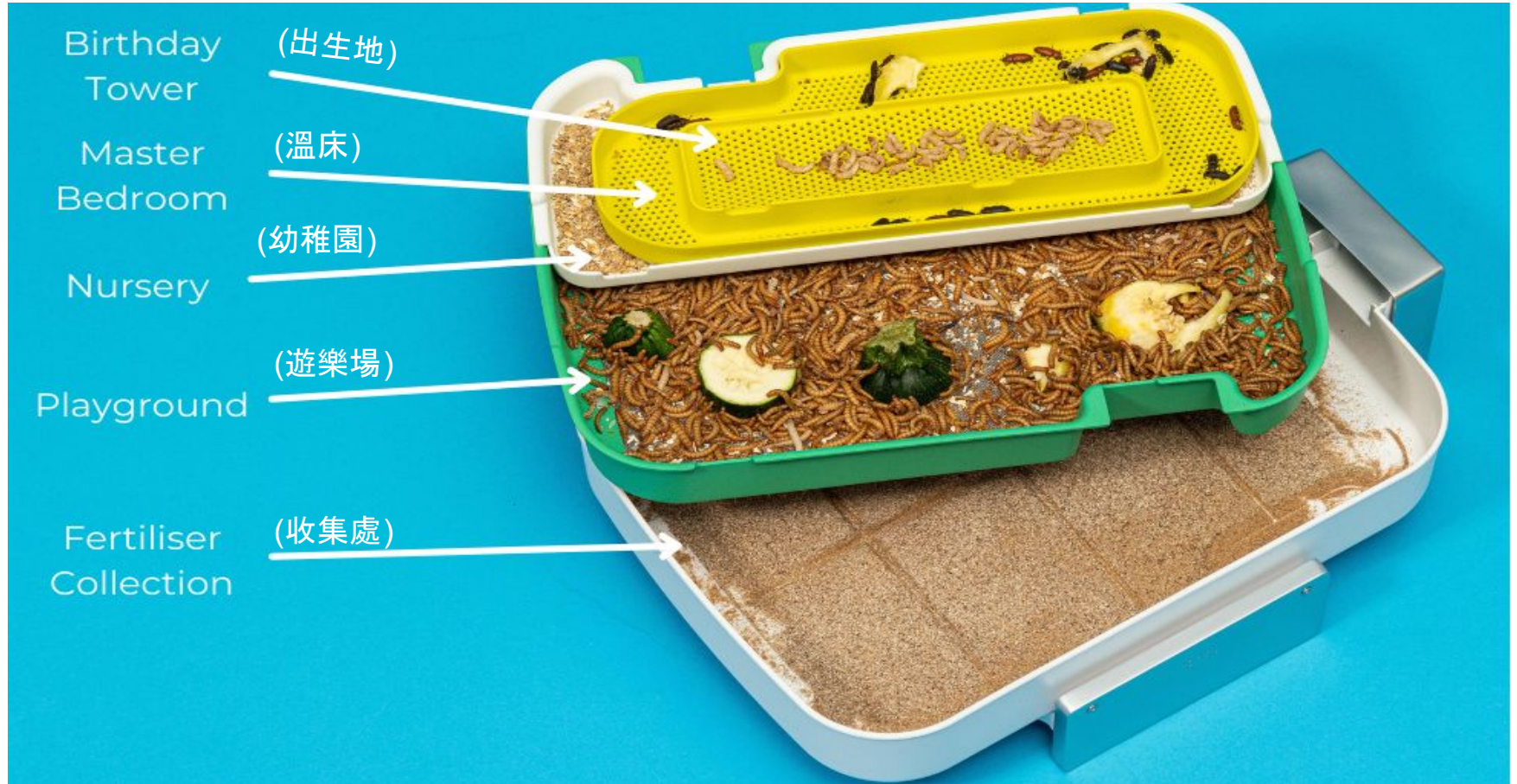


HIVE 2.0

# EXPLORER



# All the layers of the Hive Explorer



# The tech in the Hive Explorer



(過濾網)

HEPA FILTER  
FOR HEALTHY  
AIR FOR THE  
MEALWORMS  
AND PEOPLE



FOOD AND  
DISHWASHER  
SAFE  
MATERIALS

(採用安全物料)



SENSOR  
MEASURES (溫度濕度調節器)  
TEMPERATURE  
AND HUMIDITY

(風扇)



FAN IS  
TURNED  
ON WHEN  
HUMIDITY IS  
TOO HIGH

(加熱板)



SAFE  
HEATPLATE  
KEEPS THE  
MEALWORMS  
WARM AND  
COZY



# Mealworm Bingo!



1. Find a *baby* mealworm  
(粉蟲寶寶)

Write your observations

2. Find a pupa about to hatch

(即將孵化的蛹蟲)

E.g. pupa is darker than others, you can see legs crossed on her tummy

3. Find mealworm skin

(粉蟲的皮)

Write your observations

4. Make a pupa move  
(蛹蟲移動)

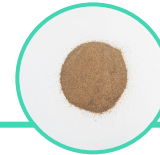
Write your observations

5. See a mealworm eating food waste  
(粉蟲進食的過程)

Write your observations

6. Find frass  
(蟲糞)

Write your observations



7. Find a beetle eating food waste  
(尋找正在吃廚餘的甲蟲)

Write your observations



8. Find a white beetle  
(尋找白色的粉蟲)

Write your observations

9. Find a white mealworm  
(尋找白色的甲蟲)

Write your observations



# Create your poster!

## Larvae

Write some facts here

## Pupae

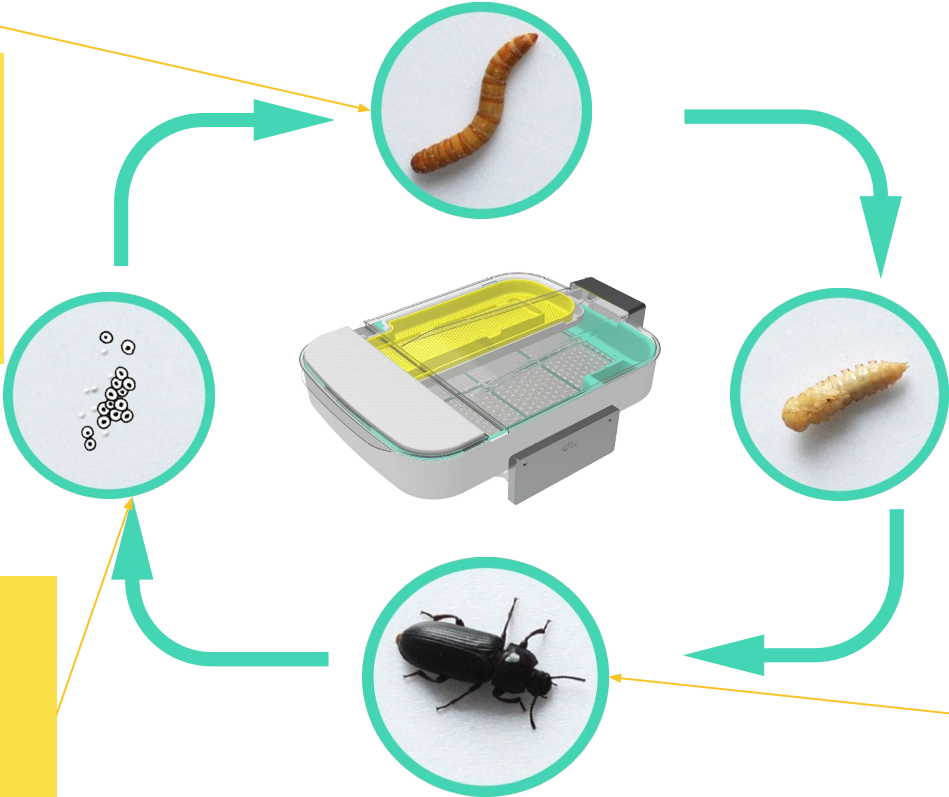
Write some facts here

## Eggs

Write some facts here

## Beetle

Write some facts here



# Create your poster!

## Larvae

Also called Mealworms  
(or Mealies)

6 weeks to 9 months

Eat & poop a lot!

Shed skin

## Pupae

They don't move

They just wiggle

They last up to 18 days

## Eggs

Suuuuper small!

Last up to 18 days

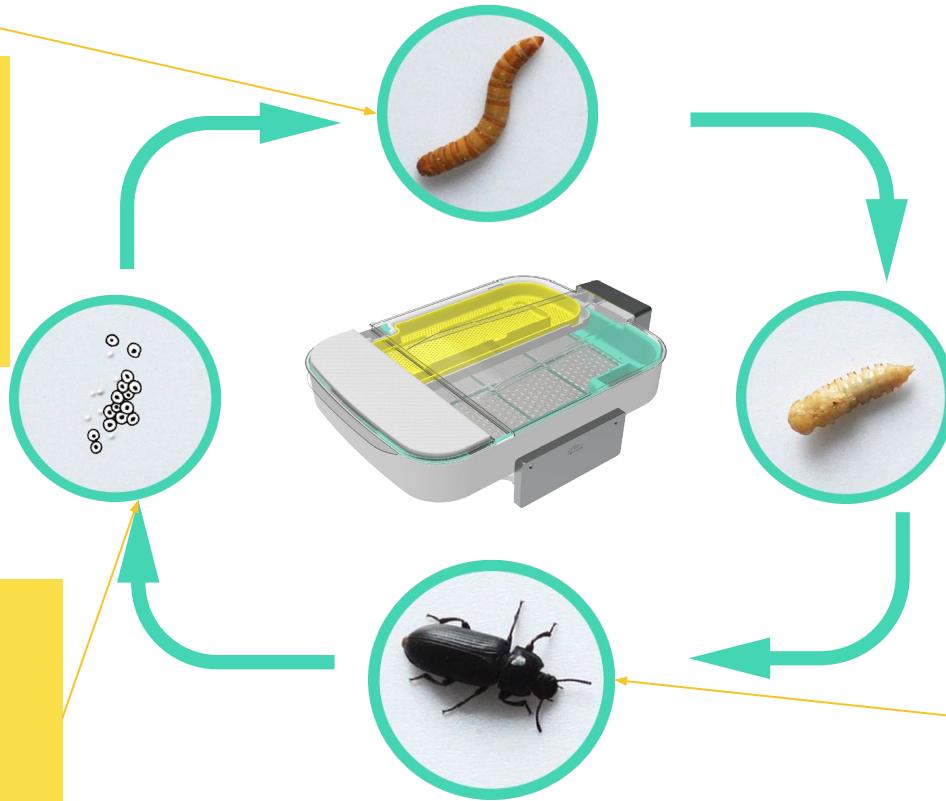
Hatch into baby mealies!

## Beetle

The grown ups of the Hive

Move and eat a lot!

Lay eggs



HIVE 2.0

# EXPLORER

by <sup>LIVIN</sup>  
farms



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