



## A FLY IN MY SOUP...



### CHICKEN FOOD FROM INSECTS

Chickens scratch around in the grass to find food. They love bugs and insects which contain lots of *protein* to build their bodies.

When chickens are farmed in chicken houses, they are usually fed grain (which is mostly starch). Sometimes they are given *fishmeal* as a source of protein. But this is not good for the limited fish reserves in our oceans!

A South African company – *AgriProtein* – is making feed for chickens out of insects!



WHEN SOME FLIES SIT ON YOUR FOOD THEY LEAVE GERMS THERE. THEY EVEN REGURGITATE (VOMIT) THEIR FOOD ONTO OUR FOOD. THE FLIES AT AGRIPROTEIN DO NOT DO THIS, AND ARE KEPT IN A SAFE AND SECURE ENVIRONMENT, WHICH PREVENTS SPREAD OF DISEASES.





## OPTION 1 - MAGGOTS!

**1** GO AND DO A SEARCH FOR WHERE YOU THINK FLIES WOULD BE BREEDING. PLACES WHERE THERE IS OLD FOOD IS BEST.



**2** WHEN YOU FIND SOME FLIES, HAVE A LOOK TO SEE IF YOU CAN SEE ANY FLY LARVAE (ALSO CALLED MAGGOTS).



**3** CHECK EVERY DAY AND SEE HOW THEY CHANGE.



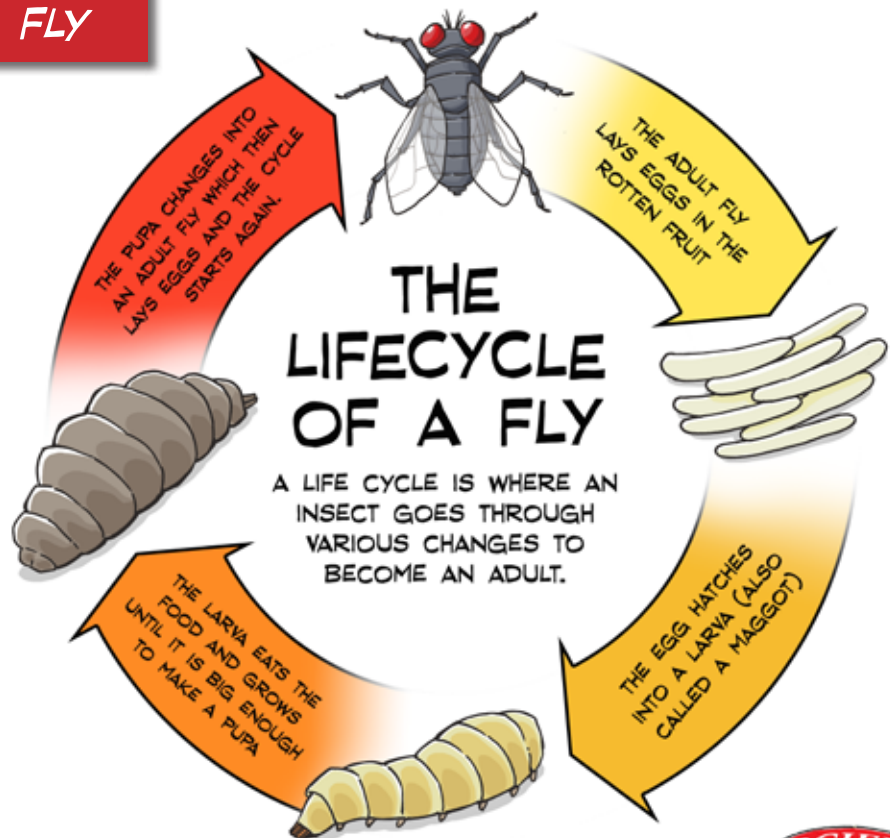
DON'T FORGET TO WASH YOUR HANDS!

**4** MAKE A RECORD OF THEIR GROWTH. TAKE SOME PHOTOS, OR MAKE SOME DRAWINGS. YOU CAN ALSO WRITE A DESCRIPTION ABOUT HOW THEY LOOK AND THE CHANGES THAT HAPPEN TO THEM.



## THE LIFECYCLE OF A FLY

A LIFECYCLE IS WHERE AN INSECT GOES THROUGH VARIOUS **CHANGES** TO BECOME AN ADULT.





## THERE IS A BUG IN MY FOOD!

It is important for us to have **protein** in our diet. Chickens need a lot of protein in their diet so that they can grow protein for us to eat! Normally they are fed feed made from fish – but this is expensive.



Flies lay eggs, which hatch into **larvae** – also known as **maggots**. These maggots are high in protein. They are collected and dried out and used to feed chickens. This is cheaper than fishmeal and better for the environment.



PROTEIN IS USED TO REPAIR AND BUILD BONES, MUSCLES, CARTILAGE, SKIN, BLOOD, NAILS AND HAIR.



OLD VEGETABLE MATTER IS USED TO FEED THE LARVAE/MAGGOTS – WHICH MEANS LESS OF THIS ENDS UP IN THE LANDFILLS.



## CAREERS:

**Entomologists** study insects. They are experts in how the insects grow and their lifecycles. Entomologists have the knowledge on how to use insects to help solve problems.

**Dieticians** understand what people need to eat in order to be healthy. They are able to treat people who are sick because they are not eating the right balance of food.



**Sisonke Madalambana** is the quality coordinator at AgriProtein. He holds a national Diploma in Analytical Chemistry. He analyses the products produced at AgriProtein to ensure they meet the correct specifications. What he enjoys most about his work is knowing that he is helping to make a change by working in a company that has a positive impact on the environment.

## CURRICULUM LINKS

- **GRADE 7, 8, 9:**  
*Mathematics* – Whole Numbers – Calculations using whole numbers
- **GRADE 10, 11, 12:**  
*Physical Science* – Animal Nutrition

## BREEDING LIKE FLIES

JUST HOW MUCH FEED CAN BE MADE FROM TINY MAGGOTS!? LET'S WORK IT OUT ...

- 1 FLY CAN LAY 500 EGGS IN ITS LIFETIME - WHICH IS ABOUT A MONTH LONG.
- EACH OF THOSE EGGS WILL HATCH INTO A MAGGOT AND THEN INTO A FLY. EACH OF THESE FLIES WILL LAY ANOTHER 500 EGGS.
- EACH OF THOSE FLIES WILL ALSO LAY 500 EGGS...

**WORK OUT HOW MANY MAGGOTS CAN BE HARVESTED AFTER 6 MONTHS.**

IF YOU ARE BATTLING, HERE IS A HINT ON HOW TO WORK IT OUT...

**MONTH 1:**

500  
FLIES

**MONTH 2:**

500  
FLIES

X

500  
FLIES

=

250 000  
FLIES

**MONTH 3:**

250 000  
FLIES

X

500  
FLIES

=

125 000 000  
FLIES

**MONTH 4:**

125 000 000  
FLIES

X

500  
FLIES

=

.....  
FLIES

**MONTH 5:**

.....  
FLIES

X

500  
FLIES

=

.....  
FLIES

**MONTH 6:**

.....  
FLIES

X

500  
FLIES

=

.....  
MAGGOTS



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**WE WANT YOUR  
FEEDBACK!**

SEND US SOME PICTURES,  
PHOTOS OR DESCRIPTIONS  
OF THE LIFECYCLE OF A  
FLY THAT YOU OBSERVED.



**AgriProtein**  
Repairing the Future

AgriProtein South Africa produce high protein livestock feed products from fly larva. In the process they reduce the impact of our food waste on the environment.



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