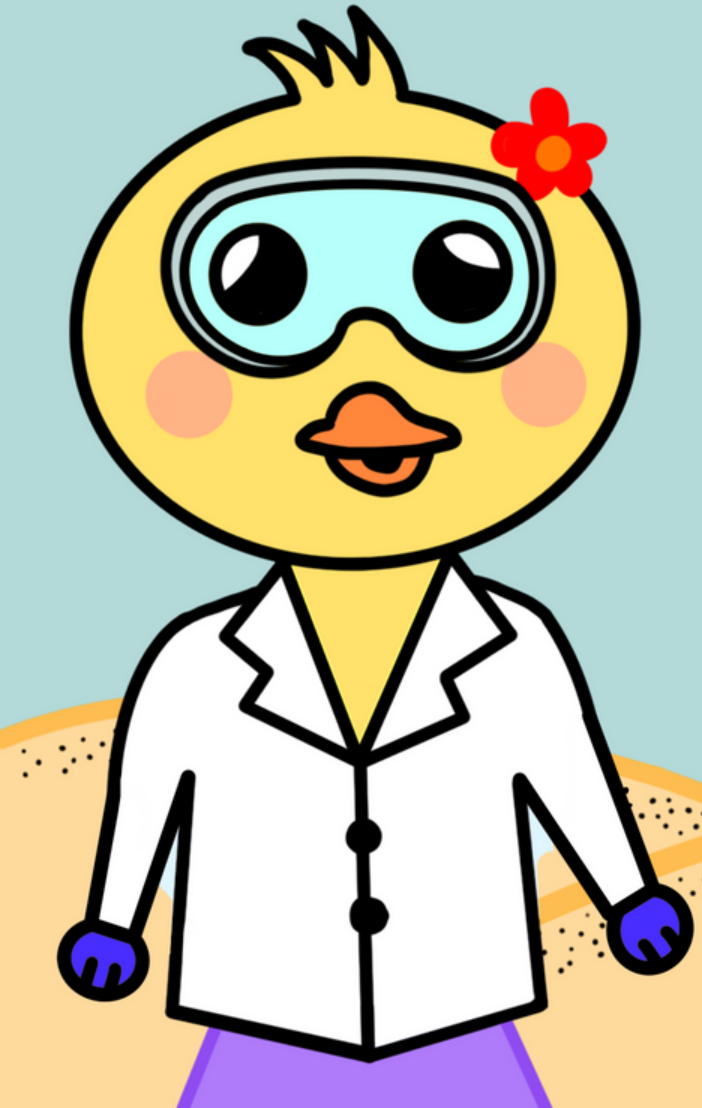
Mama Duck the Brilliant Scientist!!

By UNSW iGEM 2021



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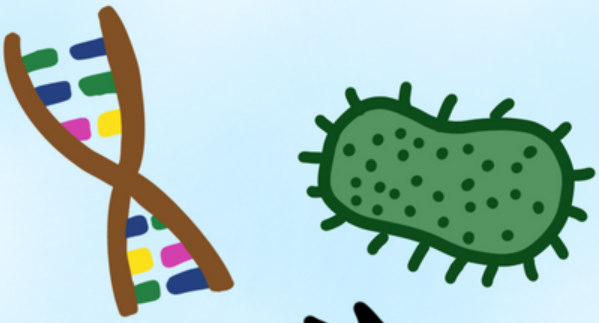
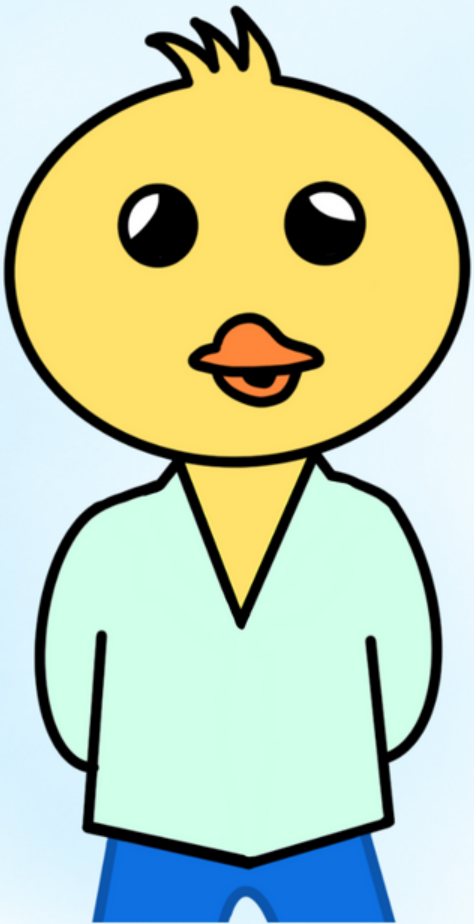
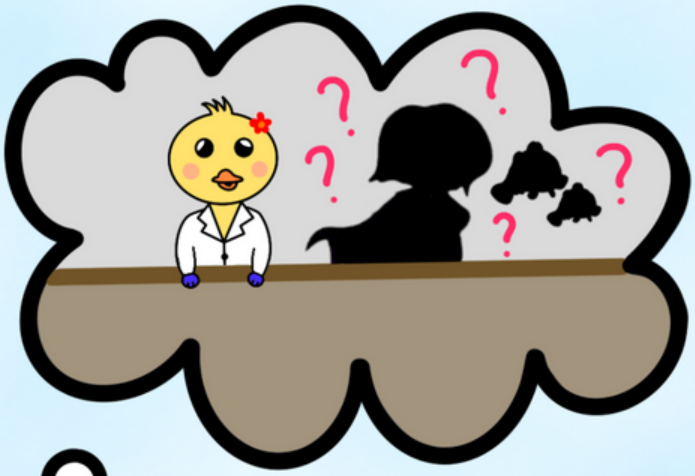
PROTECC CORAL



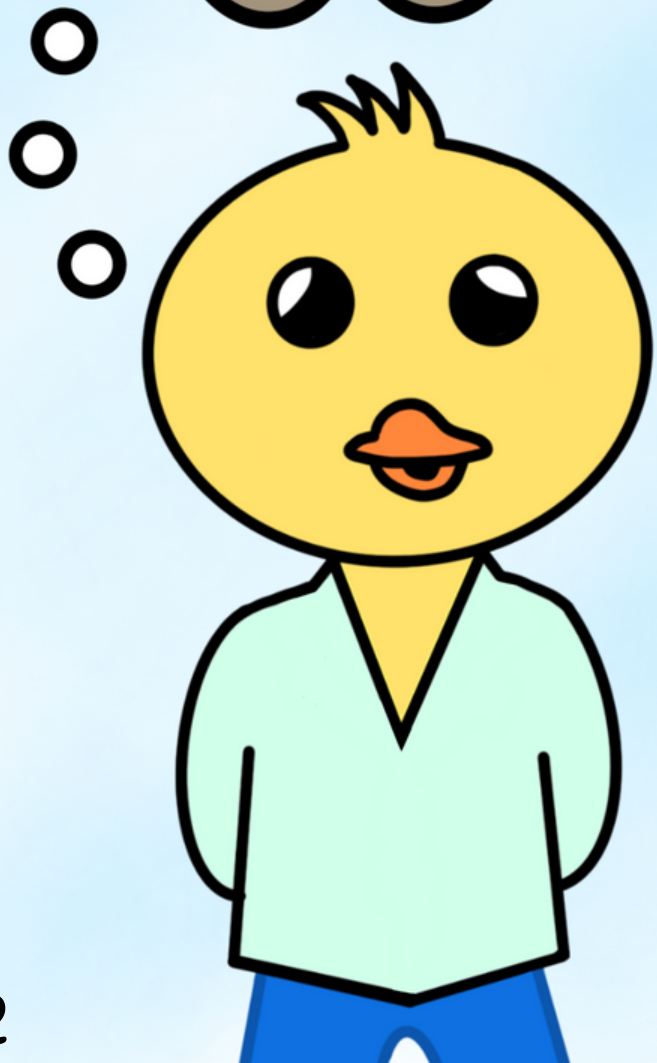
Mama Duck is one of a kind!
She's a brilliant scientist.
She is my superhero!!
Days learning about science are always fun... and today's a special day, there's so much to get done.

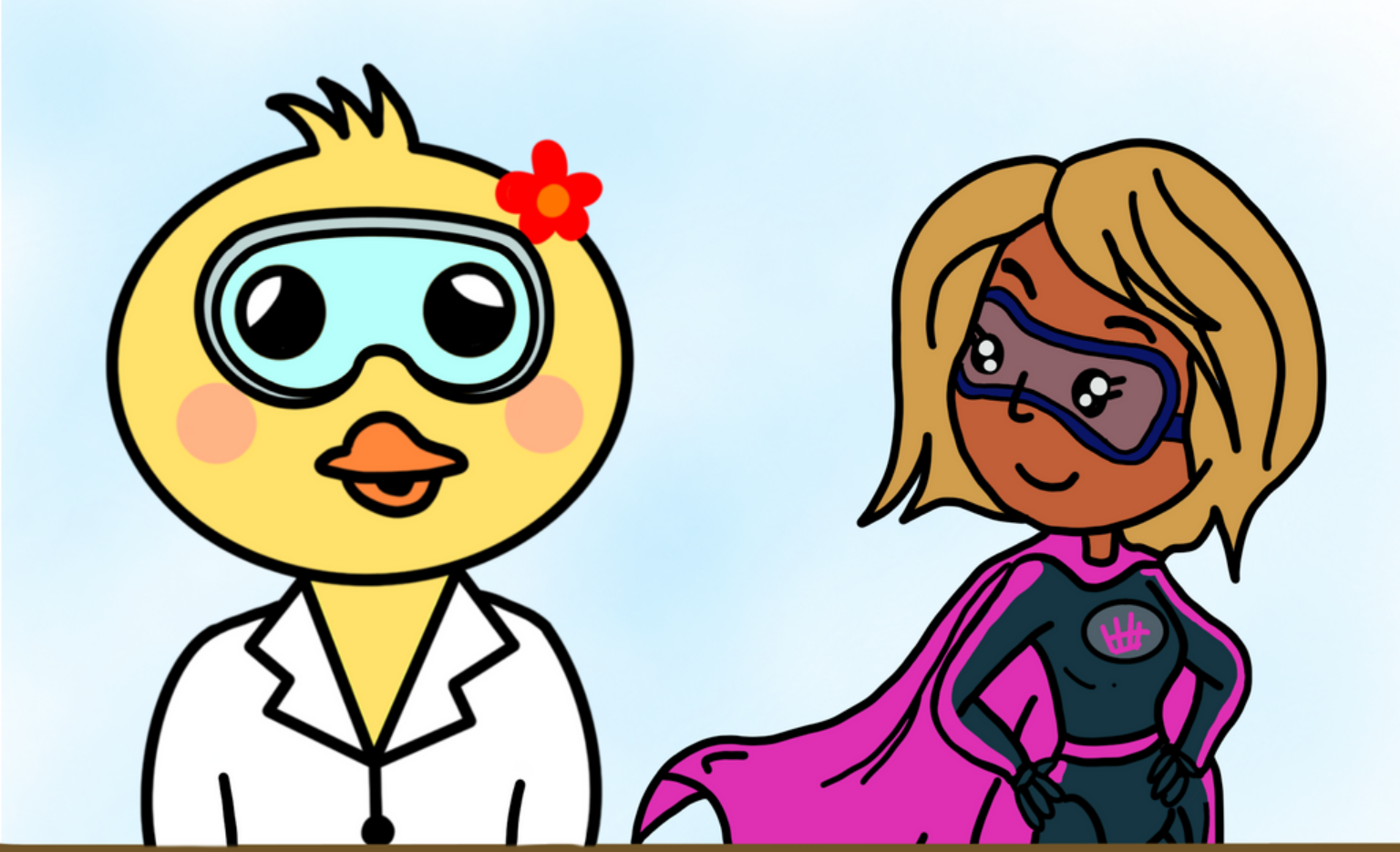




Mama Duck is taking me to work today to meet someone new.

But that's a secret to keep between the two of us... and it's a little secret that I'll only tell you.

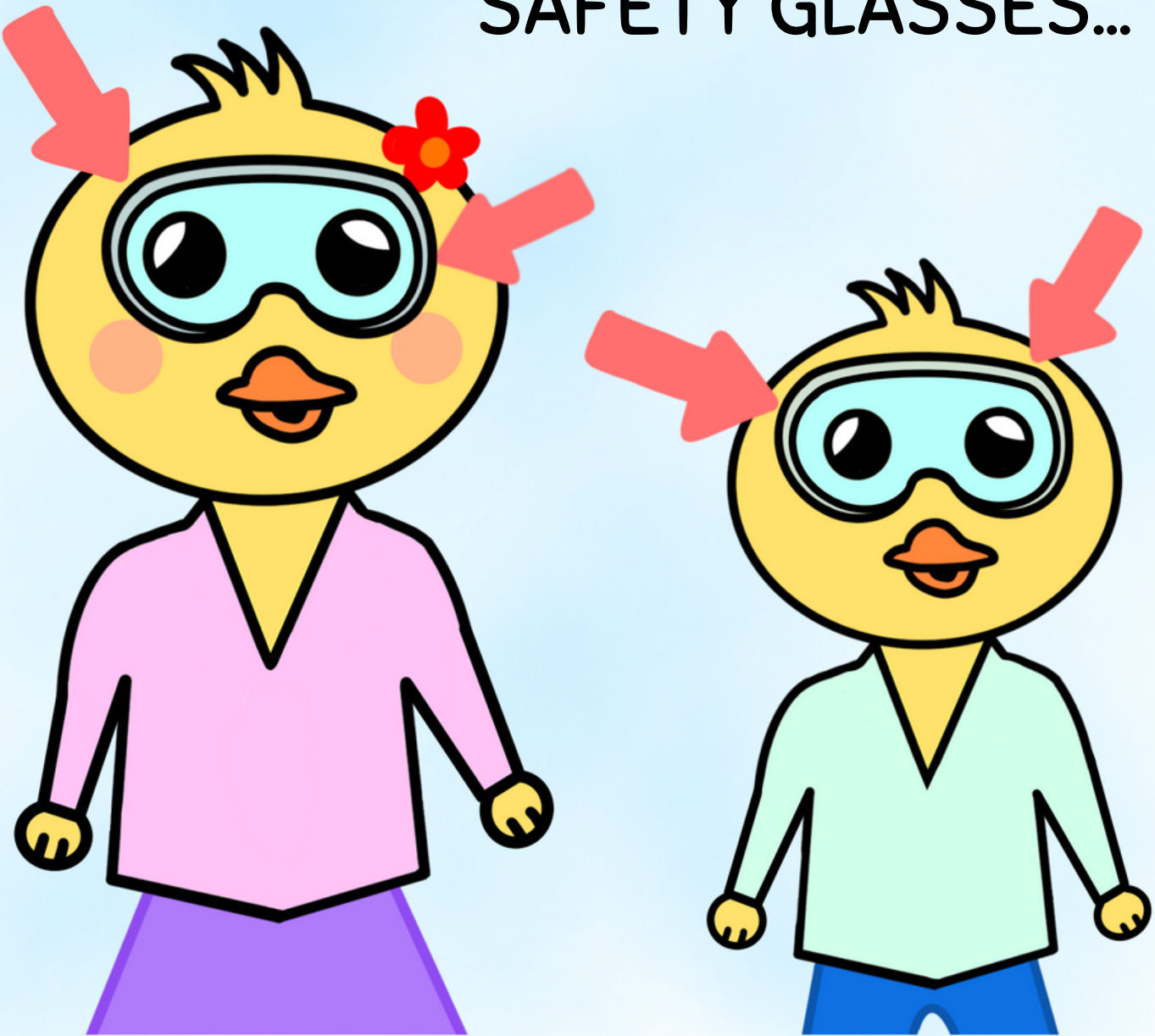




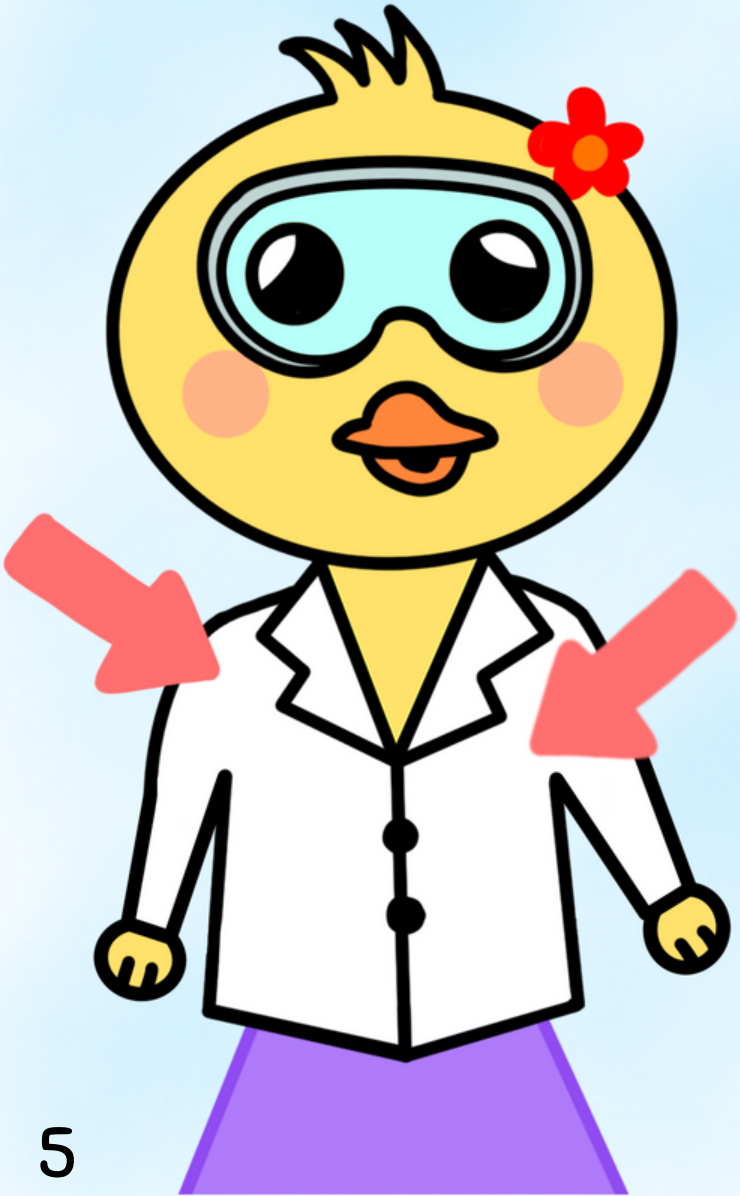
You might have heard about Captain Coral. Mama Duck works in a lab with Captain Coral to help save the coral reef. They conduct experiments using a scientific method.

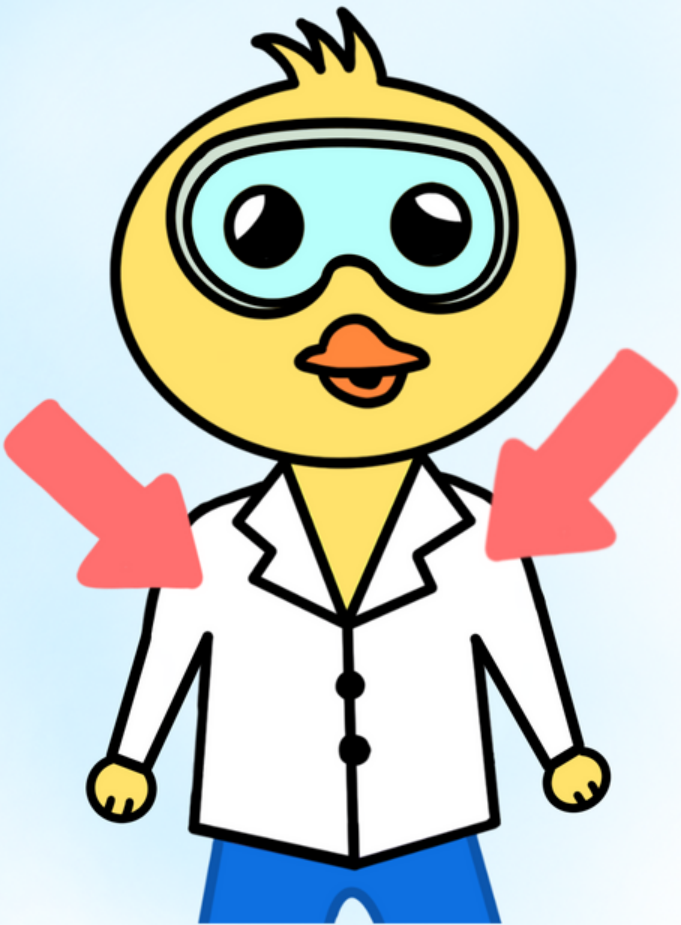
But before we can start...

SAFETY GLASSES...



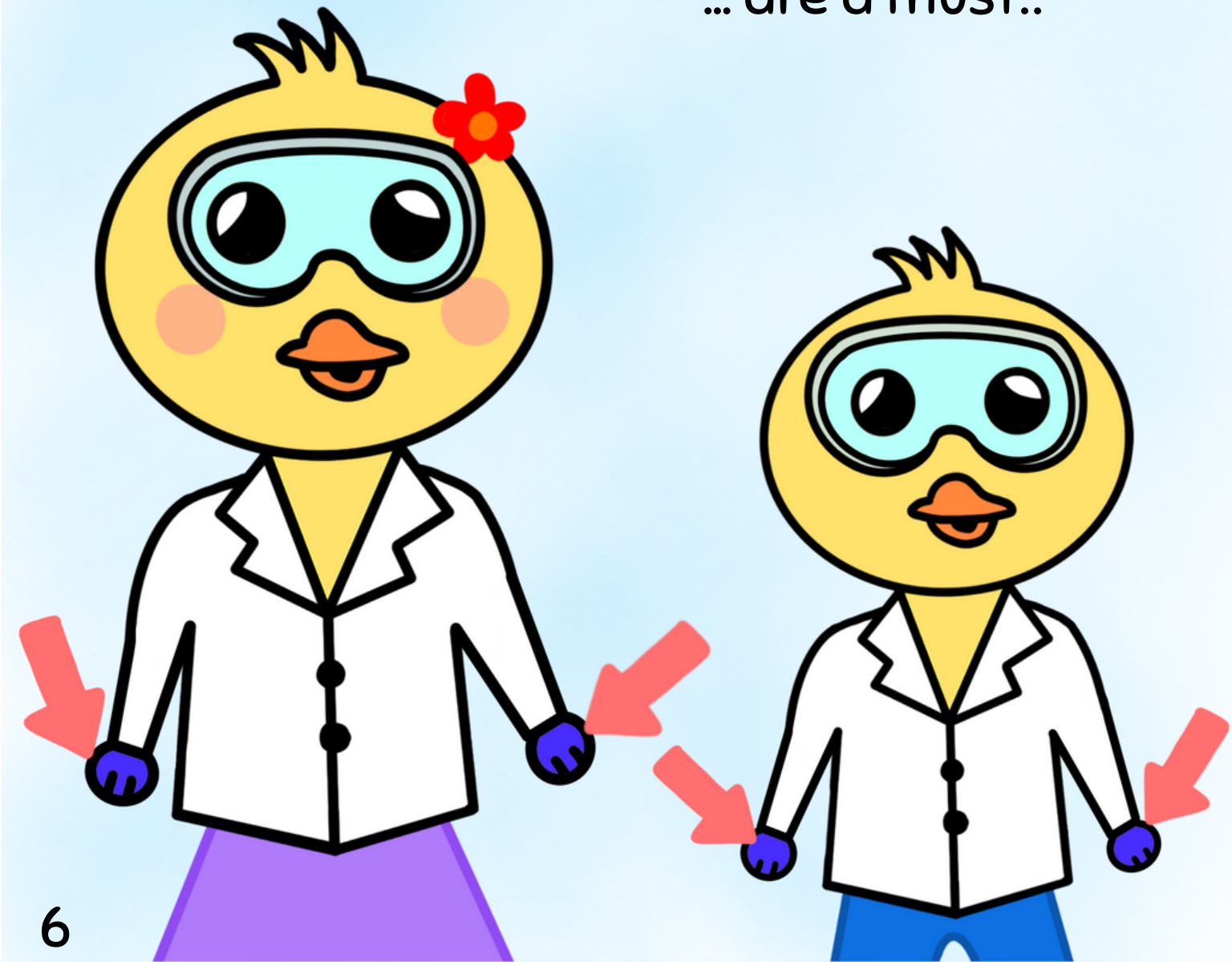
… A LAB COAT





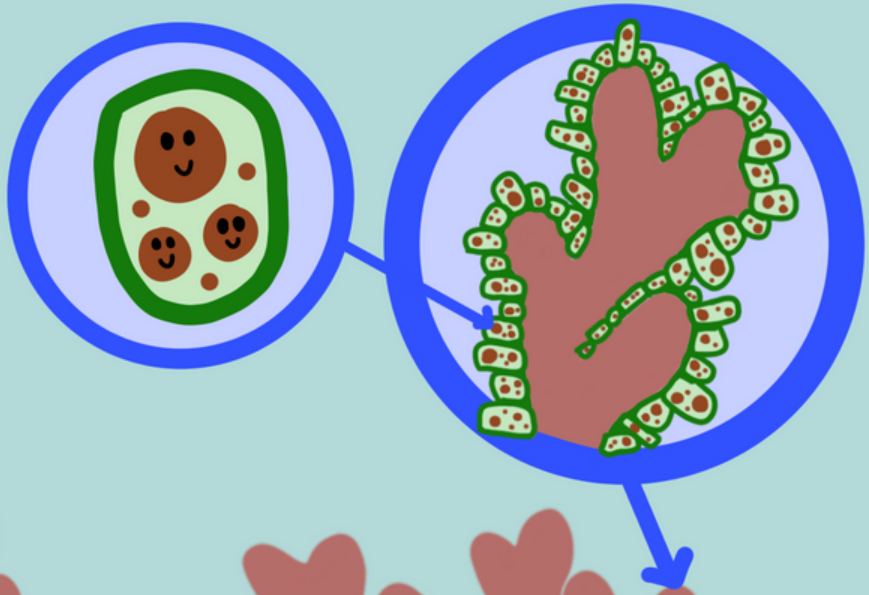
... AND GLOVES

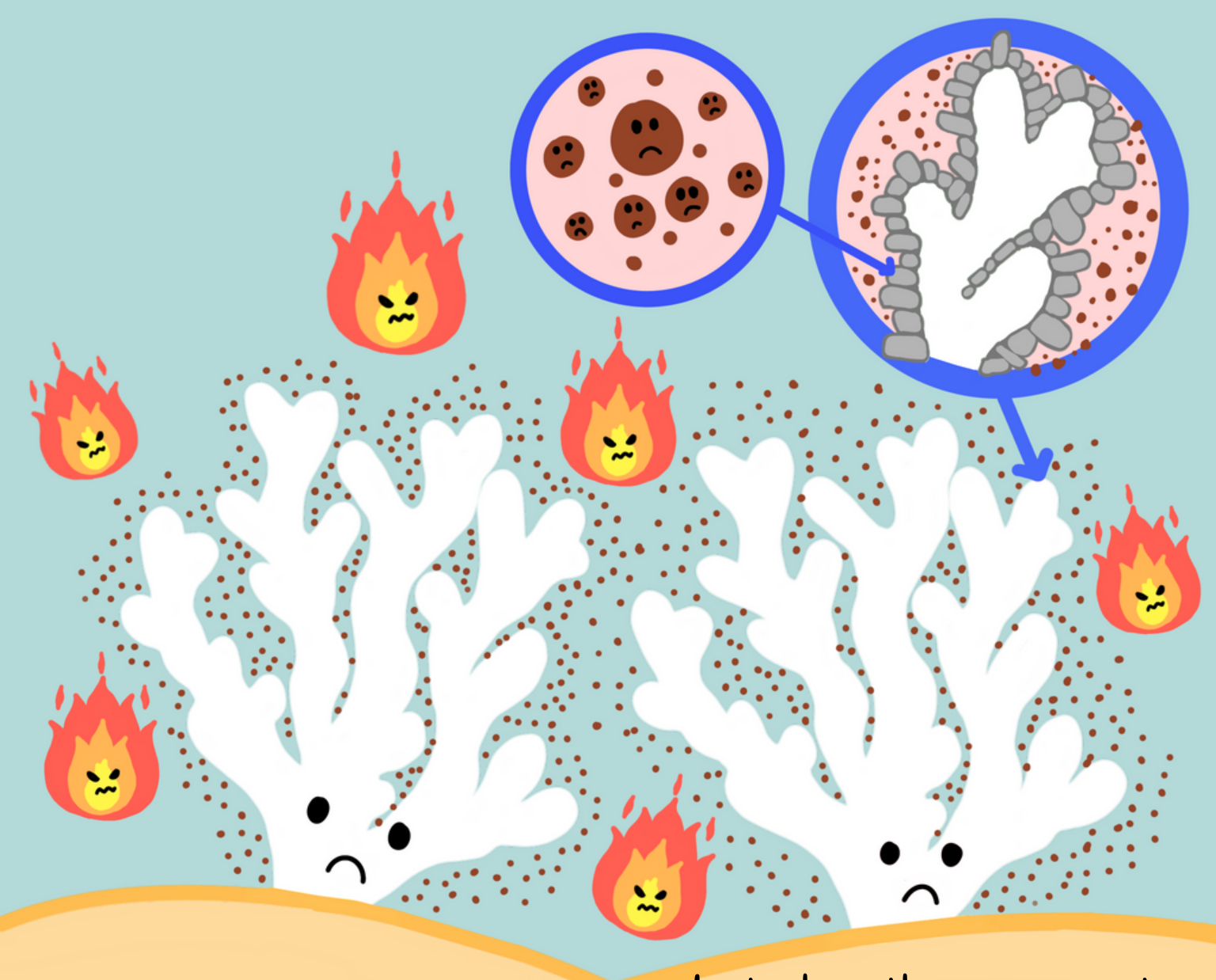
... are a must!!



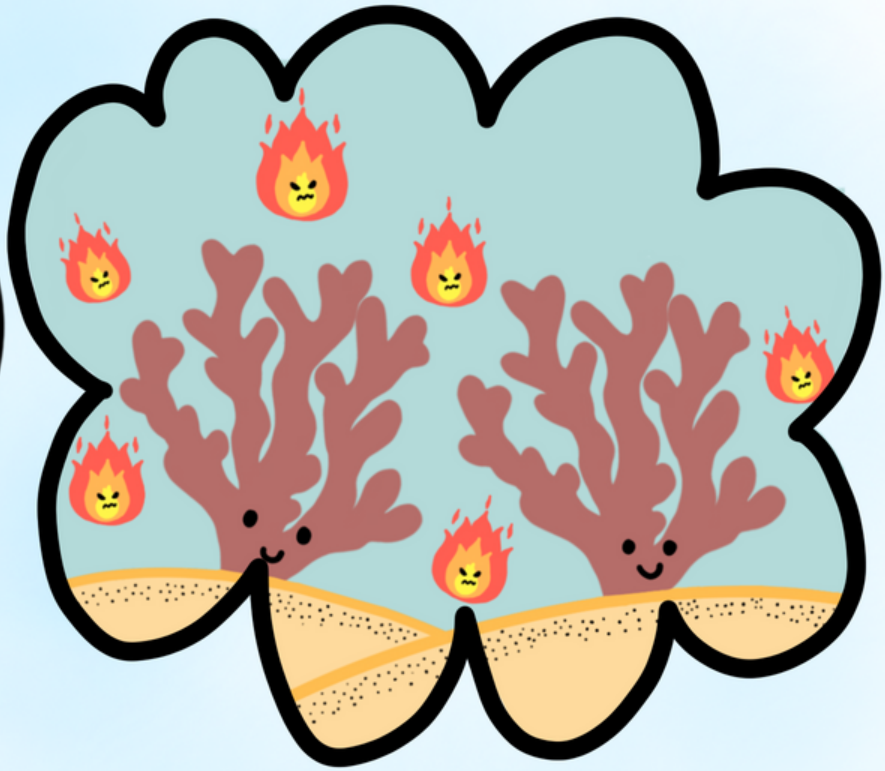
Today, we will be growing algae.

Algae and coral live together in a happy relationship...



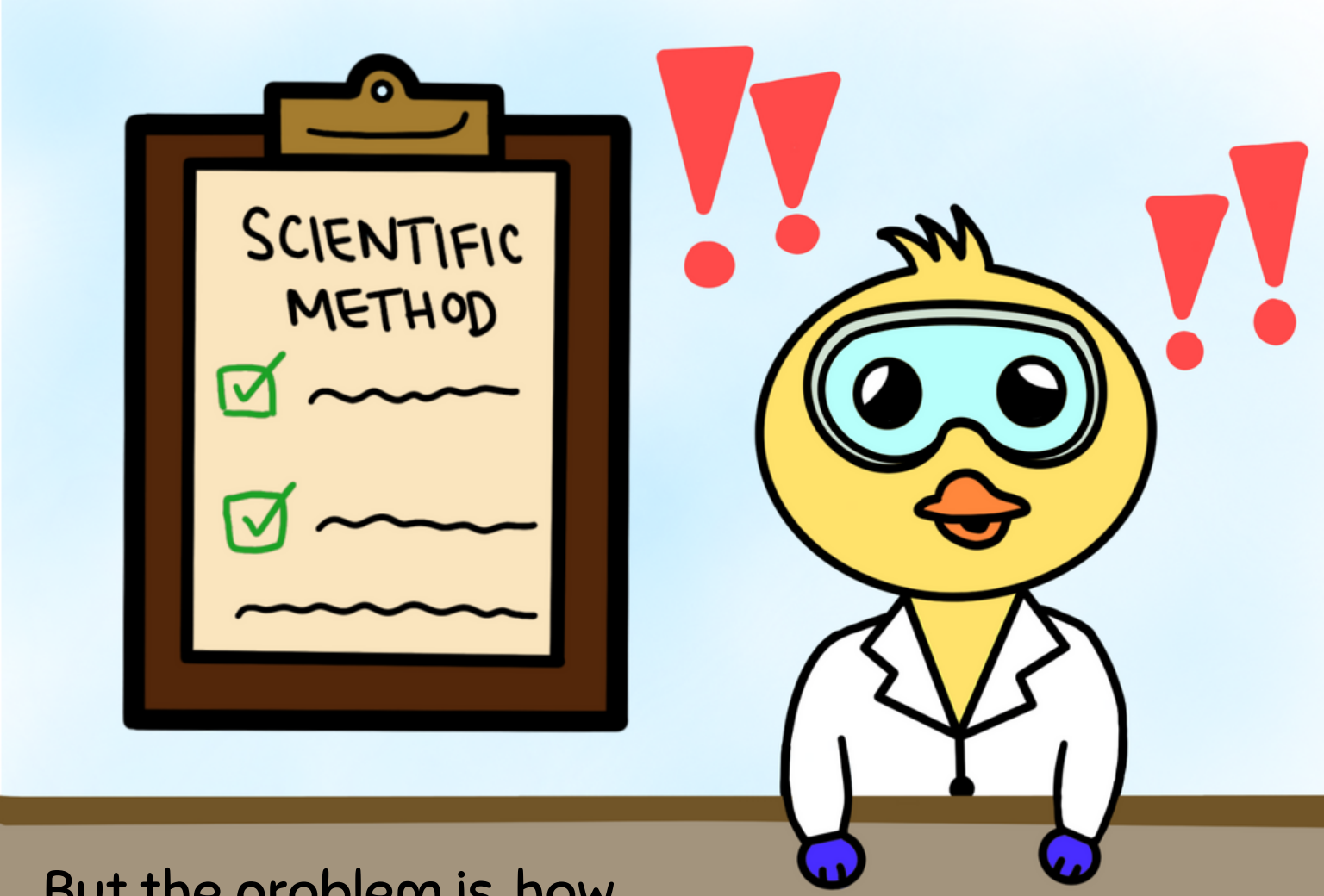


... but when the ocean gets too hot, the algae leave their coral friends causing the coral to turn white and sad.



Mama Duck wants to solve the problem and stop the corals from being sad.

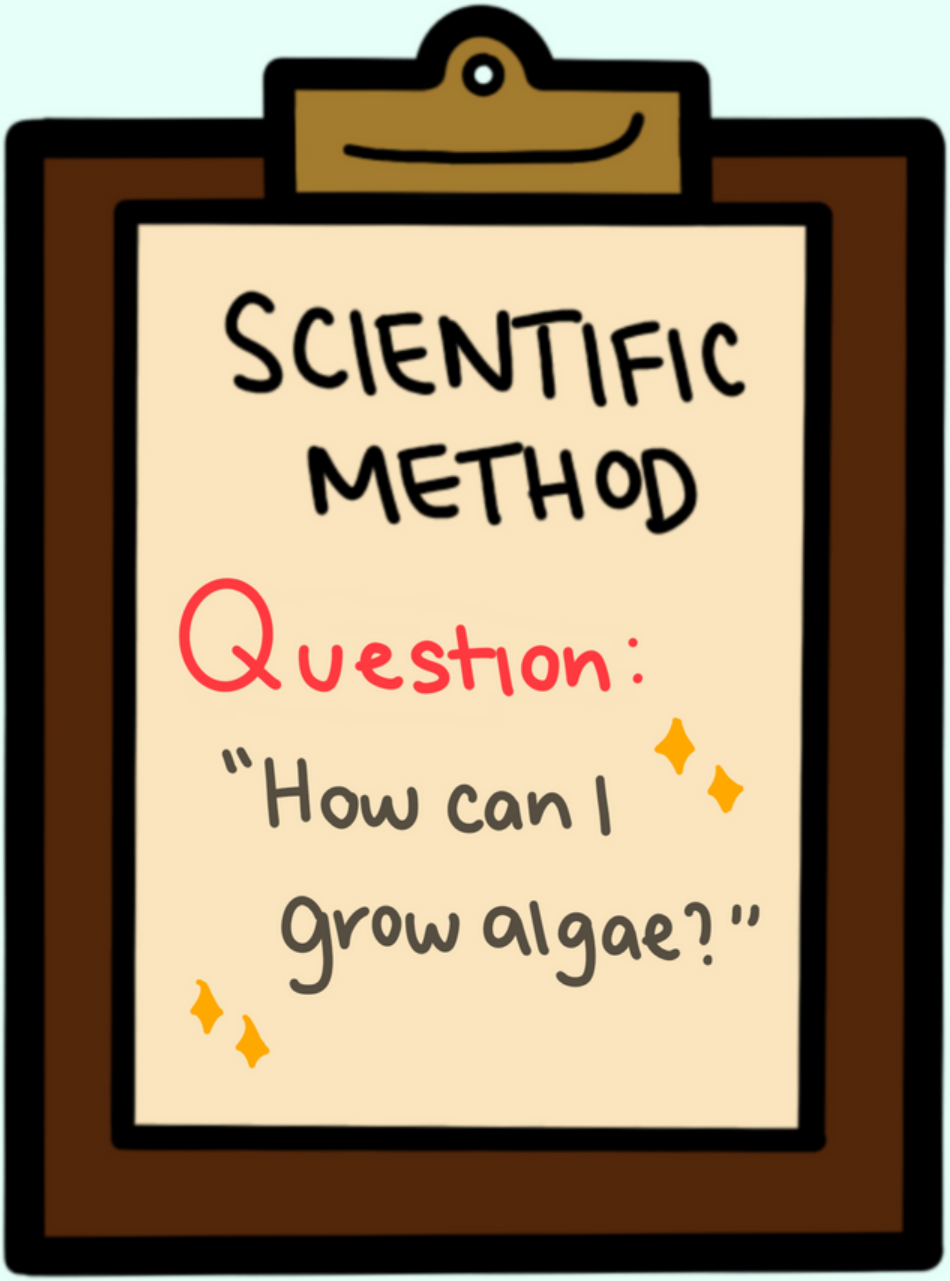
Changing algae to survive the heat and putting it into coral may help.

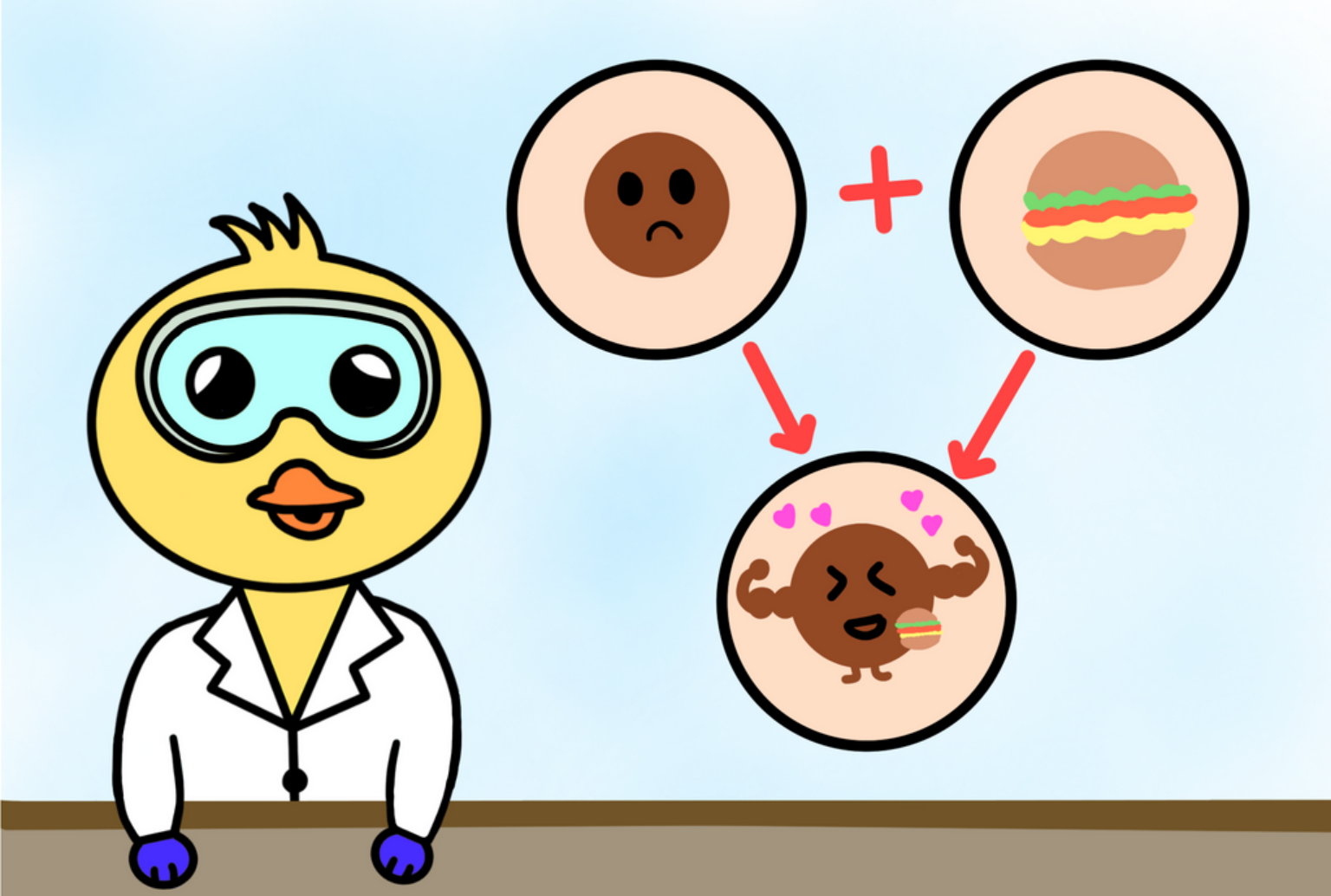


But the problem is, how do we grow algae?

IT'S TIME TO USE THE SCIENTIFIC METHOD!!

STEP 1: Ask a QUESTION

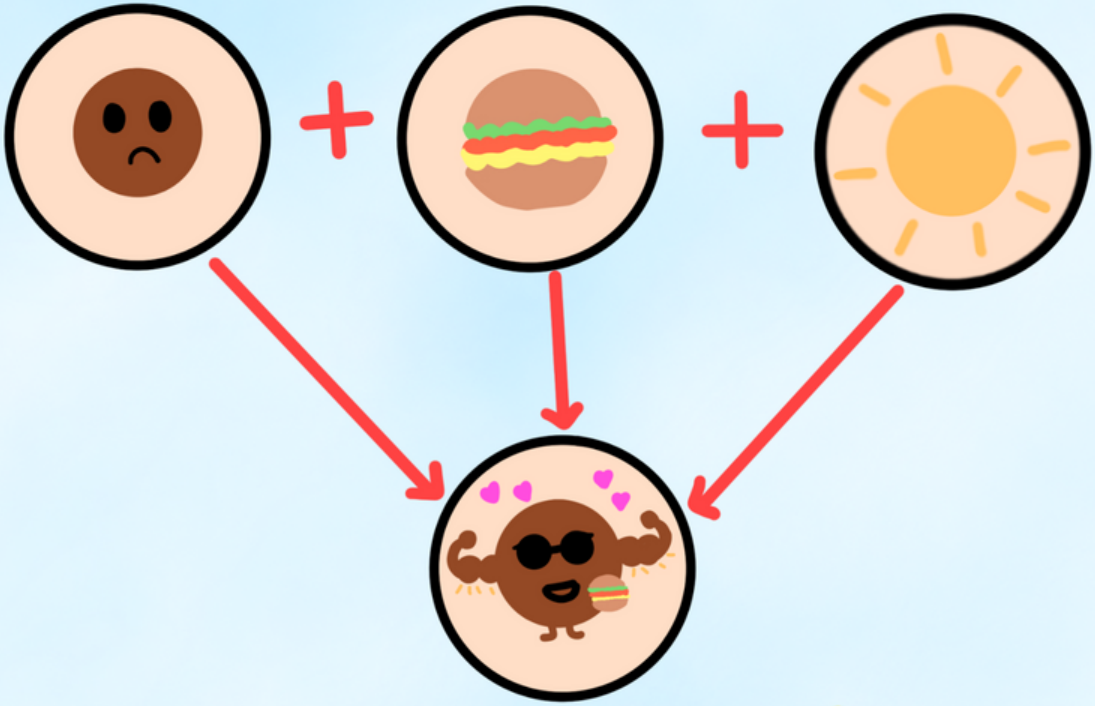


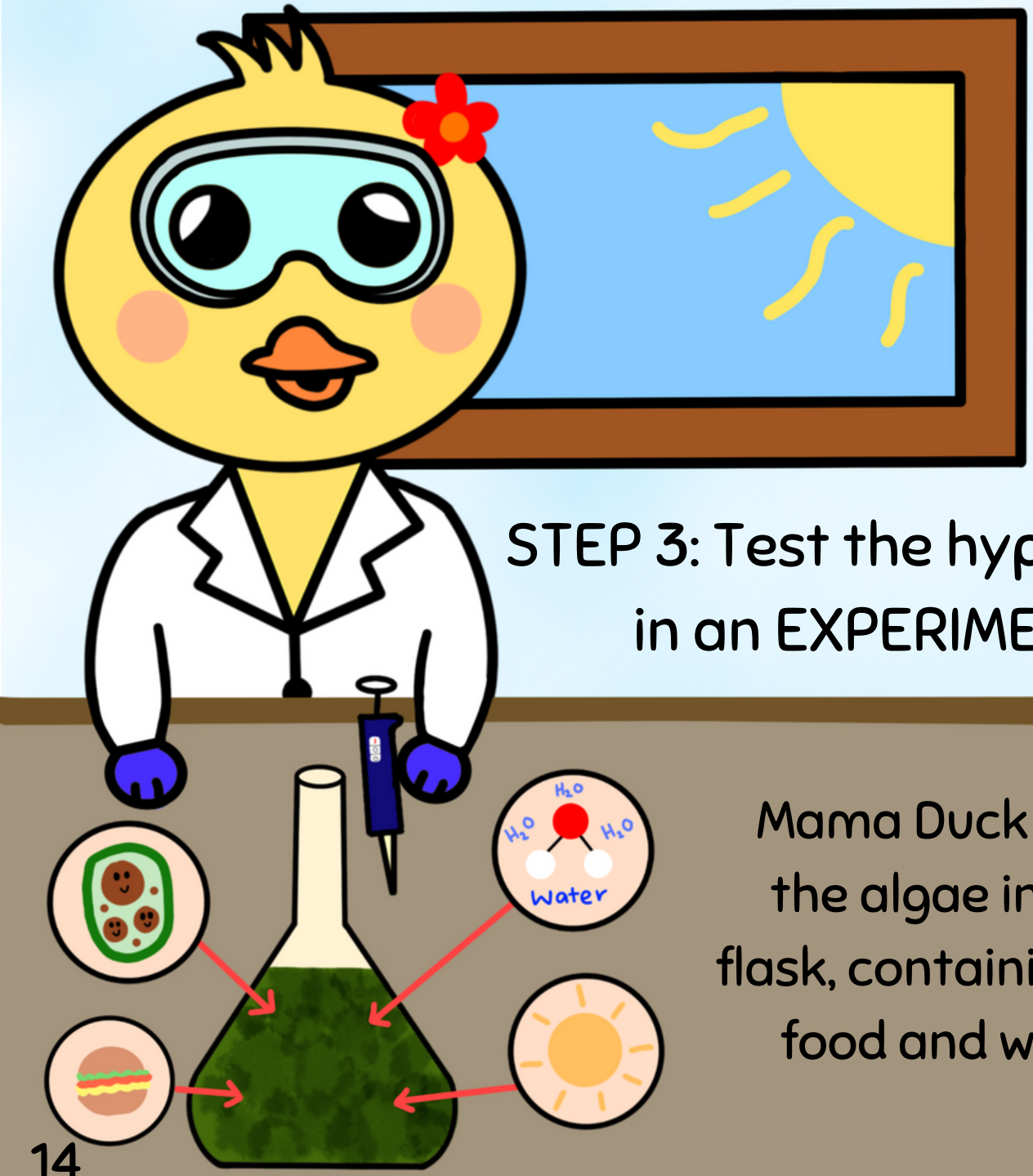


STEP 2: Form a HYPOTHESIS

"If we give algae food, then they can grow big and strong like me."

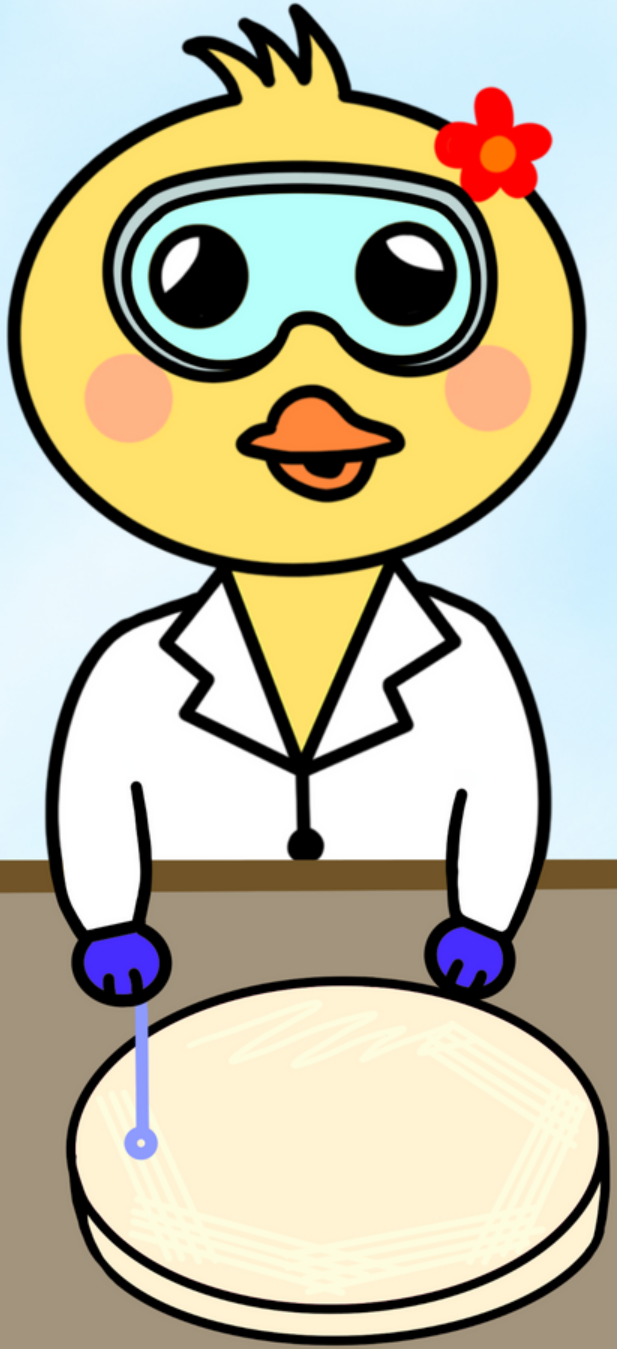
Mama Duck adds that we also need light to help the algae PHO-TO-SYN-THE-SISE.



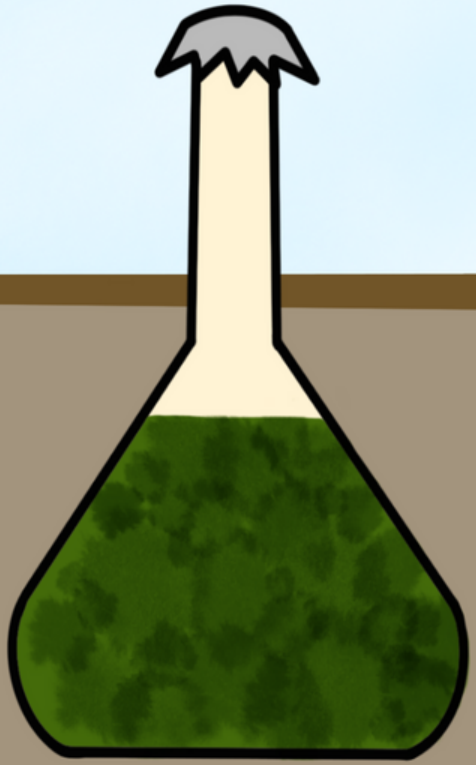


STEP 3: Test the hypothesis in an EXPERIMENT

Mama Duck grows the algae in a big flask, containing light, food and water.

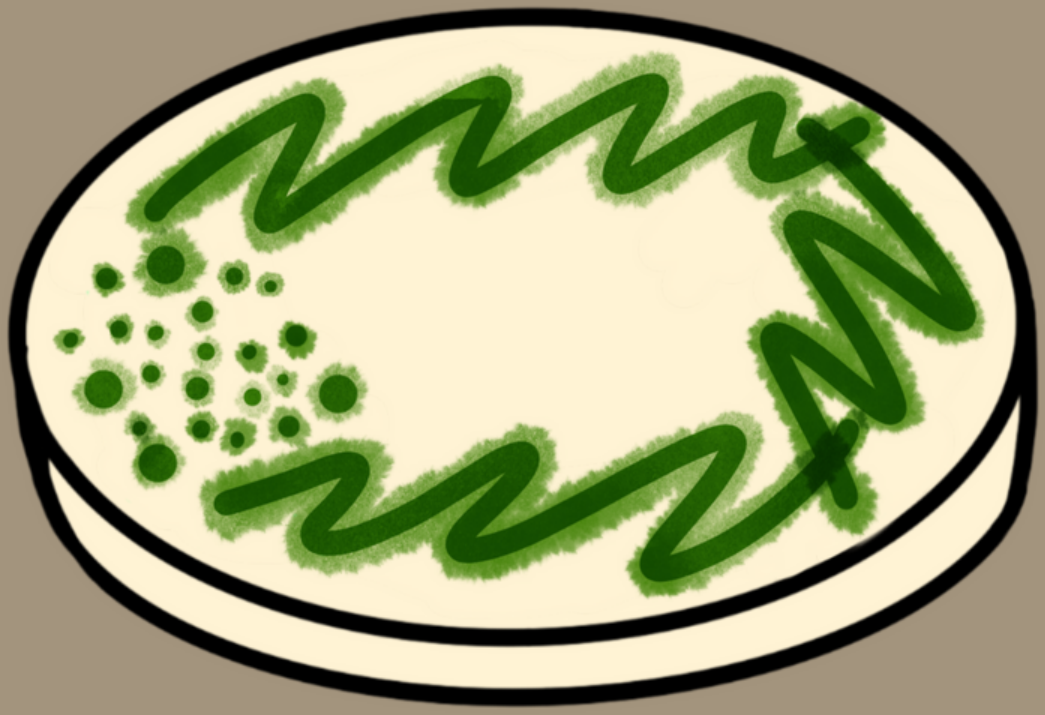


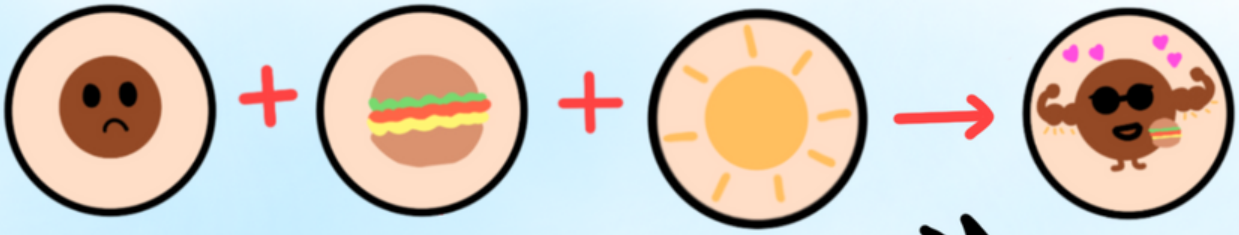
She then uses these special plates, using a loopy stick to collect the algae and draw squiggles on the plate.



STEP 4: Record OBSERVATIONS

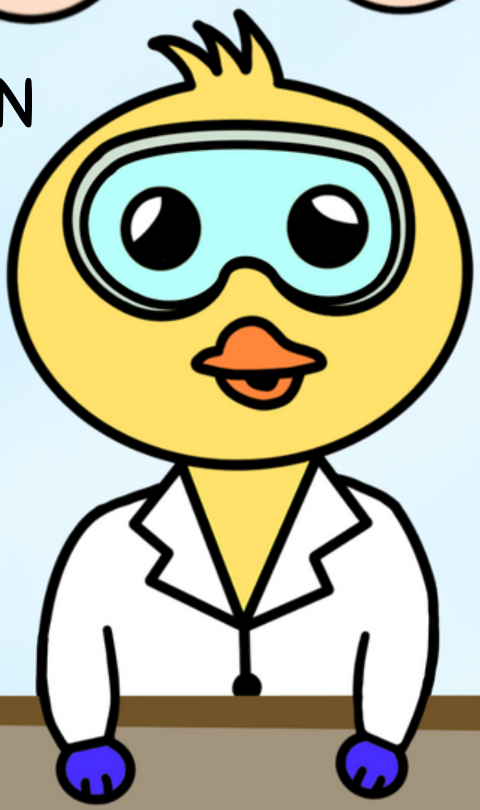
When the algae grow, they make cool patterns. So many zig-zags, circles, dots... they become such a distraction.

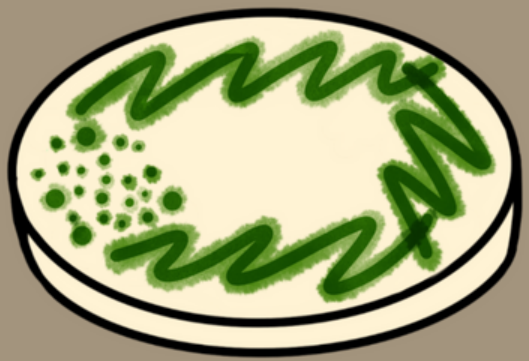


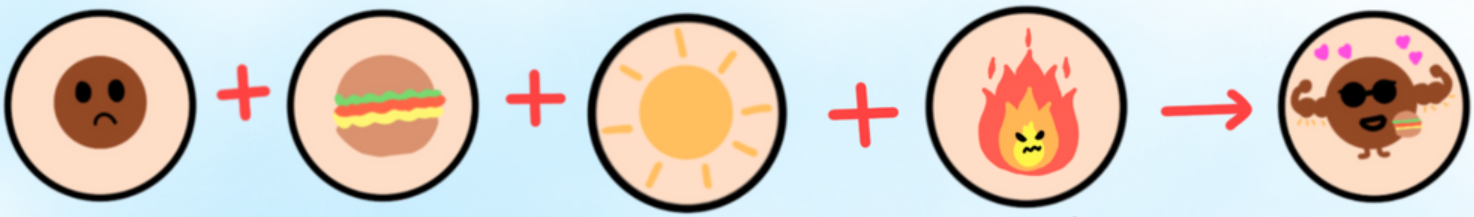


STEP 5: Form a CONCLUSION

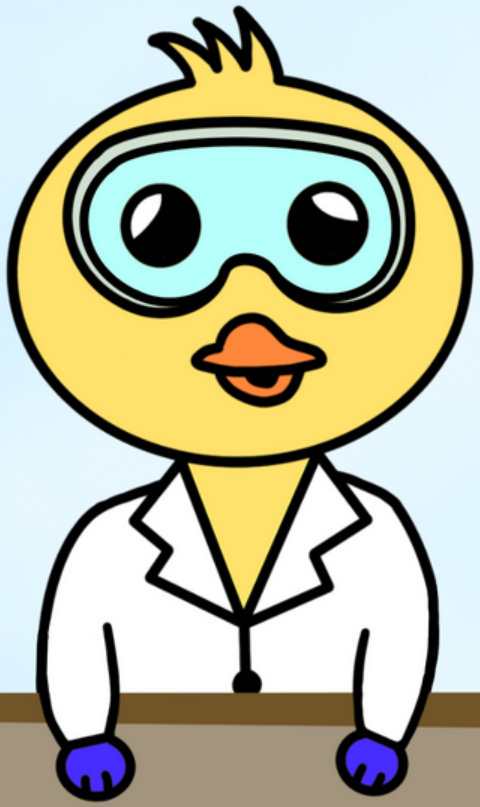
So, we can say that my hypothesis was correct. Food and light help the algae be big and strong.

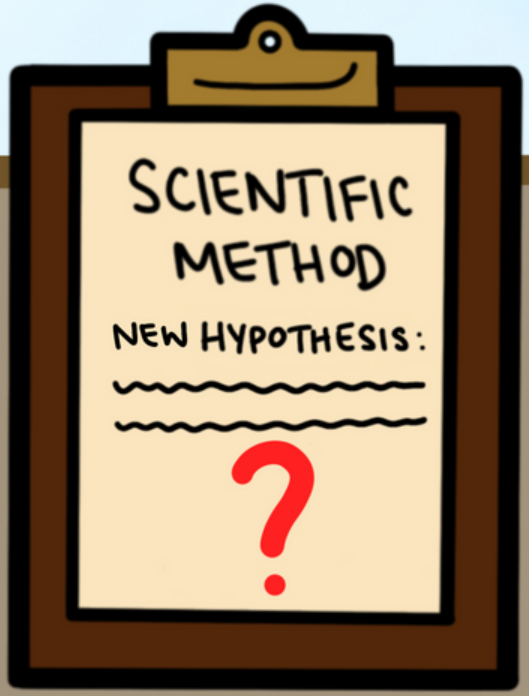


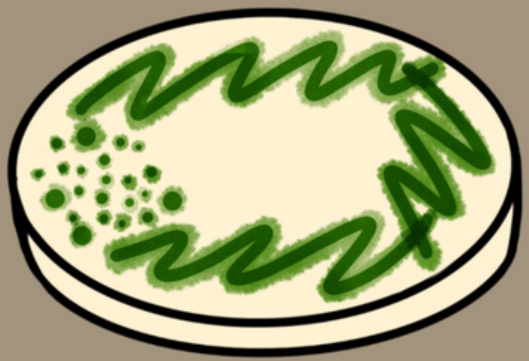




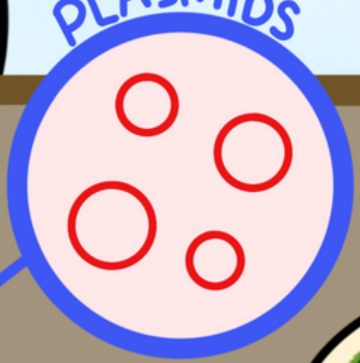
But now, we need to find a way to make the algae survive heat.

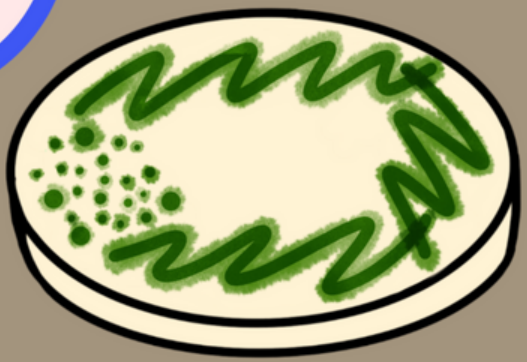


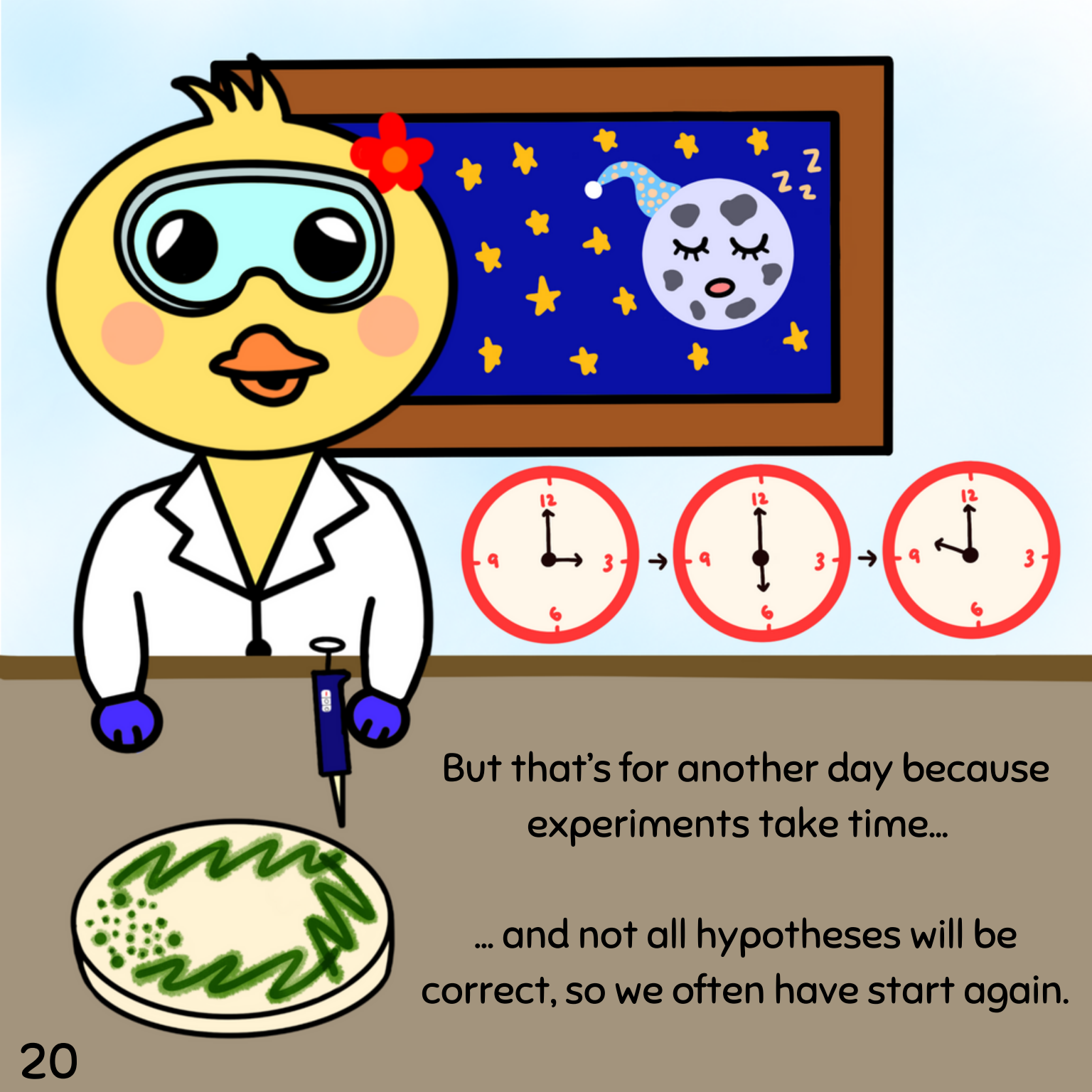




We do this by giving the algae a gift or two, which Mama Duck calls PLASMIDS.






But that's for another day because experiments take time...
... and not all hypotheses will be correct, so we often have start again.

GLOSSARY

CONCLUSION: the answer to the question asked.

EXPERIMENT: a test done to find out if something works or discover something new.

HYPOTHESIS: what you think will happen based on what you know.

OBSERVATIONS: making notes about what you see.

PHOTOSYNTHESIS: a way where plants make their own food by using sunlight.

PLASMID: small, circular molecule found in bacteria.

SCIENTIFIC METHOD: a way for scientists to study and learn things.

The ocean is becoming too hot and the coral reef is becoming sad and dying... but Mama Duck is here to help.

Join Mama Duck as she teaches Baby Duckling about the life of a scientist and the research she does to help save the coral reef.