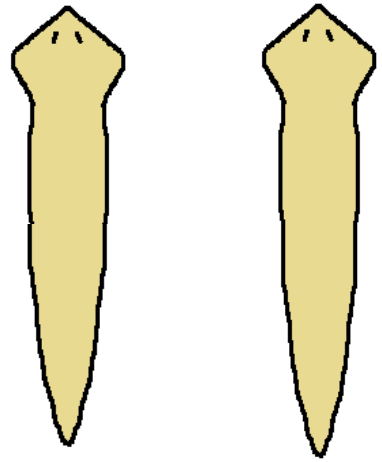
Feeding behavior of planarians

No.6

<Keyword ①>



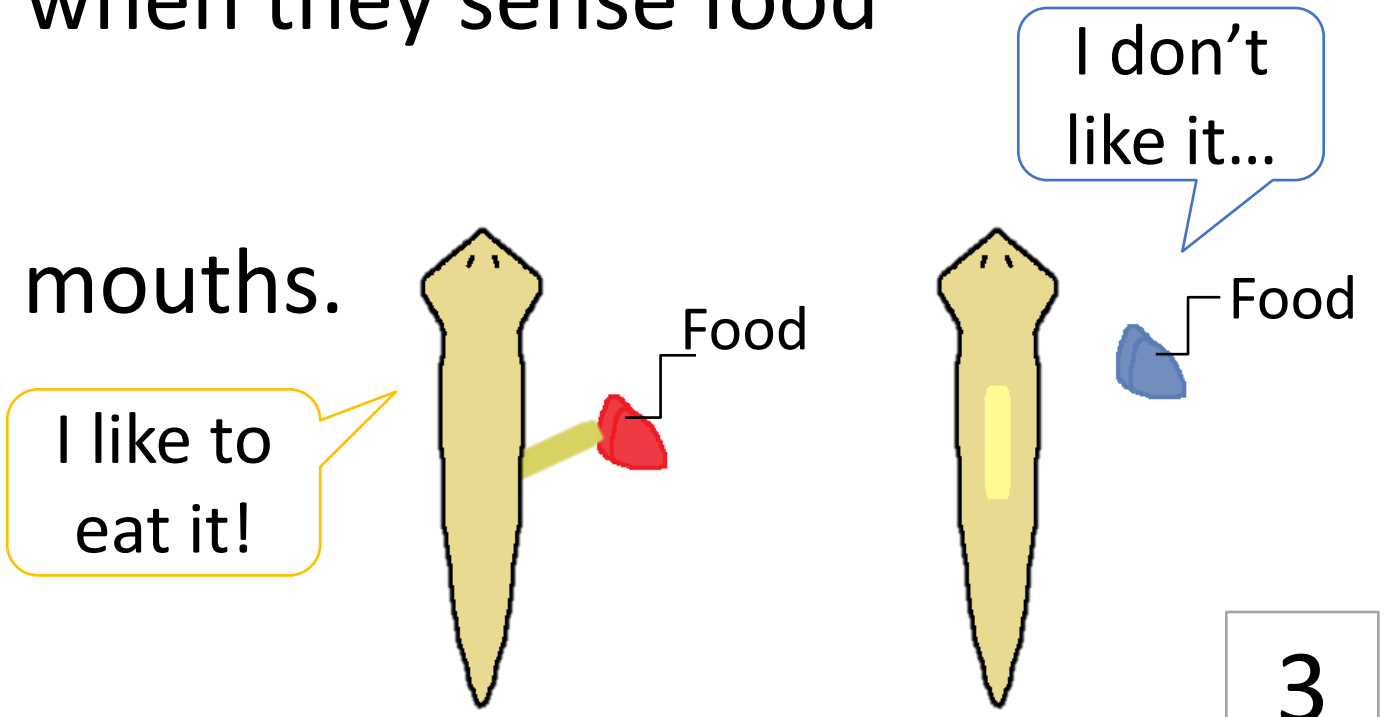
Self-division

- Asexually reproduce.
- They increase their numbers by this action.

<Keyword ②>

Pharynx

- A part of planarians' bodies.
- Planarians stick it out when they sense food and eat with it.
- It is equivalent to our mouths.



<Introduction>

Planarians sense glycogen and show eating behavior.

but

We found a study which showed that planarians ate bananas.

＜Hypothesis ①＞

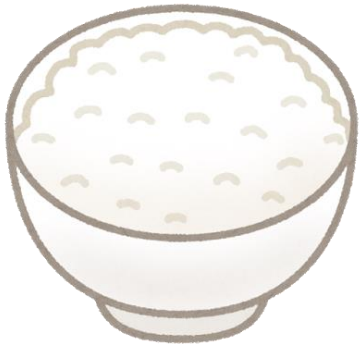
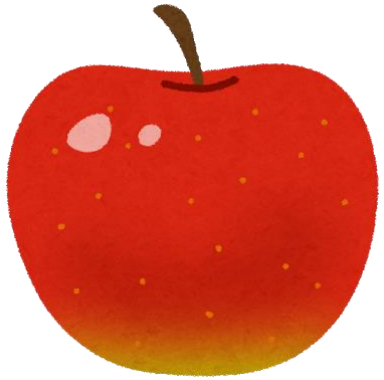
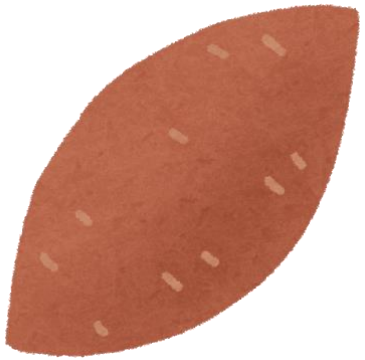
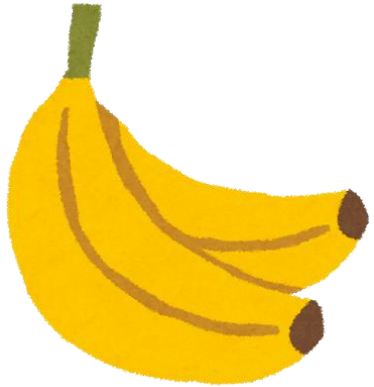
Planarians sense other material as food

<Preliminary experiment ①>

①Prepare some food, and put them in 2 beakers.

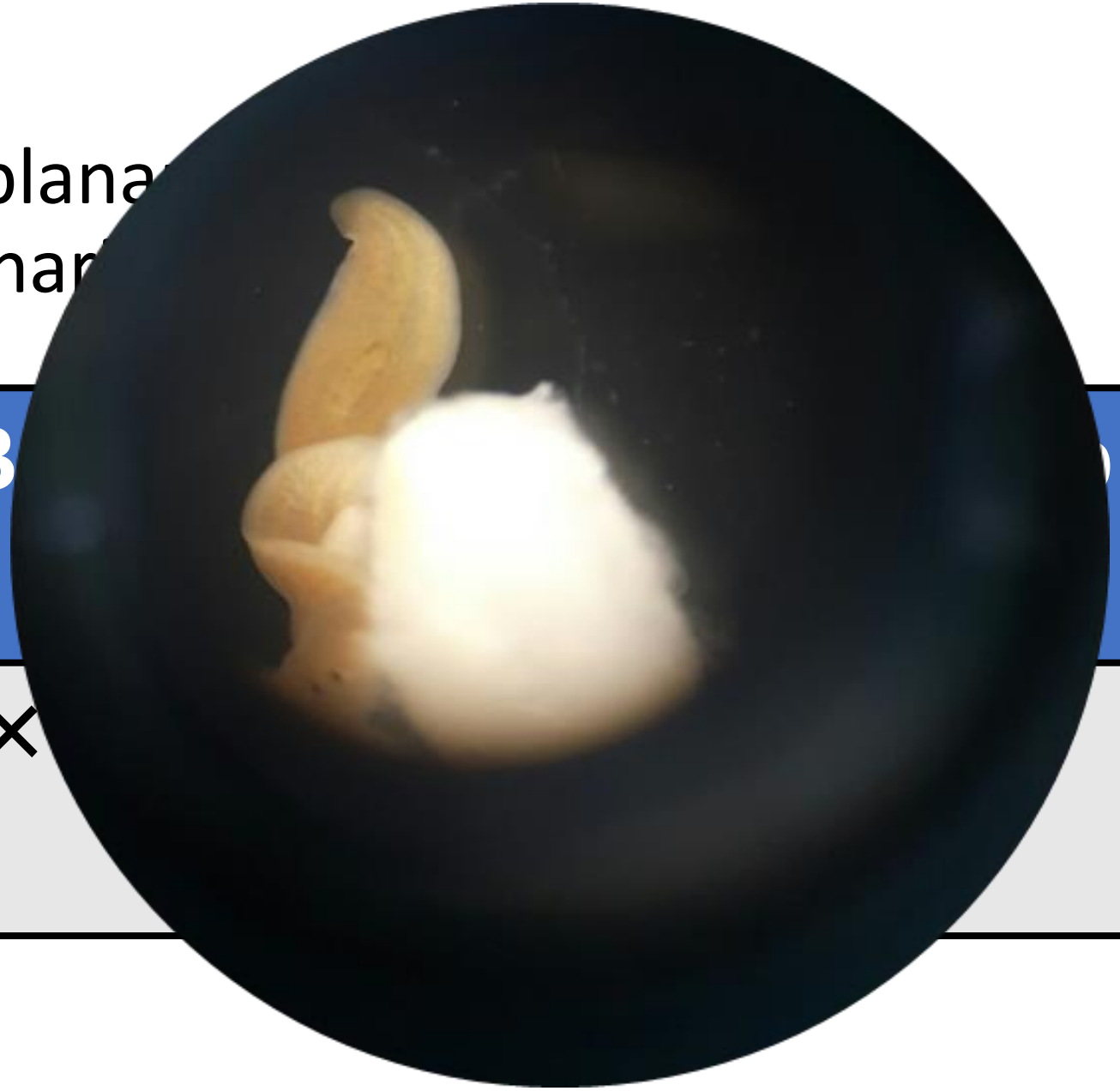
②Put 3 planarians into each beaker.

③Observe the behavior of the planarians.


<Result>

Most of the plana
Only one planar



	B	ole	Blood worm
pharynx	×		○

<Hypothesis ②>

Planarians eat rice
because they sense the starch in it.

<Experiment ①>

①Put 5 planarians each into 9 petri dishes

②Divide ① into 3 groups.

A. Given bloodworms

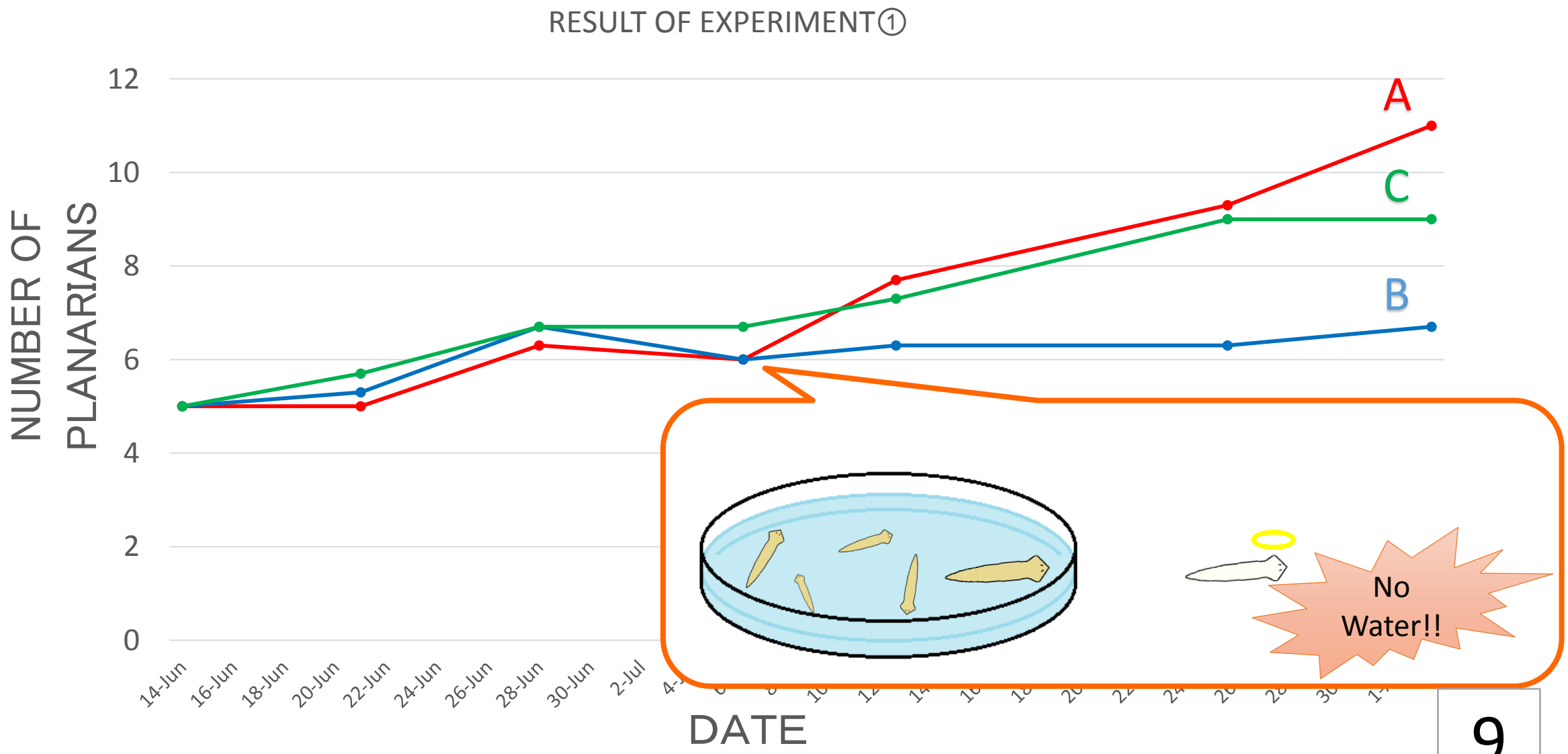
B. Given kuzumochi

C. Given nothing

③ Observe the population of each group per week.

＜Result＞

A:blood worm　B:kuzumochi　C:nothing



＜Hypothesis ③＞

Planarians eat rice and kuzumochi, but they can’t grow with the nutrients from those alone.

<Preliminary experiment ②>

①Put 10 planarians each into 4 petri dishes.

②Put each food in the dishes.
(Rice, kuzumochi, blood worms, glycogen solution)

③Observe the reaction of the planarians.

＜Result＞

・Planarians didn’t react to rice.

・They approached the glycogen, but didn’t stick out their pharynx.

＜Hypothesis ③＞

Planarians approach substances by sensing glycogen, but there are other factors that make them stick out their pharynx to eat the substance.

<Experiment ②>

①Put 3 planarians each into 4 petri dishes.

②Put A or B into 2 petri dishes each.

A. 0.24(g) agar＋0.10(g) glycogen＋20mℓ water

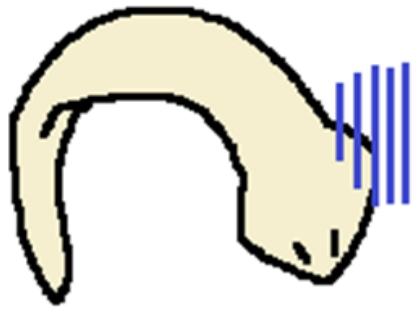
B. 0.24(g) agar＋some blood worms＋20mℓ water

③Observe the reaction of the planarians.

＜Result＞

Each group of planarians approached the agar.

But none of them stuck out their pharynx.



＜Analysis＞

After preliminary experiment ②, planarians became less likely to respond to any diet even glycogen.

We considered that they may have gotten weak.

<Summary ①>

Planarians stick out their pharynx to rice.

Hypothesis：Starch is an attractant.

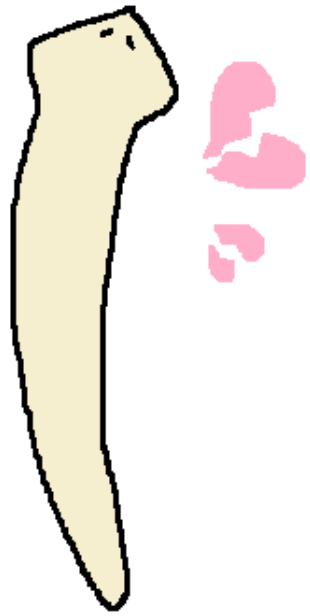
Planarians certainly eat kuzumochi. But it doesn’t contain the nutrients they need so they didn’t grow .

<Summary ②>

Planarians didn’t stick out their pharynx for glycogen.

Some other materials may cause the behavior.

Hypothesis : Glycogen doesn’t cause planarians to stick out their pharynx.



<Reference>

Okayama Prefectural Tsuyama National College of Technology Maesawa Seminar

“Food preference of planarians and the effects of food ingredients on them”

<Acknowledgments>

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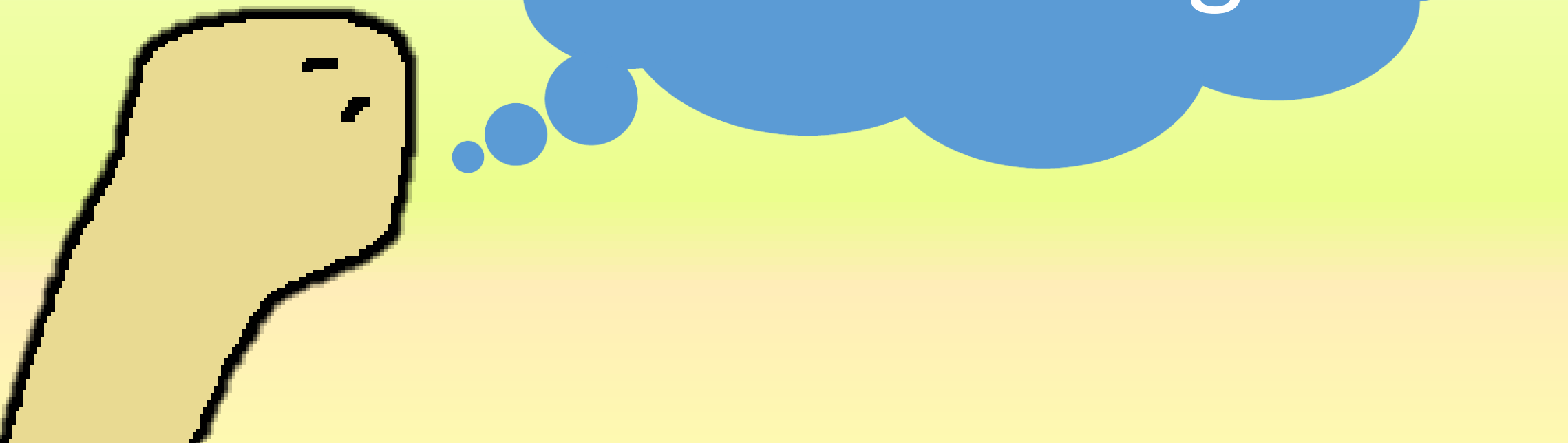

Thank you
for listening!!

Q & A

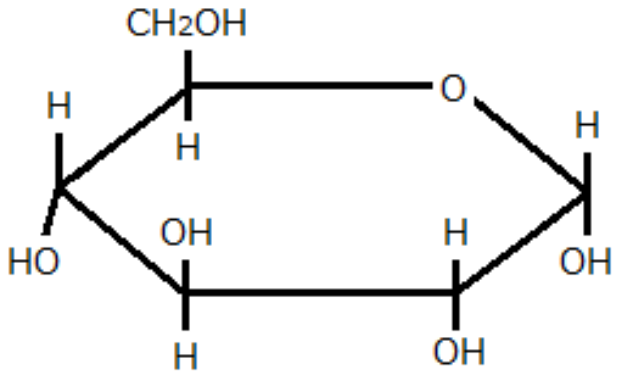
Kuzumochi

Ingredients:

arrowroot powder

water

Glucose>>



Glycogen ↓