

Coral reef ecology: lesson 1 of 3

A partnership in the sunlight

How corals and algae build
reefs together

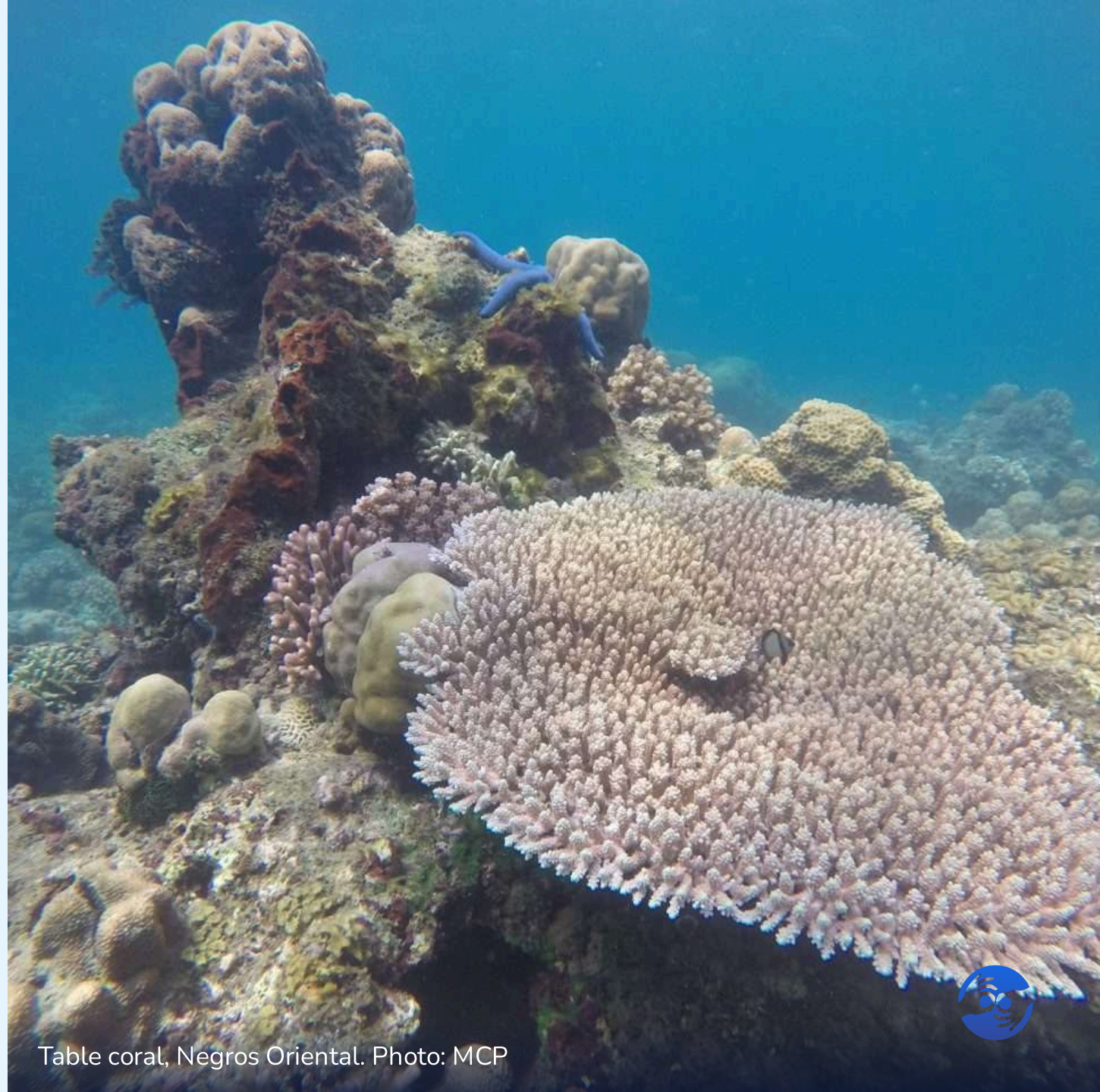
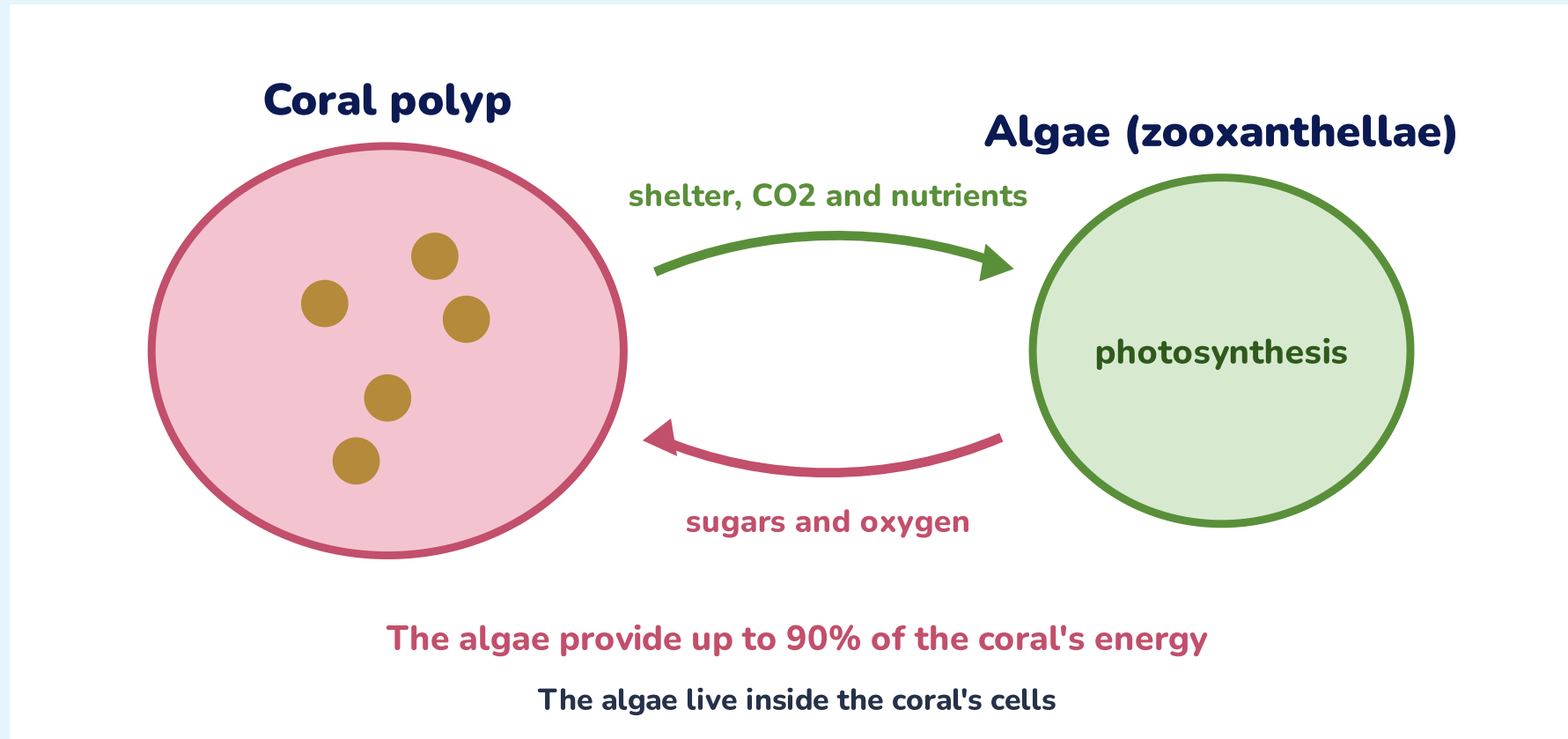


Table coral, Negros Oriental. Photo: MCP



An animal that farms algae

Reef-building corals are animals, but most of their food comes from algae living inside them.



How much the coral depends on its algae

up to 90%

of a reef-building coral's energy comes from its algae

The rest comes from catching plankton with stinging tentacles, mostly at night. Because the algae need light, reef-building corals live mainly in shallow, clear water.



Building with stone

Each polyp builds a cup of calcium carbonate beneath itself. Over thousands of years, layer on layer of these skeletons makes up the reef.

Growth is slow, and it depends on the partnership. Bleached corals, without their algae, grow much more slowly and may starve.

- Massive corals: about 0.5 to 2 cm a year
- Branching corals: up to about 10 cm a year in good conditions
- Like trees, some corals lay down yearly growth bands

How we know: NOAA



Coral fragments growing in MCP's nursery. Photo: MCP



Coral maths

1. A massive coral 1 m across is smashed by a blast. If it grows 1 cm a year in every direction, how long could it take to reach 1 m across again?
2. A branching coral grows 10 cm a year. How long to grow a 1 m tall colony?
3. Which kind of coral would a reef restoration project choose first? Why?
4. What could slow the growth down in real life?



How corals reproduce



Spawning

Many corals release eggs and sperm into the water on a few nights each year. The larvae drift, then settle.



Budding

Polyps divide to grow the colony larger.



Fragmentation

Broken pieces can reattach and grow. Coral nurseries use this.



Talk about it

Why can't reef-building corals live in deep, dark water?

What does the coral maths tell you about how quickly a reef can recover from damage?

Is a coral a plant, an animal or both? Defend your answer.

Next time: competition and grazers



Photos and sources

Photos: table coral, coral nursery and coral fragment by MCP. All illustrations drawn for this lesson by Marine Conservation Philippines.

Sources:

- NOAA. What is zooxanthellae? Corals tutorial.
- NOAA. What are corals made of?
- eAtlas. Zooxanthellae.
- NOAA American Samoa. Coral reefs.

Full links are in the teacher reading. Free to use and share for education. Made by Marine Conservation Philippines. More free lessons: marineconservationphilippines.org/resources/teachers-resources/

