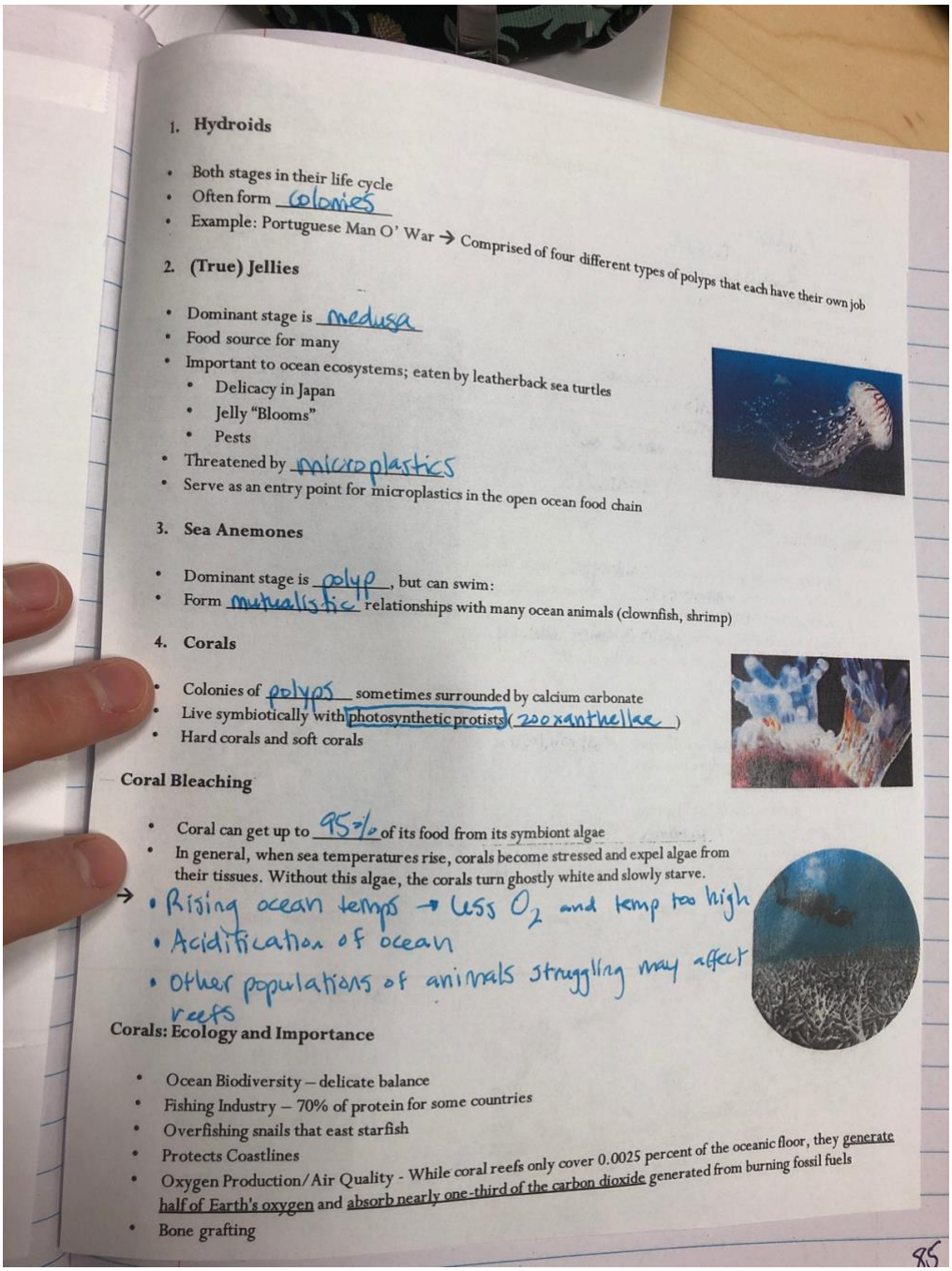
This was one lesson explored in my Life Sciences 11 class. We first discussed the morphological traits of Phylum Cnidaria and then used our scientific knowledge to connect to a bigger picture. For example, previously, we had explored the question "what is evolution and how does it occur?" and in this lesson, we aimed to answer more specific questions like "What evolutionary characteristics help corals to adapt and survive in their environments?" We continued including First Peoples' understandings of interrelationships between organisms and extended these understandings of interconnectedness into global processes such as climate change. We then engaged with questions like "How are corals being affected by climate change?" when we watched a TEDTalk on coral bleaching and restoration, and then "What can we do in our everyday lives to combat this?" when we created Public Service Announcements geared towards people in our own community.



1. **Hydroids**

- Both stages in their life cycle
- Often form colonies
- Example: Portuguese Man O' War → Comprised of four different types of polyps that each have their own job

2. **(True) Jellies**

- Dominant stage is medusa
- Food source for many
- Important to ocean ecosystems; eaten by leatherback sea turtles
  - Delicacy in Japan
  - Jelly "Blooms"
  - Pests
- Threatened by microplastics
- Serve as an entry point for microplastics in the open ocean food chain

3. **Sea Anemones**

- Dominant stage is polyp, but can swim:
- Form mutualistic relationships with many ocean animals (clownfish, shrimp)

4. **Corals**

- Colonies of polyps sometimes surrounded by calcium carbonate
- Live symbiotically with photosynthetic protists (zooxanthellae)
- Hard corals and soft corals

Coral Bleaching

- Coral can get up to 95% of its food from its symbiont algae
- In general, when sea temperatures rise, corals become stressed and expel algae from their tissues. Without this algae, the corals turn ghostly white and slowly starve.
- → Rising ocean temps → less O_2 and temp too high
- Acidification of ocean
- Other populations of animals struggling may affect reefs

Corals: Ecology and Importance

- Ocean Biodiversity – delicate balance
- Fishing Industry – 70% of protein for some countries
- Overfishing snails that east starfish
- Protects Coastlines
- Oxygen Production/Air Quality - While coral reefs only cover 0.0025 percent of the oceanic floor, they generate half of Earth's oxygen and absorb nearly one-third of the carbon dioxide generated from burning fossil fuels
- Bone grafting

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→As citizens in this world, we should be informed enough to make smart everyday decisions for the betterment of ourselves, those around us, and the Earth itself.

TedTalk (Youtube)

Bringing coral reefs back to life | Dr. David Vaughan

1) What is happening to the world's coral reefs?

2) According to Dr. David Vaughan, what can be done to combat this?

3) What are coral nurseries? What are the limitations of these nurseries?

4) Why is it so hard for large corals to reproduce?

5) What percent of the world's corals have been lost since 1980?

6) What happened when Dr. David Vaughan broke the piece of coral? Why did the corals grow so much faster than usual?

7) Why don't the coral clones fight? What do they do instead? What is this process called?

What is the significance of these discoveries (why is it important to regrow these long-living corals so quickly?)

~ Coral PSA to City of Prince George ~

- 90-150 words using persuasive writing.
- Include the following:

  - What corals are
  - Why are they important (to humans & other animals)
  - How are corals being threatened
  - Why should we (the people of PG) care?
  - What daily activities do we do that may affect corals?
  - what can PG people do to help?
  - What are the consequences if we don't take responsibility?

★ Use pronouns WE and YOU