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Science Lesson: Babies in Eggs - Oviparous Ocean Animals

Objective: TLW explore the lives and adaptations of oviparous marine life IOT better understand the diversity of life and animal life history strategies.

"Look Fors": TL is using vocabulary presented in the videos and discussion to adequately describe for the survival of oviparous marine life species.

Key

TTW: The Teacher (Will)

TLW: The Learner (Will)

WG: Whole Group work

SG: Small Group work

IOT: In Order To

- Classroom or around-the-home materials for building structures (e.g. construction paper, blocks, recycling, books)
- Plastic egg weighted to sink in water (use sand or rocks)
- Plastic bin/shoebox of water

Supplies

- TTW utilize the Oviparous Ocean Animals presentation to discuss the meaning of **oviparous** (animals that produce offspring by laying eggs) and explore the many types of marine life that are **oviparous**. TTW lead the discussion of the possible benefits of being protected from an egg versus animals which reproduce through live birth.
- TT may begin or extend discussions of **oviparous** animals by asking TL to brainstorm any additional **oviparous** species they know (whether living in water and/or on land).

1. Engage

- One marine life strategy for laying eggs is **brooding,** much like chickens. This is an incubation adaptation for **oviparous** marine life where parents protect the eggs.
- TLW watch the Nautilus Live highlight video in which *Nautilus* explorers discover over 1,000 **brooding** octopus mothers: https://nautiluslive.org/blog/2019/10/13/return-octopus-garden-monterey-bay-national-marine-sanctuary**.** These octopus mothers protect their eggs from predators and push oxygenated water over their eggs and prevent mud or bacteria landing on the eggs.
- TLW watch the Nautilus Live highlight video in which *Nautilus* explorers observe an octopus fanning her eggs (and a shrimp attacking a recently hatching octopus offspring): https://nautiluslive.org/video/2019/10/16/newborn-octopus-and-stealthy-shrimp-battle-monterey-bay-national-marine-sanctuary

2. Explore

Student Work

No documents provided.

- After watching the video of the octopus brooding and venting their eggs (***Explore***), TTW lead a discussion on how this parent adaptation strategy contributes to the survival of their offspring.
- TTW prepare the plastic shoebox of water and insert the weighted plastic egg; *the egg should sink.*
- TLW prepare a paper fan using the construction paper.
- TLW fan the water in the direction of the egg building a current. TT and TL discuss the importance of circulating the water and oxygen to the egg, modeling the octopus.

3. Explain

- To further explore animal **adaptations** and **oviparous** marine life, consider sea turtle reproduction. TLW observe challenges to hatching turtles (i.e. predators, human construction on the beach) that impact their survival.
- TTW read this GetEpic story, *Sea Turtles* by Mari Schuh: https://www.getepic.com/app/read/57258. TLW discuss sea turtles as **oviparous** and how they lay eggs on the beach.
- TLW watch the following video, *Baby Turtle Swimming Frenzy | Nat Geo Wild* https://www.youtube.com/watch?v=t1kFiehGh9s and discuss the need for additional protection from predators for sea turtle offspring in hope to expand the numbers of surviving sea turtles.
- STEM Design Challenge: TLW brainstorm and build using the various classroom materials a *protective shelter to help sea turtle offspring have a larger chance of successfully traveling from the nest to the open ocean.*

4. Extend

Supporting essential questions that can be used to evaluate student understanding:

- How is learning about **oviparous** marine life beneficial to the research of marine biologists?
- In your own words, how would you describe a human adaptation that mimics marine life **brooding**? How does this behavior benefit humans?
- In your own words, how would you describe the process of brooding? How does it benefit marine life eggs?
- In your opinion, what are some adaptations to a **life history** (pattern of survival and reproduction of a particular species-the *lifecycle*), like sea turtles, where animals do not brood their eggs after the eggs are laid (e.g. burying them)?

5. Evaluate

Animal Showcase:

Inspire your young explorers by showcasing a new ocean animal each class/club meeting.

For this lesson, TT may showcase the *Blob Sculpin* with the video below. This animal was chosen due to the behavioral **adaptation** of **brooding** IOT increase the success of their offspring (much like the octopus) by using their fins to fan water across the eggs providing oxygen and protecting the eggs from predators.

https://nautiluslive.org/video/2016/09/04/blob-sculpin-sightings

Additional Resources and Links

- Deep Sea Skates Incubate Eggs near Hydrothermal Vents: https://nautiluslive.org/video/2018/02/08/deep-sea-skates-incubate-eggs-near-hydrothermal-vents
- Whorls of Oregon Triton Snail Eggs https://nautiluslive.org/video/2017/08/24/whorls-oregon-triton-snail-eggs
- Recorded reading of storybook - *Chickens Aren't the Only Ones* https://www.youtube.com/watch?v=jIRfD7TTci4&t=68s
- YouTube.com- *Pink Skunk Clownfish Fanning Eggs* https://www.youtube.com/watch?v=k-PP0g77CV0