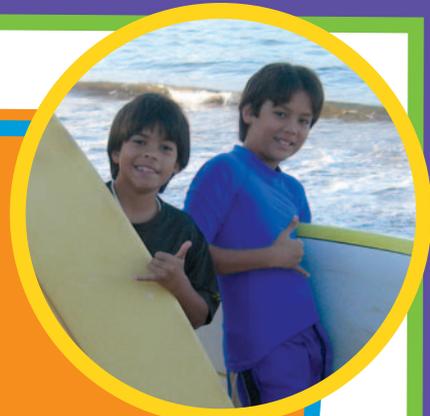
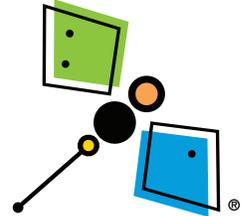


DragonflyTV: GPS Activity 14

A Honu World!



Maui Ocean Center
Maui, HI
www.mauiocceancenter.com



Sea Turtles

Aloha! We're Devin and Zach, and we live in Maui, where the surfing is awesome! Anytime we're in the water, there's a chance we'll see one of our favorite animals, the honu, or sea turtle. We know that it is important to leave the honu alone in the wild, but we also know that their population is shrinking. We went to the Maui Ocean Center to learn more about the honu, and to find out: How quickly do honu grow?

The Maui Ocean Center gave us permission to weigh each of the six young honu in the Turtle Lagoon exhibit. While we had them out of the water, we also measured the length of their shells. We combined this data with some the Maui Ocean Center had on hand from earlier measurements of the turtles. We used all this data to graph the turtles' growth rates early in life.





Icebreaker

Observe how different factors affect the size of a sea turtle population.



30-45 minutes

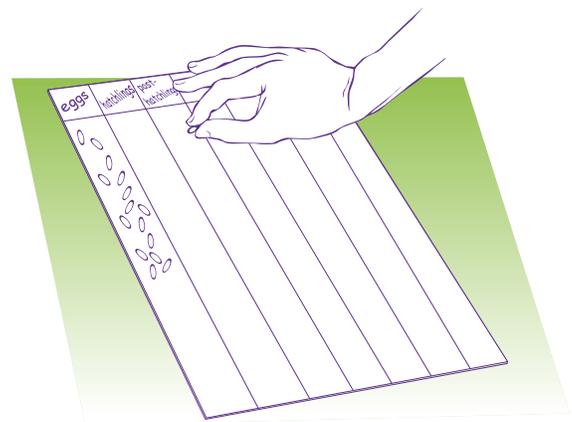
DragonflyTV Skill: Interpreting results

Guide your kids as they

- 1) Orient the paper lengthwise, and divide it into 7 columns, drawing the column lines every 2 inches for the 14" length of the paper.
- 2) Label the tops of the columns in order, left to right, as follows: eggs; hatchlings; post-hatchlings; juveniles; subadults; adults; egg-laying adults.
- 3) Count out a number of puffed rice grains, between 10 and 50, that is a multiple of ten. Each student or group can pick his/her/its own quantity. Place the rice (representing turtle eggs) in column 1, and write the number at the bottom of the column. This represents the number of turtle eggs laid in a nest. (e.g., 30)
- 4) Calculate 10% of the starting number of "eggs," and place that number of rice grains, taken from the cup, into column 2. This represents the number of eggs in the "nest" that survive and hatch. Write the number at the bottom of column 2. (e.g., 3)
- 5) Multiply the number of "hatchlings" in column 2 by 20, representing the number of hatchlings that join the population from other nests. Take this number of rice grains from the cup and place them in column 3. Write the number at the bottom of column 3. (e.g., 60)

▶ You'll need:

- puffed rice (approx. 300 grains per student or group)
- a 16-oz. plastic or paper cup, one per group, to hold the rice
- a 8.5" x 14" sheet of paper, one per group
- pencils and rulers

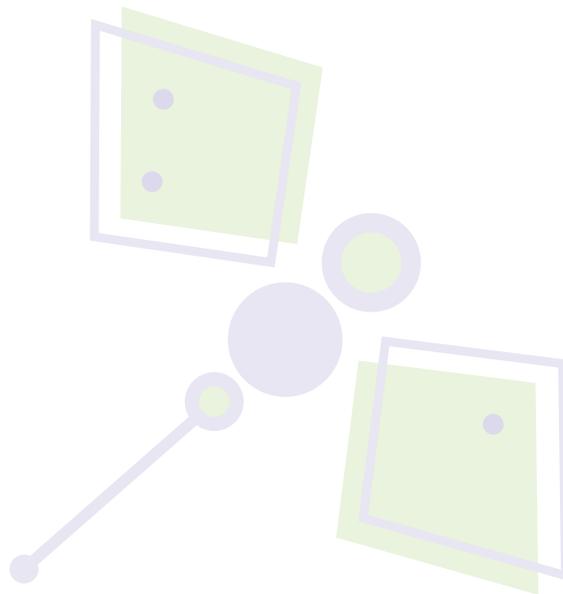


For more simple activities like this one, surf to pbskidsgo.org/dragonflytv/superdoit/index.html

- 6) Add 20 to the number in column 3, and place this many rice grains from the cup into column 4. This represents the addition of other turtles to the population from other locations. Write the number in column 4. (e.g., 80)
- 7) Divide the number in column 4 by 10. Count out this many rice grains from the cup, and place them in column 5. This represents the lowering of the population due to human fishing or other reasons. Write the number in column 5. (e.g., 8)
- 8) Take the number in column 5, and subtract from it the number of hatchlings in column 2 TWICE. Put the resulting number of rice grains into column 6. This represents the number of turtles that survive an outbreak of the dangerous fibropapilloma virus. Write the number in column 6. (e.g., 2)
- 9) Finally, assume only half of the number of turtles represented in column 6 are females. Place that number of rice grains into column 7. This represents the number of turtles from the original nest that are now able to lay eggs. (e.g., 1)
- 10) Make a bar graph that shows the number of turtles in the population at each stage. Which transition(s) show the most dramatic decrease in turtle population?

DFTV Science Helper

Explain to students that this exercise is simply a model for how a turtle population changes over time. Invite them to discuss which stage transitions in the model are most critical to the survival of the species.





Investigation Sea Turtles



**60+ minutes, plus 4 days
of elapsed time**

Guide your kids as they

- 1) Affix a turtle cutout to an orange.
- 2) Observe as an adult puts a few cuts into the surface of the orange, representing propeller damage on the back of a leatherback sea turtle.
- 3) Discuss a strategy for immediately treating the wounds. Select from among the repair materials, and then implement the "first aid." (Example: coat the wound with nail polish, in an attempt to seal it.)
- 4) Option: Take a digital photo of the wound before treatment, then after treatment. Additional photos may be taken each day, for the duration of the observation (up to 4 days).
- 5) Observe as the adult makes slashes in 2 spare oranges. These will not be treated, and will serve as controls. Two remaining oranges do not receive slashes, but serve as comparisons representing "uninjured" turtles.
- 6) Predict how well various treatments will prevent decay, or necrosis, from occurring in the oranges.
- 7) Place all samples in an unrefrigerated space in the classroom where they can sit undisturbed for several days.
- 8) Observe changes in all the oranges, including the reference oranges, each day for 4 days. Sketch the changes, or take digital photos, and write verbal descriptions.

▶ You'll need:

- oranges, or other citrus fruit, 1 per group, plus 4 additional
- paper cutouts of turtles
- a sharp knife, to be used by adult only!
- a variety of possible repair materials (examples: glue; nail polish; tape; needle and thread; paint; bandages; wax)
- clean-up supplies
- office supplies: tape, pencils, paper, scissors
- optional: plastic storage boxes with lids
- optional: a digital camera

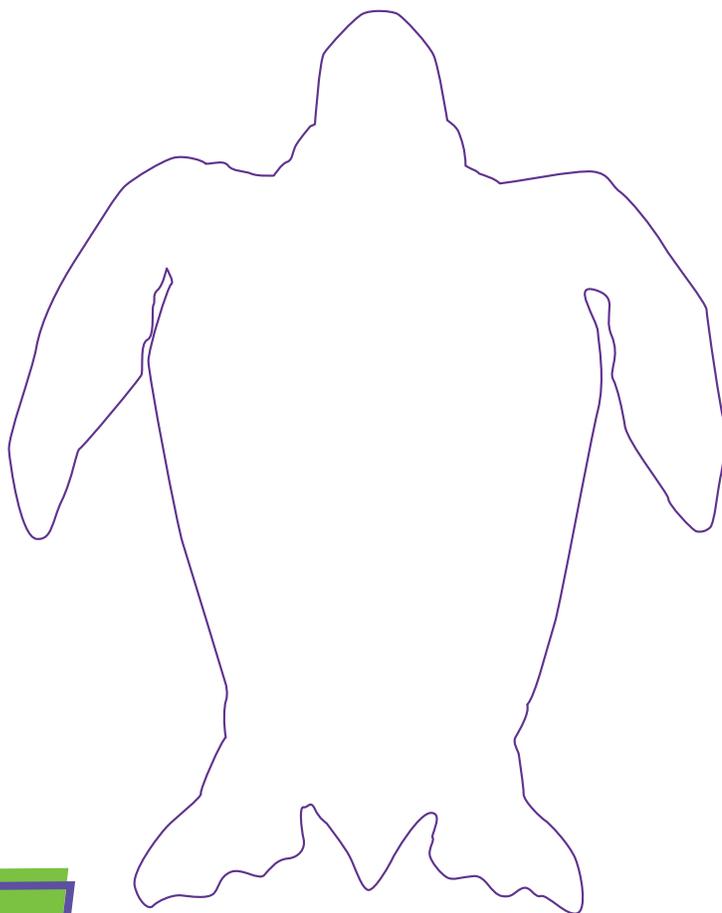
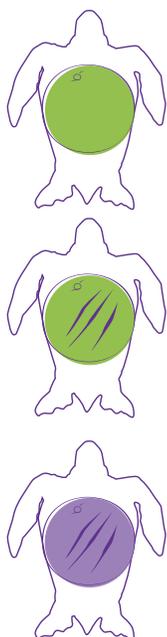
DFTV Science Helper

This activity is intended for students participating in a several-day class or camp experience. Students imagine that they are animal first-aid responders, called to administer aid to a sea turtle that has sustained a boat propeller injury. Explain that a quick and effective response to an injured turtle improves the turtle's chances of recovery. Students will observe changes in the orange (representing the turtle) over several days.



DFTV Kids Synthesize Data and Analysis

Encourage students to keep a daily journal of observations. Alternatively, they may write a medical report at the conclusion of the observation period, or even make a presentation in the form of a video or mock television report. The report should include a comparison of various treatment strategies, and which of them prevented necrosis well and which were ineffective. The final statement should be a recommendation for treatment strategies of future injured turtles.



Keep Exploring!

The activity can be replicated with an added variation of keeping the oranges in a saltwater environment like that of ocean water. How does this affect the selection of treatment strategies? Do some strategies become ineffective in the watery environment?