BUILD YOUR OWN DRIFTER

Through the Project YOTO Drifter website, and the Track-a-Drifter Activity, you should now know how and why scientists study ocean currents using satellite-tracked drifters. Drifters can also be used to study flow in a stream, river, lake or any ocean waterway. Can you design a drifter that could be used to track currents in a body of water near you? What should that drifter look like? What common materials could you use to make a drifter and how would you track it?

To build your own drifter follow the procedures outlined below and be creative!

PROCEDURES

1. REVIEW the background material, drifter design on the Project YOTO Drifter website (http://drifters.doe.gov), and tracking activity. Answer the following questions.

What are the different parts of a drifter and why is each important?

What properties of the drifter allow it to move with the water flow and not the wind?

2. DESIGN: Discuss in small groups what type of water body you want to use the drifter in, the design of a drifter, what materials you might use, and draw a picture of the drifter.

A. Where are you going to use the drifter? Is it a shallow stream or river, or a deeper lake? What is the depth of the current you want to track - for example, is it at the surface or several feet or meters deep?

B. Construction Materials. What materials would be best to use? For a float? A drogue (underwater sail)? Do you want something durable or biodegradable? What will the cost of construction materials be and are your materials easy to get?

C. Design. How big should it be, will it weigh a lot? What does it look like? How will you track the drifter?

D. On a separate sheet of paper, draw your drifter design, and label each of its parts and what they are used for.

E. How many drifters will you need, and what will your plans for deployment be?

3. MODEL: Using commonly found household items, build either a model or prototype of your drifter design. Each small group should then present its design and model to the class, and explain why and how it will work.

(be creative on your materials, some that could be used: plastic bottles, line or rope, thin wood sheets and canvas, Styrofoam floats, grapefruits, PVC tubing with caps)

4. TEST: If possible test your model in a tub or tank with running water, or take it to a small local stream or river. This would make a great class field trip to test different designs in a local stream. Is your drifter moving with the water or the wind? You can use a stopwatch and measuring tape to calculate the speed of your drifter (choose a section of a stream or river, measure a certain distance parallel along the shore, mark the beginning and end, release the drifter and time how long it takes to travel between the marked points).

Discuss with the class how different designs and materials did during the test?

5. ANALYSIS.

A. How did the drifters do? Did they follow the water flow? What problems did you encounter?

B. How could you improve on your drifter design?

C. If you had access to any materials or technology you wanted, what would your drifter look like and how would it work? Would you measure things other than water flow?

D. Can you think of other ways one could track water movement in the ocean or any other body of water?

GOING FURTHER:

Design an experiment to investigate the speed and direction of flow in a local body of water or some other region of your chose. What background information will you need to design the experiment? Why is understanding water movement in this area important?

What other things in the marine environment could we learn about through tracking? Why and how?