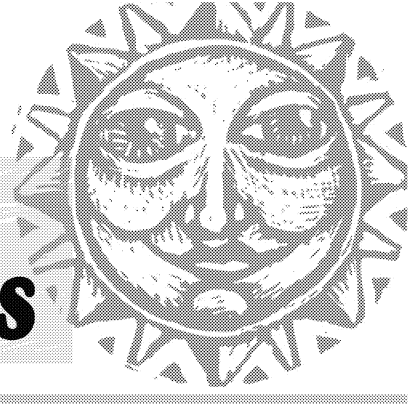
Daily *warm-ups*



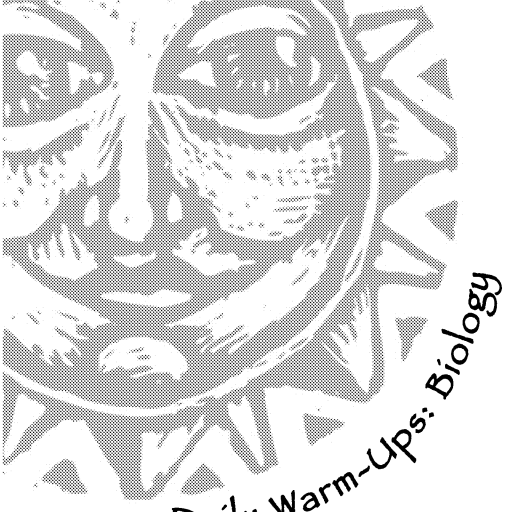
BIOLOGY

J. WESTON
WALCH
PUBLISHER
Portland, Maine

The *Daily Warm-Ups* series is a wonderful way to turn extra classroom minutes into valuable learning time. The 180 quick activities—one for each day of the school year—review, practice, and teach life-science topics. These daily activities may be used at the very beginning of class to get students into learning mode, near the end of class to make good educational use of that transitional time, in the middle of class to shift gears between lessons—or whenever else you have minutes that now go unused. In addition to providing students with fascinating life-science activities, they are a natural path to other classroom activities involving critical thinking.

Daily Warm-Ups are easy-to-use reproducibles—simply photocopy the day's activity and distribute it. Or make a transparency of the activity and project it on the board. You may want to use the activities for extra-credit points or as a check on critical-thinking skills and problem-solving skills.

However you choose to use them, *Daily Warm-Ups* are a convenient and useful supplement to your regular lesson plans. Make every minute of your class time count!



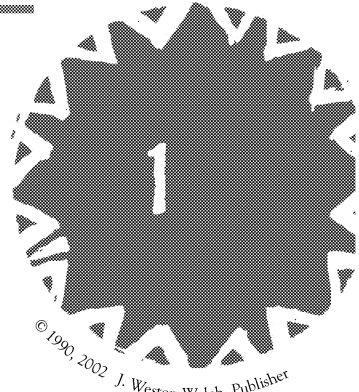
Daily Warm-Ups: Biology

Have You Eaten Your Seaweed Today?

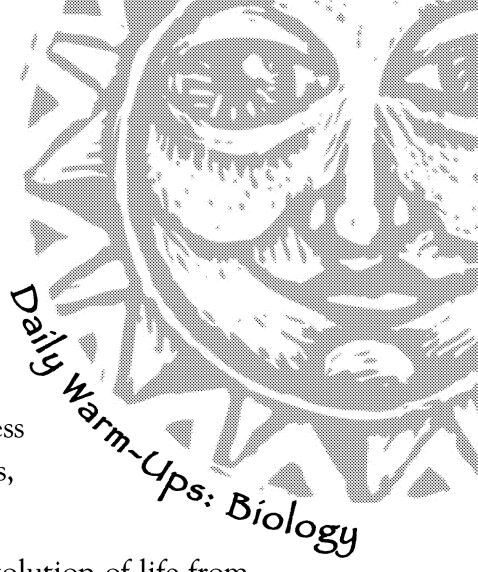
Whether or not you realize it, the answer probably is yes. Did you brush your teeth today? Did you eat ice cream or mayonnaise, jelly, jam, or cream fillings from junk food? Have you enjoyed a thick shake at your favorite fast-food place? If you've done any of these things, you have eaten seaweed today.

All these things and many more are made thicker and creamier by additives extracted from Irish moss and related seaweeds. Do not feel duped. These additives are pure, nutritious, low in harmful fats, and help preserve the products.

Make a list of products you think have these seaweed ingredients. Then, when you go to the grocery store, read labels and look for the words *algin*, *alginic acid*, or *carrageenan*.



Immortality and the Water Bear

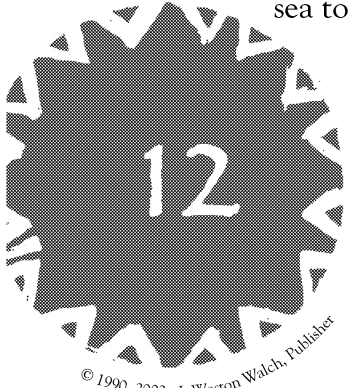


Some dried moss had been in storage for 120 years. Yet when researchers dampened it, tardigrades, the tiny water bears that had once lived upon it, lived again!

In 1773, J. A. E. Goeze discovered these tiny eight-legged creatures, whose shape and lumbering stride reminded him of bears. He called them Kleinen Wasserbären, "little water bears."

Tardigrades can slow down their metabolism for long periods, in a process even more complex than hibernation. This process is called cryptobiosis, "hidden life."

Adaptations to protect living things from drying out were part of the evolution of life from sea to land. The revival of the water bears after more than a hundred years is evidence of how effective cryptobiosis is.



How might cryptobiosis be a useful adaption for the water bears?

Where Does a Half-Ton Bird Sleep?

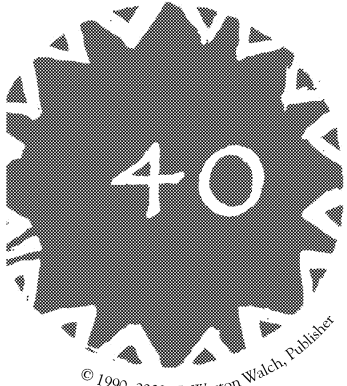
Where does a thousand-pound bird sleep? The punch line ought to be: "Anywhere it wants!" But this is no joke. The answer is in the prehistory of Madagascar.

When the massive bones of *Aepyornis maximus* were unearthed by scientists almost 140 years ago, the discovery created a sensation. *Aepyornis* would have stood nine or ten feet high and walked rather than run. Most certainly this half-ton bird never flew!

The last of these fabulous birds died some 2,000 years ago. It was a relic of the burst of adaptive radiation that produced modern birds after the demise of the dinosaurs.

Ostriches and emus are the largest living birds.

How does *Aepyornis* compare with them?



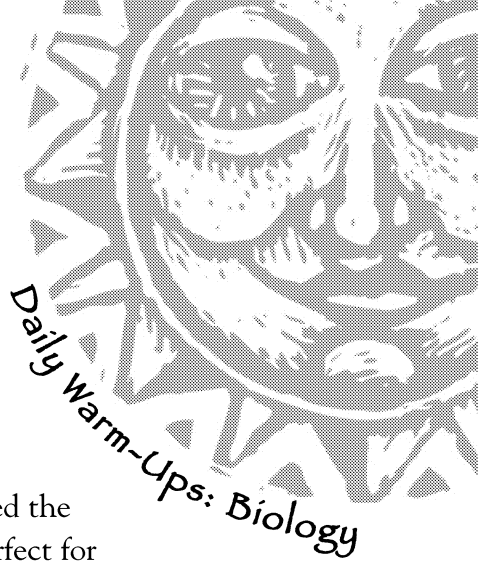
The Goose, the Grass, and the Slime

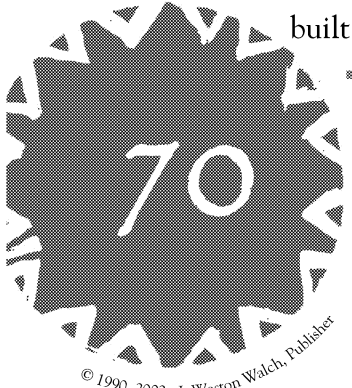
In the 1930s, when many New Englanders were feeling the pinch of the Great Depression, the wild geese that had graced their tables became harder to find.

Wild geese, called brants, fed on a flowering sea plant, eelgrass. Eelgrass was disappearing, taking a whole ecosystem with it, including the geese.

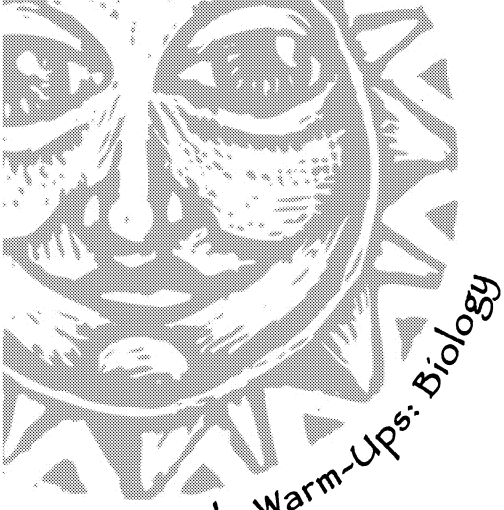
What happened to the eelgrass?

The culprit was a funguslike organism, a slime mold. Dry years had raised the salinity, the saltiness, of New England's estuaries, making conditions perfect for slime mold. One kind of slime mold was deadly for eelgrass, and for the ecosystem built around it.





Some researchers in Massachusetts are experimenting with eelgrass in Narragansett Bay. List a few conditions necessary for eelgrass to thrive again.



Sheep to Count

Early in the summer of 1791, Seth Wright, a farmer in Dover, Massachusetts, strolled into genetic fame. He had the funniest-looking little ram in his flock. The little fellow's legs were so absurdly short that his belly wool dragged on the ground.

Seth Wright saw a real advantage there—not for the sheep, but for him.

The stubby-legged ram could not jump the stone-wall boundary of Wright's farm. Short-legged sheep would be easy to herd. Wright decided to breed the little ram. The ram was the first of a whole, true-breeding race of short-legged sheep, the first germinal mutation of domestic animals in the New World.

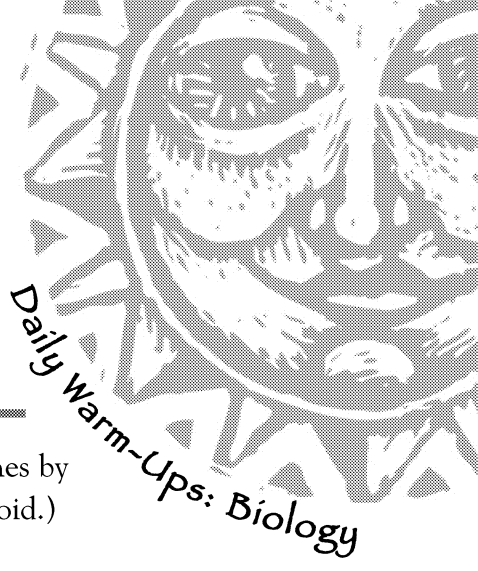
How do you think a short-legged sheep would fare in the wild? Make a list of advantages and disadvantages.

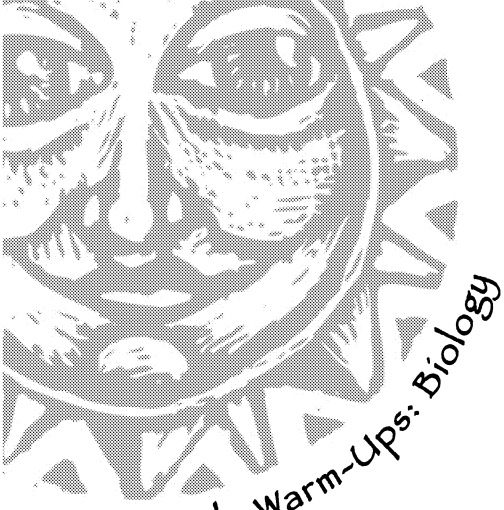
Migrating Mollusks

The migrating clam is a phenomenon of sandy shores. For example, the little clam *Donax*, sometimes called coquina, migrates up the beach with the incoming tide and down the beach as the tide ebbs.

The coquina literally jumps out of the sand as a wave surges up the beach. It then uses a tiny foot like a ship's anchor to dig into the sand before the backwash can reverse its progress.

Animal behavior is purposeful. What do you think the clam accomplishes by migrating? (Hint: Ask yourself what the clam might need to get—or avoid.)





"Beam Me Up, Scotty!"

As every Trekkie knows, the Enterprise's transporter disassembles the molecules of its passengers or cargo, sends them to a designated place, then reassembles them.

The idea of an organism being able to withstand cell-by-cell separation may seem like science fiction. However, for sponges, it is a demonstrable fact.

In a classic experiment, H.V. Wilson forced a sponge through a silk screen, separating the cells from each other. After a brief rest in calm water, the sponge rebuilt itself.

What aspect of their anatomy makes this sort of thing easier for sponges than it might be for higher organisms?