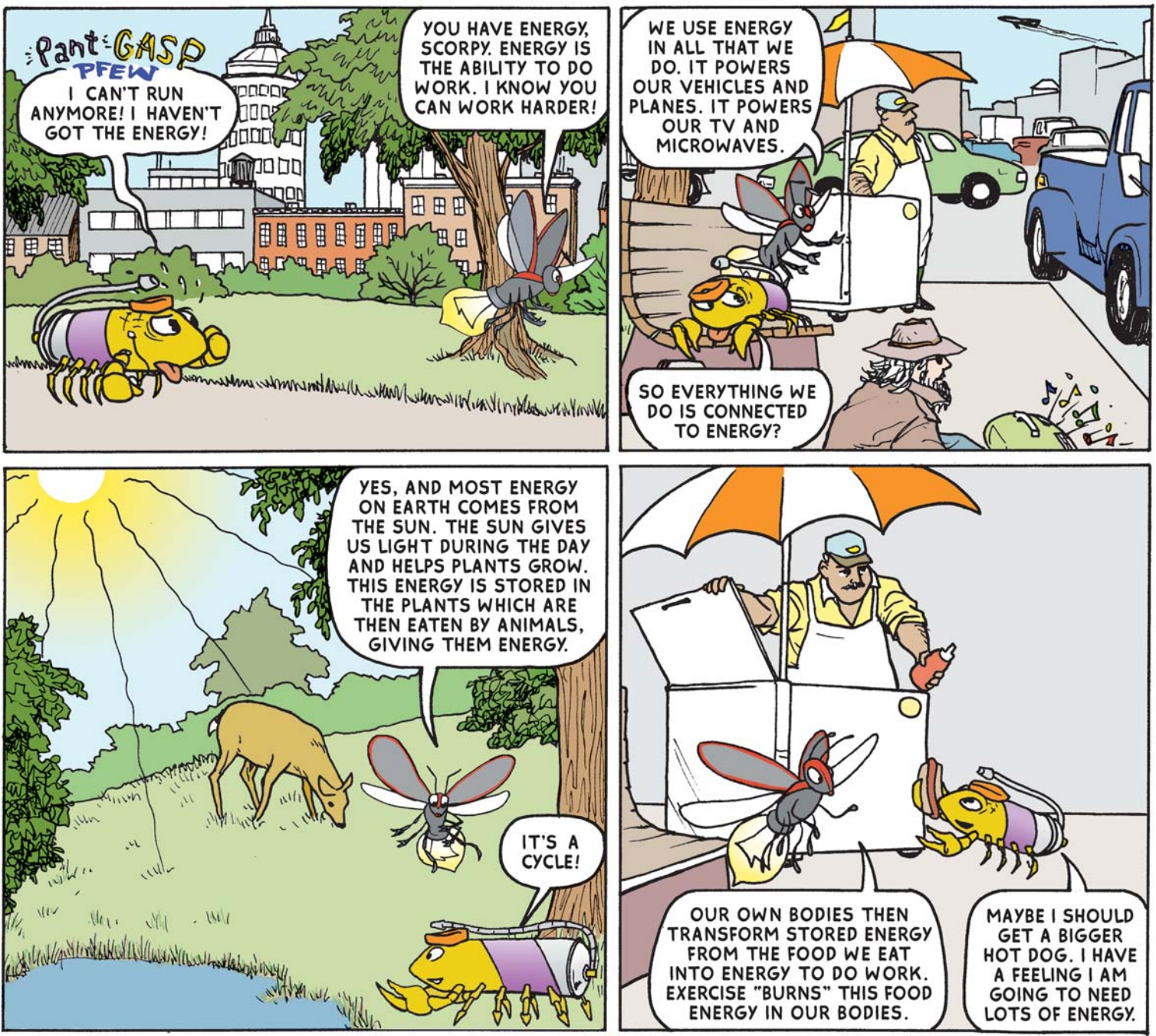
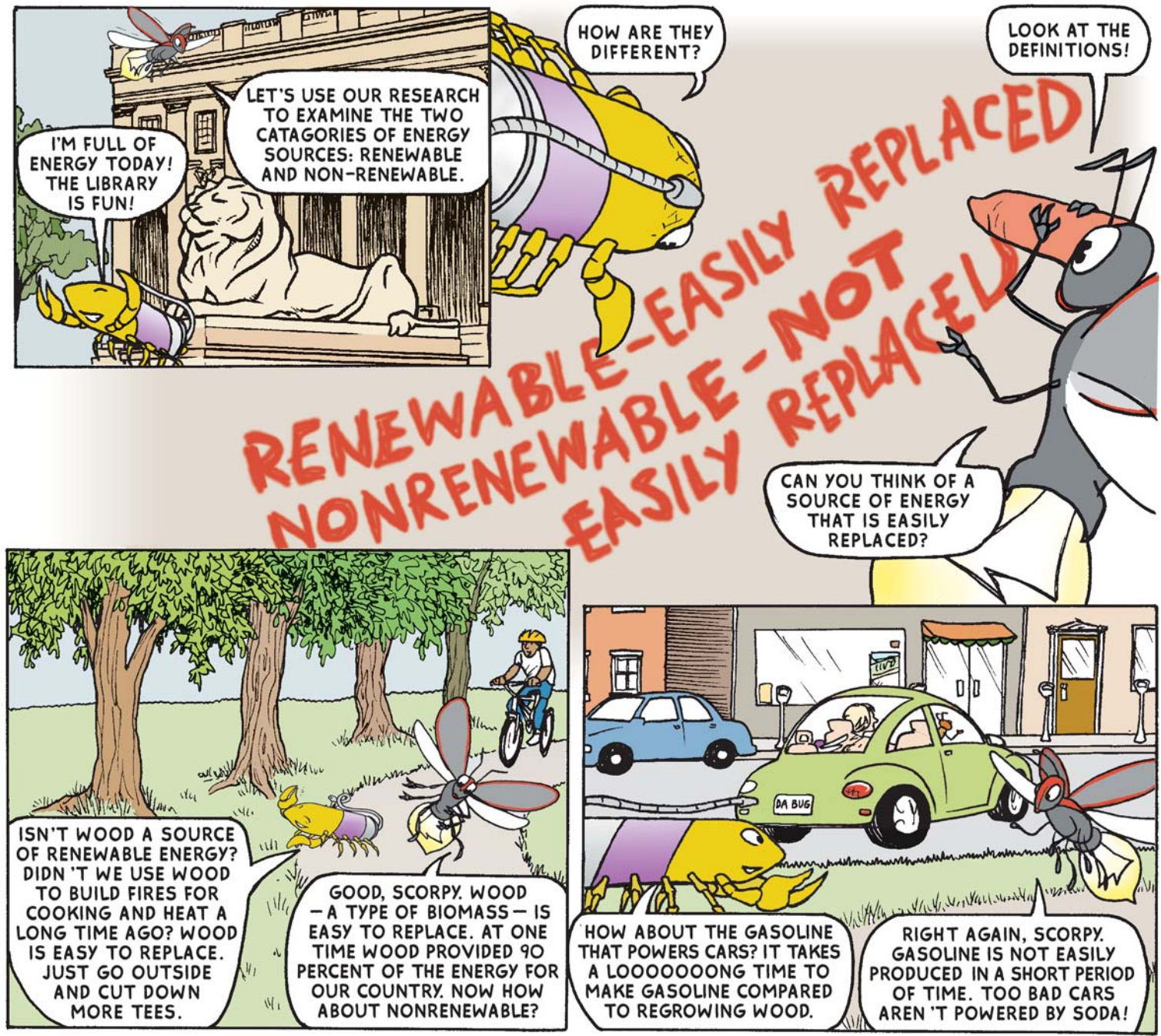
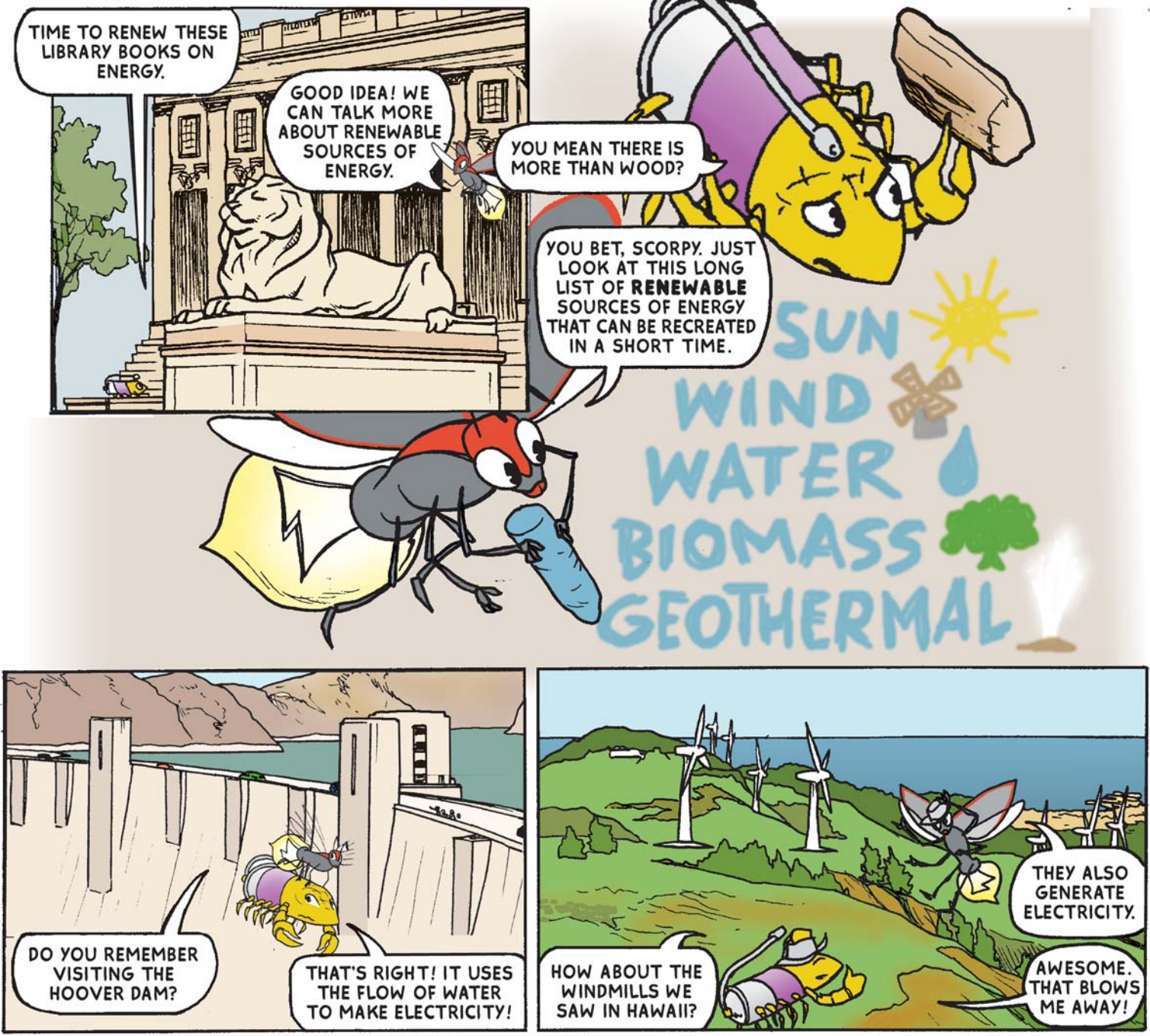
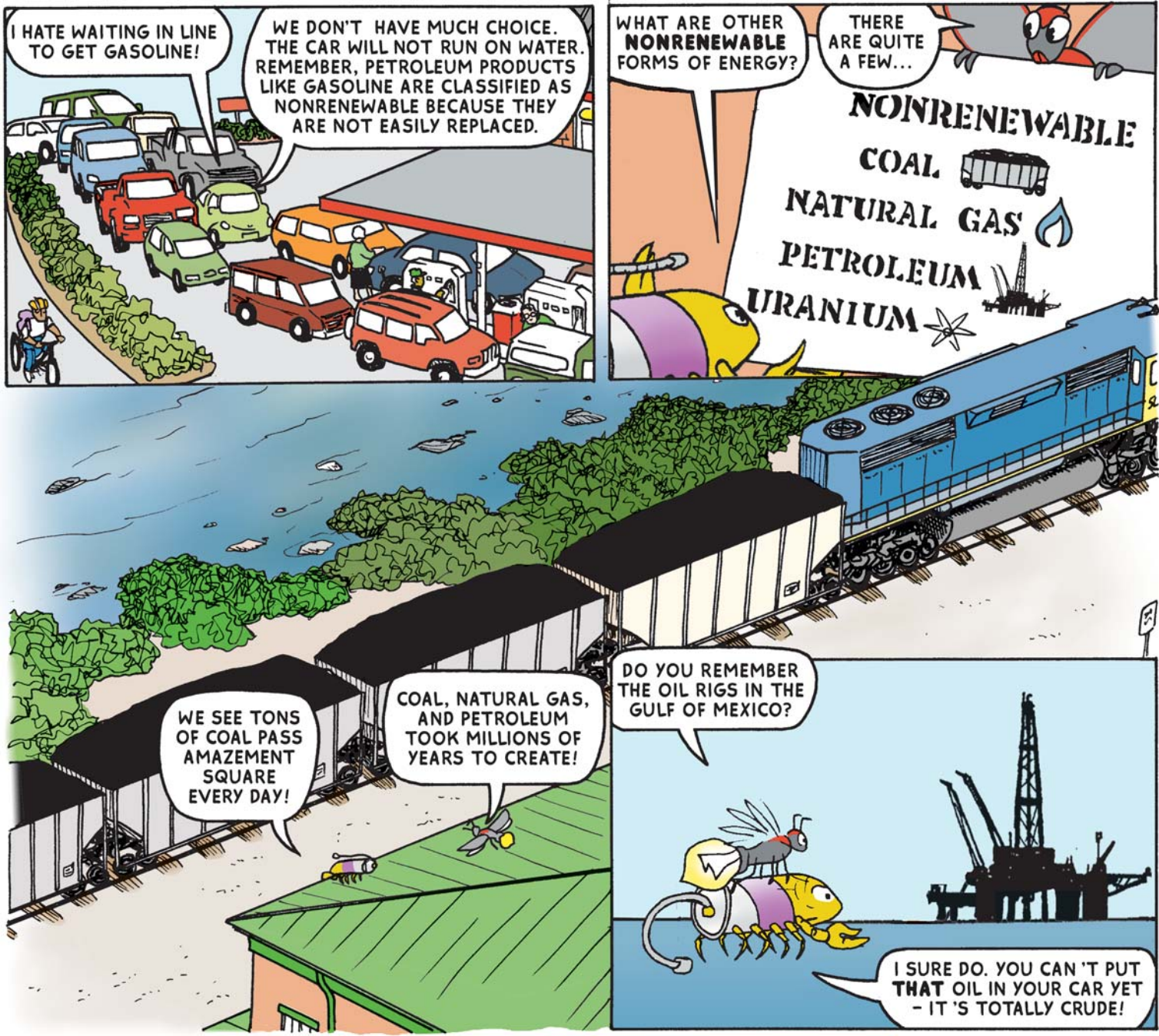
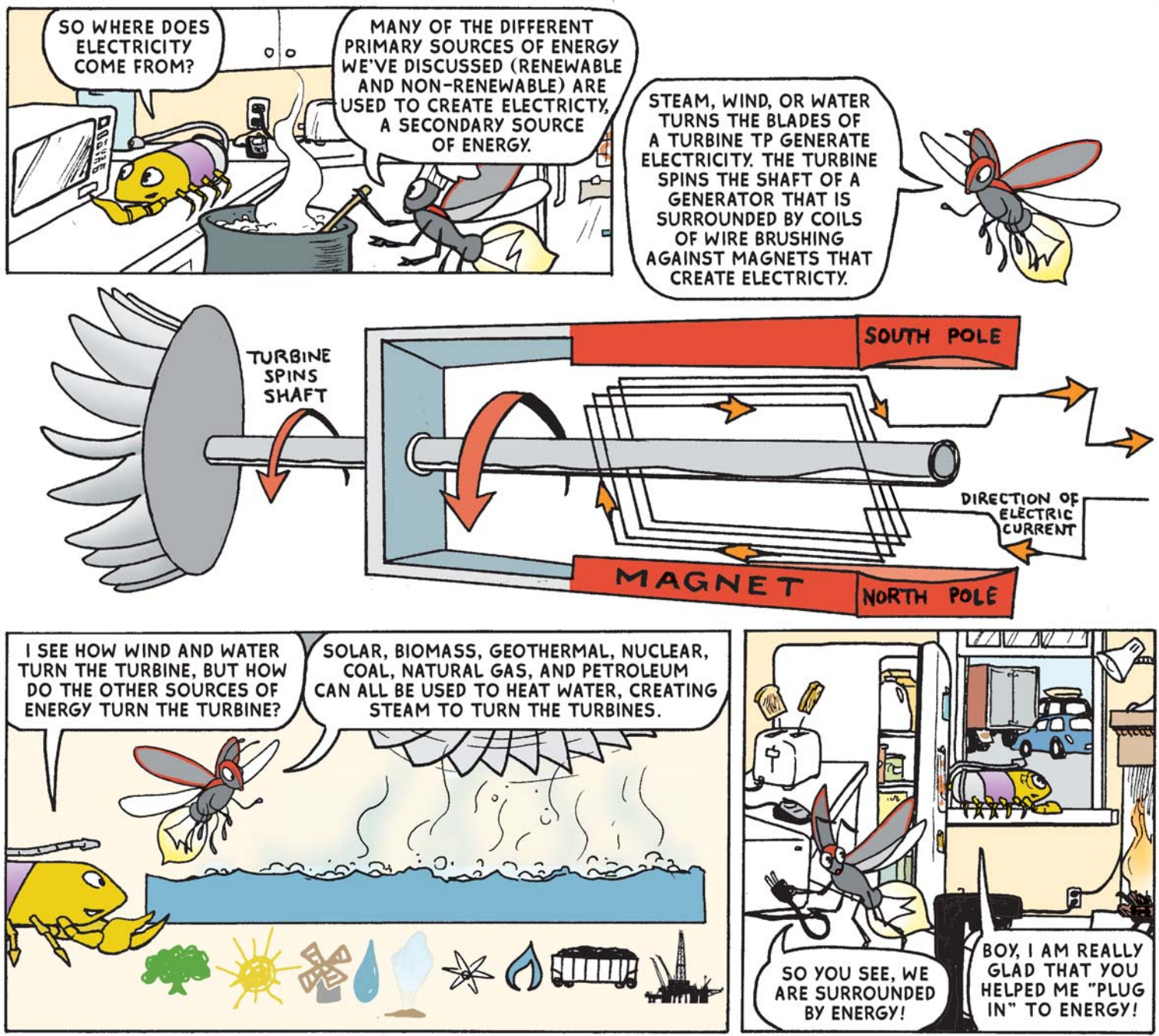

Pant-GASP
PFEW
I CAN'T RUN ANYMORE! I HAVEN'T GOT THE ENERGY!
YOU HAVE ENERGY, SCORPY. ENERGY IS THE ABILITY TO DO WORK. I KNOW YOU CAN WORK HARDER!
WE USE ENERGY IN ALL THAT WE DO. IT POWERS OUR VEHICLES AND PLANES. IT POWERS OUR TV AND MICROWAVES.
SO EVERYTHING WE DO IS CONNECTED TO ENERGY?
YES, AND MOST ENERGY ON EARTH COMES FROM THE SUN. THE SUN GIVES US LIGHT DURING THE DAY AND HELPS PLANTS GROW. THIS ENERGY IS STORED IN THE PLANTS WHICH ARE THEN EATEN BY ANIMALS, GIVING THEM ENERGY.
IT'S A CYCLE!
OUR OWN BODIES THEN TRANSFORM STORED ENERGY FROM THE FOOD WE EAT INTO ENERGY TO DO WORK. EXERCISE "BURNS" THIS FOOD ENERGY IN OUR BODIES.
MAYBE I SHOULD GET A BIGGER HOT DOG. I HAVE A FEELING I AM GOING TO NEED LOTS OF ENERGY.


I'M FULL OF ENERGY TODAY! THE LIBRARY IS FUN!
LET'S USE OUR RESEARCH TO EXAMINE THE TWO CATAGORIES OF ENERGY SOURCES: RENEWABLE AND NON-RENEWABLE.
HOW ARE THEY DIFFERENT?
LOOK AT THE DEFINITIONS!
RENEWABLE-EASILY REPLACED
NONRENEWABLE-NOT EASILY REPLACED
CAN YOU THINK OF A SOURCE OF ENERGY THAT IS EASILY REPLACED?
ISN'T WOOD A SOURCE OF RENEWABLE ENERGY? DIDN'T WE USE WOOD TO BUILD FIRES FOR COOKING AND HEAT A LONG TIME AGO? WOOD IS EASY TO REPLACE. JUST GO OUTSIDE AND CUT DOWN MORE TEES.
GOOD, SCORPY. WOOD — A TYPE OF BIOMASS — IS EASY TO REPLACE. AT ONE TIME WOOD PROVIDED 90 PERCENT OF THE ENERGY FOR OUR COUNTRY. NOW HOW ABOUT NONRENEWABLE?
DA BUG
HOW ABOUT THE GASOLINE THAT POWERS CARS? IT TAKES A LOOOOOOONG TIME TO MAKE GASOLINE COMPARED TO REGROWING WOOD.
RIGHT AGAIN, SCORPY. GASOLINE IS NOT EASILY PRODUCED IN A SHORT PERIOD OF TIME. TOO BAD CARS AREN'T POWERED BY SODA!


TIME TO RENEW THESE LIBRARY BOOKS ON ENERGY.
GOOD IDEA! WE CAN TALK MORE ABOUT RENEWABLE SOURCES OF ENERGY.
YOU MEAN THERE IS MORE THAN WOOD?
YOU BET, SCORPY. JUST LOOK AT THIS LONG LIST OF RENEWABLE SOURCES OF ENERGY THAT CAN BE RECREATED IN A SHORT TIME.
SUN
WIND
WATER
BIOMASS
GEOTHERMAL
DO YOU REMEMBER VISITING THE HOOVER DAM?
THAT'S RIGHT! IT USES THE FLOW OF WATER TO MAKE ELECTRICITY!
HOW ABOUT THE WINDMILLS WE SAW IN HAWAII?
THEY ALSO GENERATE ELECTRICITY.
AWESOME. THAT BLOWS ME AWAY!


I HATE WAITING IN LINE TO GET GASOLINE!
WE DON'T HAVE MUCH CHOICE. THE CAR WILL NOT RUN ON WATER. REMEMBER, PETROLEUM PRODUCTS LIKE GASOLINE ARE CLASSIFIED AS NONRENEWABLE BECAUSE THEY ARE NOT EASILY REPLACED.
WHAT ARE OTHER NONRENEWABLE FORMS OF ENERGY?
THERE ARE QUITE A FEW...
NONRENEWABLE
COAL
NATURAL GAS
PETROLEUM
URANIUM
WE SEE TONS OF COAL PASS AMAZEMENT SQUARE EVERY DAY!
COAL, NATURAL GAS, AND PETROLEUM TOOK MILLIONS OF YEARS TO CREATE!
DO YOU REMEMBER THE OIL RIGS IN THE GULF OF MEXICO?
I SURE DO. YOU CAN 'T PUT THAT OIL IN YOUR CAR YET - IT 'S TOTALLY CRUDE!


SO WHERE DOES ELECTRICITY COME FROM?
MANY OF THE DIFFERENT PRIMARY SOURCES OF ENERGY WE'VE DISCUSSED (RENEWABLE AND NON-RENEWABLE) ARE USED TO CREATE ELECTRICTY, A SECONDARY SOURCE OF ENERGY.
STEAM, WIND, OR WATER TURNS THE BLADES OF A TURBINE TP GENERATE ELECTRICITY. THE TURBINE SPINS THE SHAFT OF A GENERATOR THAT IS SURROUNDED BY COILS OF WIRE BRUSHING AGAINST MAGNETS THAT CREATE ELECTRICTY.
TURBINE SPINS SHAFT
SOUTH POLE
DIRECTION OF ELECTRIC CURRENT
MAGNET
NORTH POLE
I SEE HOW WIND AND WATER TURN THE TURBINE, BUT HOW DO THE OTHER SOURCES OF ENERGY TURN THE TURBINE?
SOLAR, BIOMASS, GEOTHERMAL, NUCLEAR, COAL, NATURAL GAS, AND PETROLEUM CAN ALL BE USED TO HEAT WATER, CREATING STEAM TO TURN THE TURBINES.
SO YOU SEE, WE ARE SURROUNDED BY ENERGY!
BOY, I AM REALLY GLAD THAT YOU HELPED ME "PLUG IN" TO ENERGY!