

# Solar Lawn Light

## Activity Book



# The Magic of Solar Lawn Lights

Solar lawn lights are a little bit of everyday magic. They turn on by themselves when it gets dark, and turn off when the sun comes up. Of course, they're not really magic. They're powered by the sun using the same principles and parts that help solar panels turn sunlight into energy to power your house. These are the parts that make the magic happen.



A solar panel collects light energy from the sun and turns it into electrical current.



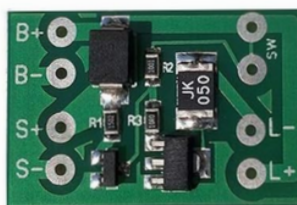
An LED bulb changes the electrical energy into light.



A photoresistor tells the controller board whether it's light or dark.



A battery stores energy from the solar cells so it can be used later.



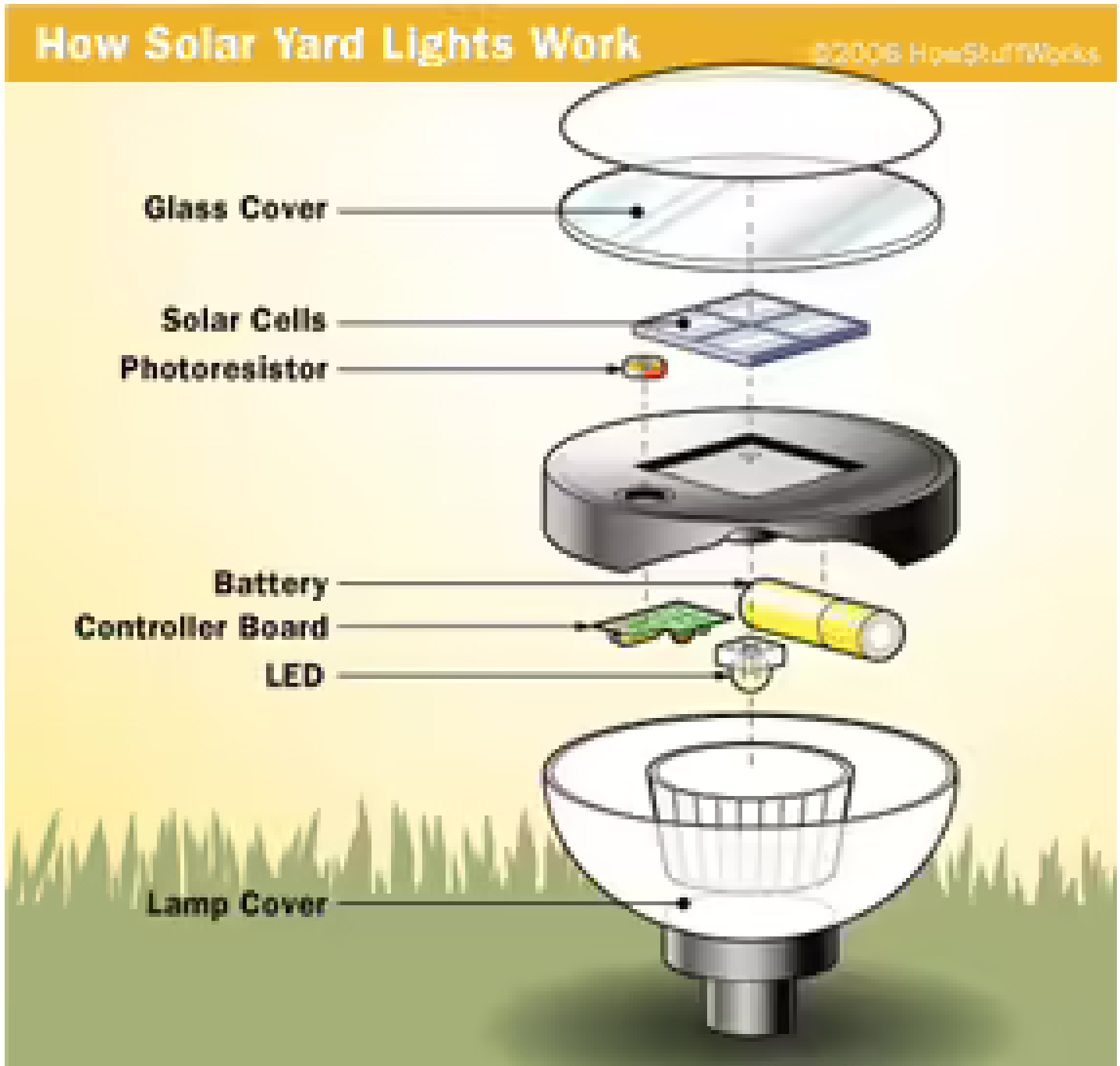
A controller board turns the light on when it's dark and off when it's light



A lamp cover amplifies the light from the LED to make it brighter.

# Parts of a Solar Lawn Light

Each of these parts has a role to play in converting sunlight to electricity that will light an LED bulb. Bigger solar power systems can power streetlights and traffic lights. If you add an inverter to the system, it can even provide electricity to power everything in your house.

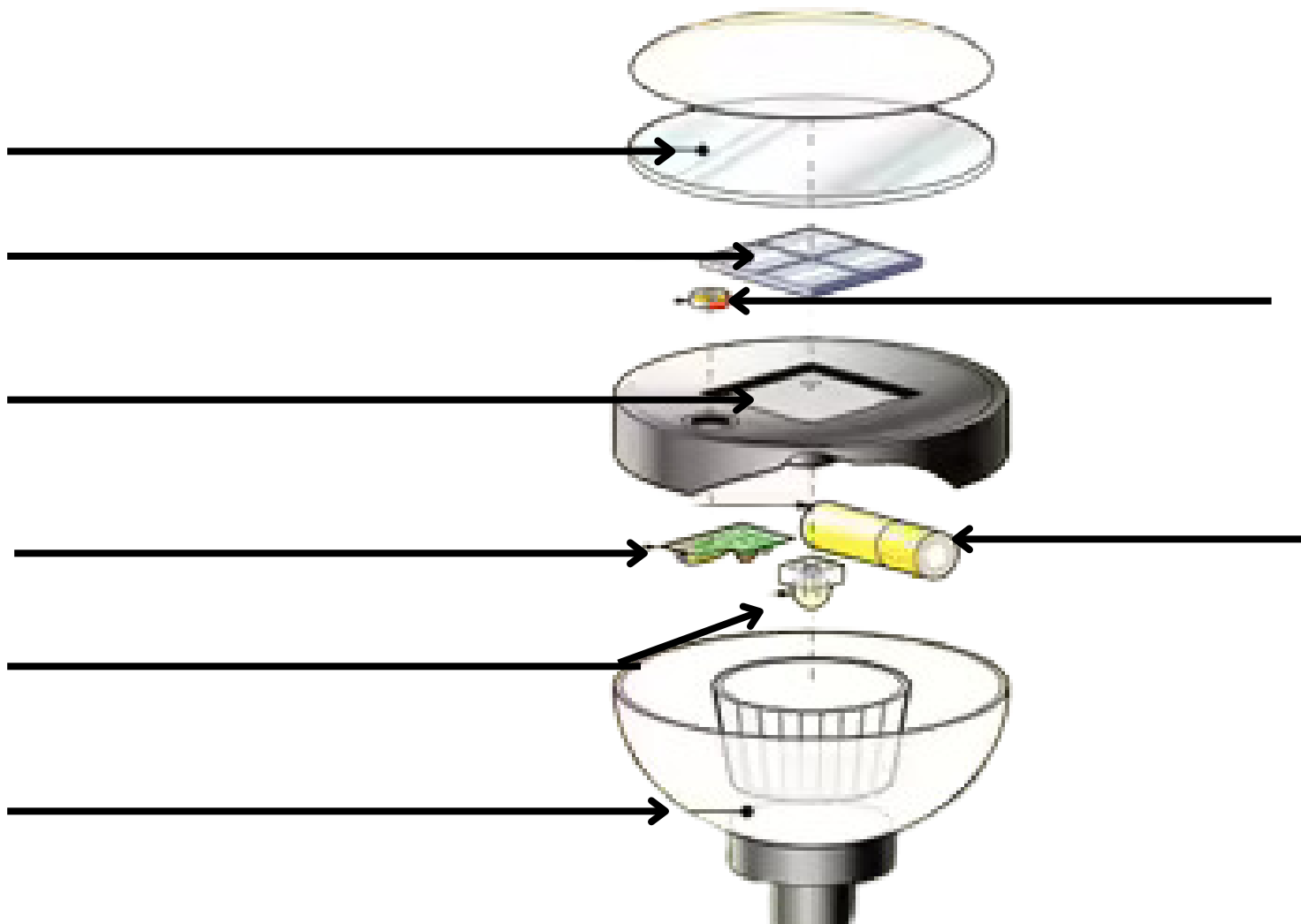


# Label the Parts of a Solar Lawn Light

A solar lawn light is a complete miniature solar power system. A bigger system with more solar panels and a bigger battery can power your whole house with clean solar energy.

Bonus question: Can you explain what each part does?

- Solar panel
- Battery
- Controller board
- Glass cover
- Photoresistor
- LED bulb
- Lamp cover



# Parts of a Solar Light: What Does It Do?

Draw a line from the term in column one to the description of what it does in column two.

**Solar panel**

Protects the LED bulb and amplifies the light

**Battery**

Emits light

**LED bulb**

Tells the controller board whether it's dark or daylight

**Glass cover**

Converts the sun's light into electricity

**Controller board**

Protects the solar panels and concentrates the sun's light

**Photoresister**

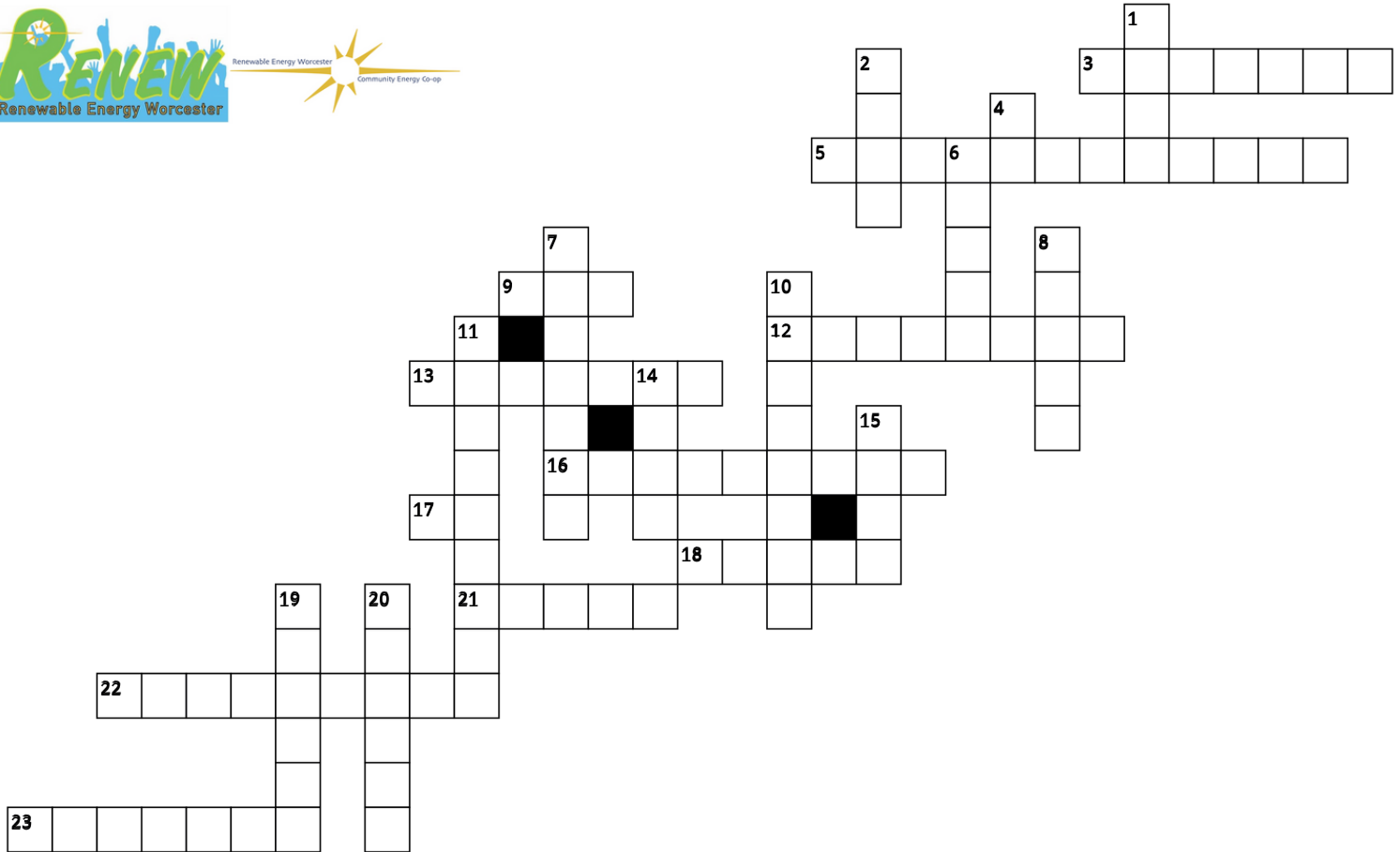
Stores energy for later use

**Lamp cover**

Turns on the LED bulb when it gets dark



# RENEW CEC Solar Puzzle



## Across

3. what fossil fuels do to the air we breathe
5. one way to get solar power if you don't have room for solar panels
9. a source of clean energy
12. part of a solar power system that changed the current so your house can use it
13. a group who may not be able to get solar power because they don't own their homes
16. RENEW Worcester CEC is a member of this CEC network
17. type of current generated by solar panels
18. a collection of connected solar cells that can generate electricity
21. many solar panels that are connected together
22. who owns the power generated by community solar projects
23. you need one of these to use solar energy after the sun goes down

## Down

1. a group that makes decisions together for everyone's benefit
2. the average number of hours of direct sun solar panels need to produce enough electricity for one hour
4. type of current your house uses
6. energy from the sun
7. another word for fairness
8. the kind of energy you get from the sun, the opposite of fossil fuels
10. the lower price you pay for energy when you join a coop
11. a system where everyone gets a vote
14. a common place to put solar panels
15. a single photovoltaic unit
19. fair distribution of resources
20. In Worcester, one of these community resources has a solar panel on it

# What Is Energy Democracy?

Energy democracy is a vision for energy justice, centering people and planet over profit in the energy system. It stands against a dirty energy system that serves the interests of Wall Street, not community residents and not mother earth.

Energy democracy ensures that no one is left out of the transition away from dirty energy, and that the benefits of clean energy go first to those who have been most burdened by the dirty energy system.

Energy democracy is a vision:

- \* communities not corporations own our energy assets (where and how we produce energy; the infrastructure for distributing energy from its source to where it's needed).
- \* the energy system is democratically governed; the people who have paid the biggest price for the dirty energy system we have are the ones who decide on our energy future.

Energy democracy is a set of practices, including (but not limited to):

- \* community energy projects  
people who don't own their own roofs, or who don't have the capital necessary to go green on their own, pool resources and cooperatively own an energy system like a solar array that produces power for themselves and other members of their community.
- ways of financing green energy for low income communities
  - e.g., a revolving loan fund creates a source of credit that families and/or community institutions can access in order to make energy efficiency improvements or switch to renewable power generation, where the money used is paid back into a growing fund.
- \* participatory planning  
develops structures and processes that ensure the communities affected by dirty energy production get a real say in what the path to clean power looks like.

Energy justice intersects with racial justice, housing justice, and other struggles against entrenched inequities. An energy democracy project can target any kind of energy injustice as long as it centers people and planet over profit and ensures that those who have been most burdened by dirty energy are centered in decision-making. For instance, low income, mainly BIPOC residents pay a higher percentage of their income on utilities, in part because their homes are poorly insulated. A campaign to upgrade old rental properties in order to lower the energy burden of low income residents targets one form of energy injustice, but it is not an energy democracy project unless it centers the energy-burdened residents in decision-making.

<https://thenextsystem.org/sites/default/files/pdfs/2022-03/energy-democracy-deck.pdf>

# Energy Democracy Word Search

R	T	C	T	C	O	O	P	C	A	O	Q	B	T
B	W	T	R	N	E	E	R	G	N	Q	I	J	Y
Y	A	I	R	E	A	S	A	C	A	I	Q	U	T
H	T	T	N	G	M	O	E	I	E	R	E	S	I
E	Y	I	T	C	L	L	I	I	L	E	J	T	C
A	C	T	U	E	R	A	R	N	C	N	P	I	I
L	A	H	O	Q	R	R	Y	V	R	E	O	C	R
T	R	G	E	L	E	Y	O	E	Y	W	L	E	T
H	C	I	H	L	I	T	W	R	N	A	L	R	C
Y	O	L	S	S	Q	O	R	T	E	B	U	E	E
L	M	N	E	C	P	R	C	E	T	L	T	N	L
I	E	U	Y	A	B	L	E	R	Y	E	I	C	E
E	D	S	R	Y	T	I	N	U	M	M	O	C	D
T	L	L	L	P	E	O	F	A	I	R	N	N	O

POWER  
HEALTHY  
POLLUTION  
COOP  
GREEN  
BATTERY  
INVERTER  
CLEAN  
SUNLIGHT  
RENEWABLE  
EQUITY  
ELECTRICITY  
JUSTICE  
FAIR  
DEMOCRACY  
COMMUNITY  
SOLAR

Play this puzzle online at : <https://thewordsearch.com/puzzle/6951635/>

RENEW Worcester Community Energy Cooperative wants everyone in Worcester to be able to use solar power. Can you find words that we use to talk about COMMUNITY SOLAR PROJECTS?







## **WHAT IS RENEW WORCESTER?**

We're an energy justice organization. We believe in energy for the people. We believe that everyone should have access to free or low-cost solar energy. We also are a community energy cooperative, a member of Co-op Power, which has the experience and resources to help us build the energy future we want. They have helped develop community owned energy systems in other cities in Massachusetts based on community input. We can do that here.

## **WHO IS RENEW WORCESTER?**

We are your friends and neighbors. We've been around since 2016. We are not a for-profit company. We are not sales people. We're your neighbors. We live in rentals, deal with drafty or stuffy homes, and we pay high electricity and gas bills.

## **WHY SHOULD YOU CARE?**

Burning oil or gas to heat our homes or cook pollutes the air we breathe inside and outside our homes. It causes health problems, like asthma and heart disease. It's especially dangerous for children whose lungs are still growing, and during pregnancy.

The gas pipes that lie under our streets are very old, and leak poisonous, explosive fumes. The same oil and gas pollution that builds up in our homes is also outside in our neighborhoods, where it creates smog, traps heat, kills our trees, and leaks near our schools.

## **WHAT WE CAN DO**

We can build a different energy system that uses clean renewable sources of energy, like the sun.

The federal and state governments are putting billions of dollars towards building new energy systems, but we don't always have a say in how it's used.

We believe that we, the residents of Worcester, should have a say in the types of energy systems that power our homes and businesses. Our choices should not be dictated by people who don't live here, or sold to us by for-profit energy companies.

We can bring solar energy to Worcester in a way that gives us ownership and control over the energy we use. But we have to do it together.

YOU CAN HELP SHAPE WORCESTER'S  
ENERGY FUTURE. LEARN MORE at  
<https://tinyurl.com/RENEWWorcesterCEC>



**Scan me to take the survey.**



**We believe in Energy Democracy & Community Solar for Worcester. Learn how you can be part of a just transition to a clean, equitable energy system a**

<https://tinyurl.com/RENEWWorcesterCEC>



**We believe in Energy Democracy & Community Solar for Worcester. Learn how you can be part of a just transition to a clean, equitable energy system a**

<https://tinyurl.com/RENEWWorcesterCEC>



**We believe in Energy Democracy & Community Solar for Worcester. Learn how you can be part of a just transition to a clean, equitable energy system a**

<https://tinyurl.com/RENEWWorcesterCEC>



**We believe in Energy Democracy & Community Solar for Worcester. Learn how you can be part of a just transition to a clean, equitable energy system a**

<https://tinyurl.com/RENEWWorcesterCEC>



**We believe in Energy Democracy & Community Solar for Worcester. Learn how you can be part of a just transition to a clean, equitable energy system a**

<https://tinyurl.com/RENEWWorcesterCEC>