

efargo

Energy Challenge 4.0  
STUDENT'S GUIDE





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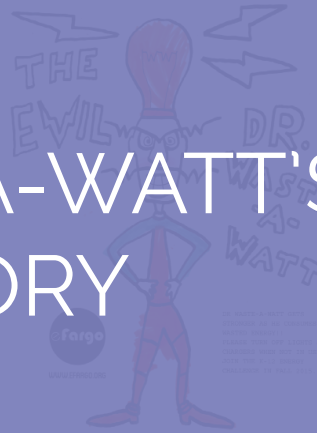
Activist Friday

## DISCOVER

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# WASTE-A-WATT'S STORY



## WASTE-A-WATT

is a greedy super-villain who gains power from energy that is wasted.



When energy is  
wasted in the city,  
Waste-A-Watt grows

**STRONGER!**



His goal is to make us waste  
more energy so he can become  
**SUPER-POWERFUL**  
and take over the city!




We will work  
together to save  
energy and...

## **CAPTURE**

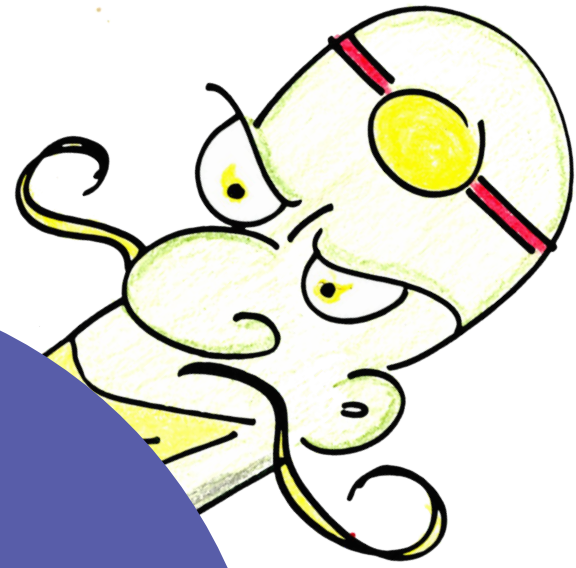
the evil Waste-A-Watt!







YOU, Energy  
Superheroines and  
Superheroes,  
can stop him  
in his tracks!



# GAME TIMELINE

# WEEK 1 - KICK-OFF

The goal is to do these energy-saving actions throughout the Energy Challenge and develop them as everyday habits.  
(1 minute/energy-saving habit)



Kick-Off  
pg. 16-17



Lighting  
pg. 18-19



Devices  
pg. 20-21



Heating/  
Cooling  
pg. 22-23



Activist  
Friday  
pg. 24-25

MONDAY

## KICK-OFF

(pg. 16-17)

### SET UP:

(5 minutes)

Hang the game board up and attach your first dashboard!



## APPOINT A STUDENT LEADER

(15 minutes)

Work with your teacher to randomly select a classroom leader who will lead the entire class through this Energy Challenge.

TUESDAY



LIGHTING  
DAILY HABITS



## ENERGY CARDS

(30 minutes)

Go through the energy cards in the game box to learn about and take energy-saving actions.



## TAG THE WASTE

(15 minutes)

Use the stickers in the game box to tag areas in your classroom that waste energy.

WEDNESDAY



LIGHTING  
DAILY HABITS



DEVICES  
DAILY HABITS



## TAKE A PLEDGE

(10 minutes)

With your knowledge about energy-saving so far, write on the board in your classroom one way you plan to reduce energy use in your classroom and school.

THURSDAY



LIGHTING  
DAILY HABITS



DEVICES  
DAILY HABITS



HEATING/  
COOLING  
DAILY HABITS



## HOME ENERGY-SAVING VIDEO

(3 minutes)

Watch this video to learn about energy-saving tips at home:  
[bit.ly/1Yt2q6H](http://bit.ly/1Yt2q6H)

FRIDAY

## ACTIVIST FRIDAY: SPREAD THE WORD

(pg. 24-25)



POSTER  
CONTEST  
(30 minutes)



HOME  
GAME  
(20 minutes)

Send a picture of your dashboard to:  
[info@efargo.org](mailto:info@efargo.org)  
Then, start a new dashboard!

# WEEK 2 - LIGHTING

MONDAY

## KICK-OFF:

(pg. 16-17)



SET GOALS

(10 minutes)

## LEARNING ACTIVITY:

(pg. 16-17)



FOOT-CANDLE LIGHT METERS

(30 minutes)

TUESDAY



LIGHTING ENERGY PATROL

(5 minutes)



LIGHT BULB VIDEO

(2 minutes)



LIGHT IT RIGHT! GAME

(15 minutes)

WEDNESDAY

## PLAY

(pg. 18-19)



MISSION LIGHTING GAME

(5 minutes)



LIGHT BLACKOUT HOUR

(1 hour)

THURSDAY



LIGHT POWER DAY

(all day)



CLASSROOM DESIGN

(30 minutes)



LIGHT BULB COMPARISON

(30 minutes)

FRIDAY

## ACTIVIST FRIDAY:

SPREAD THE WORD

(pg. 24-25)



ADOPT A HALLWAY

(all day)

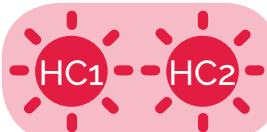
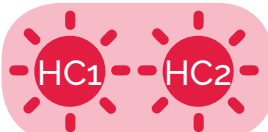


MINIMIZE LIGHTING

(30 minutes)

Send a picture of your dashboard to:  
[info@efargo.org](mailto:info@efargo.org)  
Then, start a new dashboard!

DAILY HABITS



# WEEK 3 - DEVICES

MONDAY      TUESDAY      WEDNESDAY      THURSDAY      FRIDAY

**KICK-OFF:**  
(pg. 16-17)

**K6**  
SET GOALS  
(10 minutes)

**LEARNING ACTIVITY:**  
(pg. 16-17)

**K8**  
KILL-A-WATT METERS  
(45 minutes)

**PLAY**  
(pg. 20-21)

**D3**  
DEVICES ENERGY PATROL  
(5 minutes)

**D4**  
SCHOOL UNPLUG  
(1 minutes)

**D5**  
ENERGY STREET, ENERGY CONSERVATION GAME  
(15 minutes)

**D6**  
DEVICES BLACKOUT HOURS  
(1 hour)

**D7**  
NIGHT UNPLUG  
(5 minutes)

**D8**  
VENDING MACHINE UNPLUG  
(5 minutes)

**D9**  
PHANTOM WASTE  
(10 minutes)

**D10**  
ESTIMATING HOME ENERGY  
(30 minutes)

**ACTIVIST FRIDAY:**  
SPREAD THE WORD  
(pg. 24-25)

**A5**  
COLD LUNCH DAY  
(15 minutes)

**A6**  
SPREAD YOUR DAILY HABITS!  
(5 minutes)

Send a picture of your dashboard to:  
[info@efargo.org](mailto:info@efargo.org)  
Then, start a new dashboard!

DAILY HABITS


# WEEK 4 - HEATING/COOLING

MONDAY

## KICK-OFF:

(pg. 16-17)



SET GOALS

(10 minutes)

## LEARNING ACTIVITY:

(pg. 16-17)



VIRTUAL REALITY

(15 minutes)

OR/AND



ONLINE 360

(15 minutes)

TUESDAY



SHADING ENERGY PATROL

(5 minutes)



THERMOSTATS

(5 minutes)



SCHOOL THERMOSTAT

(5 minutes)

WEDNESDAY

## PLAY

(pg. 22-23)



AFTER-HOURS THERMOSTAT

(5 minutes)



SOLAR DEFENDERS GAME

(10 minutes)

THURSDAY



ENERGY SOURCE

(5 minutes)



SOLAR COOKERS

(30 minutes)



INSULATION EXPERIMENTS

(30 minutes)

FRIDAY

ACTIVIST

FRIDAY:

## SPREAD THE WORD

(pg. 24-25)



REDUCE SOLAR HEAT GAIN

(30 minutes)



CLASSROOM AWARENESS

(30 minutes)

Send a picture of your dashboard to:  
[info@efargo.org](mailto:info@efargo.org)

DAILY HABITS



# PARTICIPATION

.....

Participation is measured by the number of students who took part in an activity. ....

1 point:  
small group  
participated

5 points:  
half the class  
participated

10 points:  
whole class  
participated

.....


**KICK-OFF**







1 point

**K1** **APPOINT A CLASSROOM LEADER**  
(3 minutes)  
 Pick a student who will lead the entire class through this Energy Challenge.

**K3** **TAG THE WASTE**  
(10 minutes)  
Use the stickers in the game box to tag areas in your classroom that waste energy.

**K4** **TAKE A PLEDGE**  
(10 minutes)  
With your knowledge about energy-saving so far, write on your classroom board one way you plan to reduce energy use at school and home.

**K5** **HOME ENERGY-SAVING VIDEO**  
(3 minutes)  
Watch this video to learn about some energy-saving tips at home: [bit.ly/1Yt2q6H](http://bit.ly/1Yt2q6H)


**K6** **SET GOALS**  
(5 minutes)  
Set daily energy-saving goals on the game dashboard!





**K2** **ENERGY CARDS**  
(3 minutes)  
Use the energy cards given in the game box to learn about how Waste-A-Watt wastes energy in your home and school and *how you can stop him!*



10 points

**K7** **FOOT-CANDLE LIGHT METERS**  
(30 minutes)  
 Learn how to measure lighting levels in an area using the light meter given in the box and compare your measurements to recommended light levels.

**K8** **KILL-A-WATT METERS**  
(45 minutes)  
 Find out how much electricity a device uses and costs!

**K9** **VIRTUAL REALITY**  
(15 minutes)  
 Scan the QR code to the right with a mobile device and use it with the VR glasses to find out where Waste-A-Watt is hiding!



**K10** **ONLINE 360**  
(15 minutes)  
Use the link below to find out where Waste-A-Watt is hiding: [efargo.org/360](http://efargo.org/360)



If you see this symbol next to an activity, ask your teacher for help!





1 point

**L1**

### DAILY HABIT

Keep lights off unless you need them!

**L2**

### DAILY HABIT

Remind someone to turn off lights unless he/she needs them!

### LIGHTING ENERGY PATROL

(5 minutes)

**L3**

Assign a new lighting energy patrol officer each day who makes sure classmates are following energy-saving actions. "Officer, remember to wear your badge throughout the school day!"

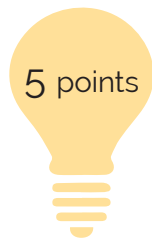
### LIGHT BULB VIDEO

(2 minutes)

**L4**

Watch this video to learn about the three types of energy-saving light bulbs.

//bit.ly/2pulWFr



5 points

### LIGHT IT RIGHT! GAME

(15 minutes)

**L5**

Play this game to get into the habit of switching the lights off when you leave a room.

bit.ly/2Do1G3q

### MISSION LIGHTING GAME

(5 minutes)

**L6**

Play this game to learn about eco-friendly lighting:

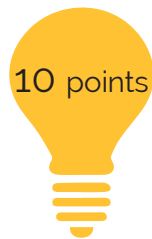
bit.ly/2DZ5ldu

### LIGHT BLACKOUT HOUR

(1 hour)

**L7**

Turn off all lights in the classroom for an hour.



10 points

### LIGHT POWER DAY

(All Day)

**L8**

Go a day without switching any lights on. Make use of daylighting! Be mindful of foot-candles.

### CLASSROOM DESIGN

(30 minutes)

**L9**

Work with your teacher to rearrange your classroom layout!

**L10**

### LIGHT BULB COMPARISON

(30 minutes)

Find out which type of light bulbs are used in different parts of the school.



If you see this symbol next to an activity, ask your teacher for help!



1 point

### DAILY HABIT

**D1** Unplug a coffee maker, microwave, TV, or other device when not in use.

### DAILY HABIT

**D2** Switch off a computer or projector when not in use.

### DEVICES ENERGY PATROL

(5 minutes)

**D3** Assign a new devices energy patrol officer each day who makes sure classmates are unplugging and switching off any unused devices. "Officer, remember to wear your badge throughout the school day!"

### SCHOOL UNPLUG

(1 minute)

**D4** Unplug an unused device outside your classroom!

### ENERGY STREET, ENERGY CONSERVATION GAME

(15 minutes)

**D5** Play this online game to learn about devices used in various settings:

[bit.ly/2NfDPHE](http://bit.ly/2NfDPHE)

username: *efargo.energychallenge*  
password: *F2018*

### DEVICES BLACKOUT HOUR

(1 hour)

**D6** Switch off all devices in the classroom for an hour.

### NIGHT UNPLUG

(5 minutes)

**D7** Unplug any devices that waste energy in the classroom at the end of the school day.

5 points

### VENDING MACHINE UNPLUG

(5 minutes)

**D8** Work with your facilities manager to unplug a vending machine before going home for the weekend.

### PHANTOM WASTE

(10 minutes)

**D9** Read this article to learn how to avoid phantom waste at school and at home:

[bit.ly/2Jqb7On](http://bit.ly/2Jqb7On)

### ESTIMATING HOME ENERGY

(30 minutes)

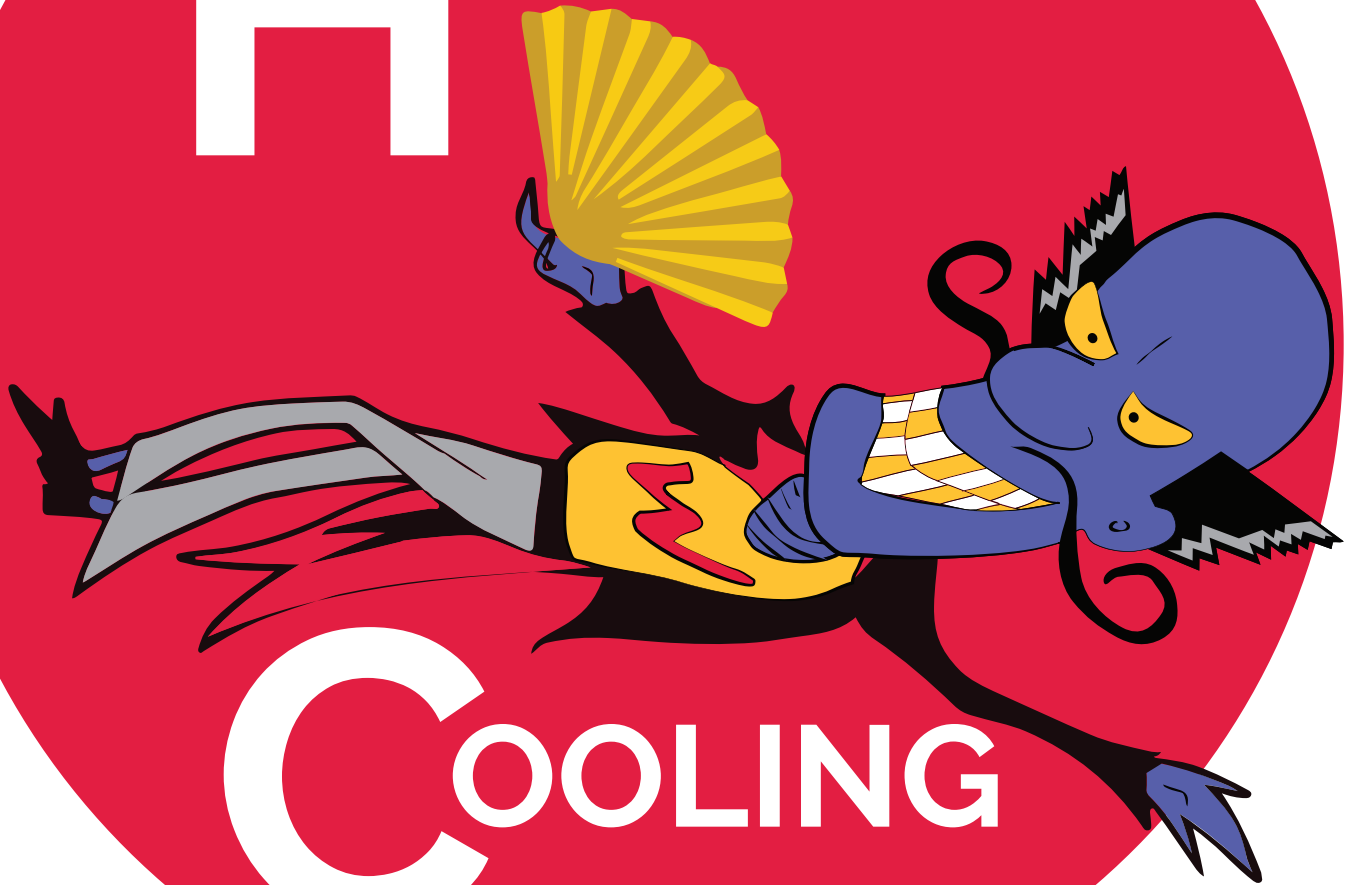
**D10** Using the link below to estimate how much energy you might be using at home and how much that costs you per month, year:  
[bit.ly/2H62OgG](http://bit.ly/2H62OgG)

10 points



If you see this symbol next to an activity, ask your teacher for help!

**H** HEATING



**C** COOLING



**DAILY HABIT**

**HC1** During the winter, leave the blinds open to let in the sun's heat during the day, then close them before leaving at night to keep the heat in!

**DAILY HABIT**

**HC2** During the summer, keep the blinds closed to reduce heat gain during the day, then open them before leaving at night to allow heat to escape.



**SHADING ENERGY PATROL**  
(5 minutes)

**HC3** Assign a new heating/cooling energy patrol officer each day who makes sure classmates are following energy-saving actions. "Officer, remember to wear your badge throughout the school day!"

**THERMOSTATS**  
(5 minutes)

**HC4** Watch this video to learn how you can set your thermostats to save energy and money:  
[bit.ly/2NxZjzt](http://bit.ly/2NxZjzt)



**SCHOOL THERMOSTAT**  
(5 minutes)

**HC5** Work with your facilities manager to find out what your school's thermostat is set to in the summer and the winter.

**AFTER-HOURS THERMOSTAT**  
(5 minutes)

**HC6** Work with your facilities manager to find out if your school resets thermostats during after hours.

**SOLAR ENERGY DEFENDERS GAME**  
(15 minutes)

**HC7** Play this online game to learn about the power of solar energy:  
[bit.ly/2pyv77p](http://bit.ly/2pyv77p)  
username: *efargo.energychallenge*  
password: *F2018*




**ENERGY SOURCE**  
(5 minutes)

**HC8** Work with your facilities manager to find out where the energy that produces your heating and cooling comes from.

**SOLAR COOKERS**  
(30 minutes)

**HC9** Create solar cookers to learn about the power of solar energy.



**INSULATION EXPERIMENTS**  
(30 minutes)

**HC10** Learn about the insulation properties of different materials.




If you see this symbol next to an activity, ask your teacher for help!

# ACTIVIST FRIDAY







### POSTER CONTEST

(30 minutes)

A1



Create signs and posters that remind your classmates about energy-saving.

### HOME GAME

(20 minutes)

A2

Take a game sheet home and play this game with your family! Find out whether your family's energy-use at home has a positive influence on the environment or has potential to improve!

### ADOPT A HALLWAY

(All day)

A3

Make sure lights are turned off in the hallway when they're not being used throughout the day. Put up a sign that says that your classroom has adopted this hallway!

### MINIMIZE LIGHTING

(30 minutes)

A4

Classrooms and hallways usually have more light fixtures than needed. Go around your school and see how many lights you can turn off while still having enough lighting to serve the people occupying the space.

### COLD LUNCH DAY

(30 minutes)

A5

This Friday, eliminate the use of food heating devices. If you eat from the school's cafeteria, pick all the cold food options that didn't use a device to cook/heat it. If you bring food from home, encourage your family to prepare a cold food lunch box for you!

### SPREAD YOUR DAILY HABITS!

(5 minutes)

A6



Encourage a new student, teacher, or staff member to perform all the energy-saving daily habits in one day!

### REDUCE SOLAR HEAT GAIN

(30 minutes)

A7



Work with your teacher to learn how and where trees could provide shade to reduce solar heat gain.

### CLASSROOM AWARENESS

(30 minutes)


A8



With your teacher, prepare to present in another classroom what you have done and learned about in the Energy Challenge this year!



If you see this symbol next to an activity, ask your teacher for help!



Discover more  
about energy saving  
through these online  
games:



Energy  
Saving  
Choices

**1. Go Green:**  
[go.nasa.gov/2ynNrZj](http://go.nasa.gov/2ynNrZj)

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**3. Climate Bingo:**  
[go.nasa.gov/2GuNo16](http://go.nasa.gov/2GuNo16)

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**4. Mission Possible:**  
[bit.ly/2xnZOlo](http://bit.ly/2xnZOlo)

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**5. Nico the Ninja:**  
[bit.ly/2Gdj23K](http://bit.ly/2Gdj23K)

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**6. Take Action for Your Planet**  
[bit.ly/2OukJdx](http://bit.ly/2OukJdx)

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Energy  
Saving at  
Home

**1. Energy Hog:**  
[bit.ly/2MxfJmx](http://bit.ly/2MxfJmx)

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**2. Energy Smart House:**  
[bit.ly/2QBpYJS](http://bit.ly/2QBpYJS)

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Climate  
Change

**1. OFFSET!:**  
[go.nasa.gov/2p3kjSl](http://go.nasa.gov/2p3kjSl)

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**2. Climate Trivia:**  
[go.nasa.gov/2oHjjlC](http://go.nasa.gov/2oHjjlC)



Energy  
Sources

**1. Power Producer:**  
[bit.ly/2G8CNJL](http://bit.ly/2G8CNJL)

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**2. Hungry Mice:**  
[bit.ly/2CZwCXo](http://bit.ly/2CZwCXo)

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**3. Plug 'n' Socket:**  
[bit.ly/2OoYSUC](http://bit.ly/2OoYSUC)

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**4. Save the World:**  
[bit.ly/2n7d35y](http://bit.ly/2n7d35y)

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**5. Power Up:**  
[go.nasa.gov/2s6Mgtb](http://go.nasa.gov/2s6Mgtb)

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**6. Energy Flows:**  
[bit.ly/2ISlUki](http://bit.ly/2ISlUki)