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Our electrifying Girl Power challenge has been developed in partnership with Electricity North West who are one of 14 distribution network operators across the UK. They are responsible for the electricity distribution network in the North West of England; their geographical area of responsibility reaches from the Scottish border to the bottom of the Greater Manchester area.

We are extremely proud of this challenge pack as it really does have lots of fun and exciting activities for you to take part in with your units, all whilst learning about some very important topics, such as electrical safety, energy efficiency, the priority services register and low carbon networks.

We are very lucky that Electricity North West are fully funding this challenge pack, which means that the badges for completing the challenge are free to our members across the region! So, please enjoy!

We'd really love to see what you get up to as part of the challenge. Be sure to send your pictures to northwesthq@girlguidingnwe.org.uk or connect with us on social media:



@GirlguidingNorthWestEngland



@girlguiding_NWE



@girlguidingnwe

Produced in conjunction with:







How to complete the challenge

Girl Power is split into four sections; Electrical Safety, Energy Efficiency, Priority Services Register and Low Carbon Networks.

The challenge pack is suitable for all sections to take part in. You can choose to complete activities as a Six, Patrol, unit.... Or another grouping of your choice!

You should feel free to incorporate your own ideas and activities if they are relevant to the challenge.

We recommend you spend a minimum of three unit meetings working on the challenge. Rainbows and Brownies should aim to complete 1 activity from each of the 4 sections, plus at least 2 more activities from any section. Guides and Rangers should aim to complete at least 2 activities from each of the 4 sections. However, we think that you'll find the activities really exciting and therefore you'll probably complete more activities than required!

There are some handy guidance notes for leaders on some of the challenges to help you make them more challenging for older sections.

There are also some exciting competitions for you to complete along the way. Electricity North West will be judging the entries, as well as supplying some exciting prizes for units. Please do look out for these competitions in the pack, as you can submit entries at the same time as claiming badges.

This is a fun badge, not a qualification and a flexible approach is required. As long as you have taken a full and active part in the challenge, then you should receive your badge.

How to order your badges

On completion of the activities, you can claim your Girl Power badges. The badges are free, so just email us at northwesthq@girlguidingnwe.org.uk and let us know how many badges you need. Don't forget to also send us any competition entries at the same time.

We'd also love to hear how you found the challenge, so we'll send you a feedback form. We would really appreciate it if you can complete this and return it as soon as you can, to help us with our future plans.







EQUIPMENT (PER MOTOR):

f 1x sheet of paper
f 1x pencil
F Blu tack/modelling clay
F Plastic ruler
F abric cloth

Static Science! Static electricity occurs when negative charges (electrons) transfer from one object to another. This means the objects become electrically charged!

ESTIMATED TIME: 20 MINUTES

METHOD:

1. Cut your sheet of paper into a square. A trick to doing this is to fold one corner of the sheet down diagonally, and that will show you how much of the rectangle to cut off (see diagram below):



2. Next, fold the square in half lengthways and then open it back up. Fold it in half again in the other direction and open it back up again. Your square should now look like this:



3. Roll the Blu tack/modelling clay into a ball and use it to stand the pencil up off the table, with the lead pointing upwards.

4. Next, balance the square of paper on top of the pencil. You should be able to rest the centre of the paper (where the fold lines meet) on the tip of the pencil. Your motor should now look like this:

5. Now that your motor is constructed, you need to charge up your ruler. Quickly rub the ruler with the cloth for 40 seconds.

6. Try and get your motor to spin by moving the charged ruler in circles around the sheet of paper. Once it stops moving, simply recharge and go again!



EQUIPMENT:

Clean, empty drinks can
Plastic ruler
Fabric cloth

ESTIMATED TIME: 10 MINUTES

MOUNG CANS

METHOD:

1. Rub the ruler quickly with the cloth for 40 seconds, to charge it up.

2. Lie the drinks can on its side on a clear, flat surface.

3. Hold the charged ruler close to the can to make it move. Which direction does it move in? Is it attracted or pushed away?

STATC





1x matchstick
15 cm thread
1x drinking glass
Scissors
Sticky tape
Plastic ruler
Fabric cloth

Fun Fact! Static electricity will build up faster on a dry, nonhumid day.

STATIC

ESTIMATED TIME: 20 MINUTES

METHOD:

1. With the help of a leader, cut off the flammable head of the match.

2. Now, tie the end of the piece of thread around the middle of the trimmed match.

3. Tape the other end of the thread to the bottom of the inside of the glass, so that when you turn the glass upside-down, the thread and the match hang downwards - like this:

4. Next, charge up the ruler by rubbing it quickly with the cloth for 40 seconds.

5. Now, hold the charged ruler against the outside of the glass. Try repeatedly moving the ruler away from and then back close to the glass and watch the match begin to swing.



EQUIPMENT:

FRUNNING WATER
Plastic ruler
Fabric cloth

ESTIMATED TIME: 10 MINUTES

METHOD:

1. Quickly rub the ruler with the fabric cloth for 40 seconds, to charge it up.

2. Turn the tap on so there is a constant stream of running water.

3. Hold the ruler close to the water and watch it bend!



GUIDANCE FOR LEADERS:

To make any of these activities more challenging for Guides and Rangers, supply the girls with more than just a plastic ruler and fabric cloth. For example, a wooden rolling pin, balloon and cardboard tube could be provided as well as a plastic ruler, and a newspaper and different types of material could be provided as well as a fabric cloth.

Get the girls to investigate which combinations work to create a static charge, which don't work at all, and whether some combinations produce a greater effect than others.

STATIC





EQUIPMENT (PER GROUP):

Circuit board kit containing:

- FBulb
- FBulb holder
- Battery holder
- **Switch**

FBattery (compatible with the battery holder)

ESTIMATED TIME: 30 MINUTES

Circuit Science! Electricity is flow of negative charges (electrons) around a circuit. As all the circuit components (even potatoes!) conduct electrons, the bulb lights up!

METHOD:

1. Identify the different components of the circuit and discuss what you think each of their roles are. What would happen if one of these components were removed from the circuit?

2. Now, with a Leader's help, connect all of the components of the circuit with the crocodile clip wires, making sure that all of the connections are secure.

3. Next, place the battery in the battery holder, so that '+' and '-' symbols match up correctly.

4. Press down on the switch to complete the circuit - you should see the bulb light up! If the light doesn't come on, check that all of the crocodile wire clips are correctly attached and try again.





EQUIPMENT (PER CIRCUIT):

4x crocodile clip wires
Bulb (1.5V LED lamps work best)
Bulb holder
3x copper coins
3x zinc coated nails
3x potatoes



CRAL

ESTIMATED TIME: 30 MINUTES

METHOD:

1. Wash the potatoes to get rid of any dirt that might interfere with the circuit.

2. Now, stick a copper coin and a zinc nail into opposite sides of each potato, making sure there is enough coin/nail left poking out to be able to attach the crocodile clip to.

3. Using the crocodile clip wires, connect all of your potatoes together. The copper coins and zinc nails should alternate in the circuit - like this:



4. Now, connect the end potatoes to the bulb holder using more crocodile clip wires.

Don't miss our guidance for leaders on the following page! 5. Next, place the bulb in the bulb holder and watch it light up!

GUIDANCE FOR LEADERS:

Depending on the type of bulb you are able to source, you may need more potatoes to be able to successfully light it up. As a guide, one potato can produce approximately 0.5V.

We recommend that you test the circuit first, to make sure all the circuit components work properly.

To make this activity more challenging for Guides and Rangers, try asking the girls to investigate whether the number of potatoes, or the type of fruit/vegetable in the circuit affects the brightness of the bulb.



EQUIPMENT (PER CIRCUIT):

- **F**Scissors
- Colouring pens/pencils
- Glue/sticky tape

ESTIMATED TIME: 30 MINUTES

METHOD:

1. Cut out all of the components for your circuit and colour them all in, except the bulb.

2. Now, arrange the circuit components as if you were building a real circuit. Remember, the bulb holder and battery holder have to be connected with crocodile clip wires!

3. Next, use glue or sticky tape to connect the circuit components together. Add the uncoloured bulb to the circuit by sticking this on top of the bulb holder.

4. The bulb isn't lit up as your circuit doesn't have a power source! Stick the battery on top of the battery holder and colour the bulb in yellow to represent it lighting up.

- if thunderstorms are likely
 Check the weather forecast before you go outside and cancel your plans
- If you see lightening, think 30-30. Start counting to 30 after you see a lightning strike and if you hear thunder before you reach 30, it's important to head indoors. Wait for 30 minutes after you last hear thunder before going back outside.
- Remember the rule: When thunder roars, go indoors! If you are outdoors and hear thunder, stop what you are doing and find a safe, enclosed shelter. This could be your home, a shop, or car with the windows rolled up.
- If you are caught outside when lightning strikes and you can't find shelter, there are other ways you can reduce your risk. Come down from hills and mountains and keep away from ponds, lakes and rivers; stay away from barbed wire fences and powerlines as these will conduct lightning; never take shelter under a tree; don't lie flat on the ground, instead, crouch in a ball with your head tucked into your chest and your hands over you ears.

3. Now, get creative and design a poster, leaflet, or even a video which you can share to educate others on how to keep safe in a thunderstorm.

2. There are different ways you can protect yourself from lightning strikes. With a Leader's help, find out about the 30-30 rule, When Thunder Roars Go Indoors, and what to do if you are caught outside in a thunderstorm.

1. As a unit, discuss what you think you should do if you are outdoors and see lightning or hear thunder. Should you carry on doing what you are doing, or are there certain safety precautions you should take?

ESTIMATED TIME: 45 MINUTES

O INDOORS

HEN THUNDER ROAR

THUNDER & LIGHTNING

Lightning Science! Lightning is the flow of charge through the atmosphere, between the sky and ground. This occurs because of a build up of static electricity in clouds.



EQUIPMENT:

Fubber glove
Plastic fork
Tin foil
Wood or plastic chopping board
Balloon

ESTIMATED TIME: 20 MINUTES

Fun Fact! Lightning strikes travel at 270,000 mph, meaning it would take under an hour to travel to the moon.

THNDERS

LICHTNING

METHOD:

1. Wrap a piece of tin foil around the prongs of the plastic fork, trying to make the surface as flat as possible. It should look like a little spatula.

2. Now, put the rubber glove on one hand and use this hand to rub the balloon against your hair.

3. Now, put the charged balloon onto the chopping board and use your gloved hand to pick up the fork.

4. Hold the tin foil-covered part of the fork to the balloon, still using your gloved hand, then touch the foil with your other hand. Did you see a spark?!

5. If you want to recreate the effect again, simply recharge the balloon by rubbing it against your hair and repeat the experiment.

GUIDANCE FOR LEADERS:

For better results, conduct this experiment in a room that can be darkened as much as possible.





(RAINBOWS & BROWNIES)

EQUIPMENT:

Danger high voltage printout
Paper

Feins

ESTIMATED TIME: 45 MINUTES

1. There are lots of different things you can do to keep yourself safe around electricity. How many hazards can you spot in the home and outside?

2. Now, create a poster to warn others of the dangers and help them to stay safe around electricity.

(GUIDES & RANGERS)

EQUIPMENT:

Paper
Pens
Video camera/phone/tablet

ESTIMATED TIME: 45 MINUTES

1. Make a list of all hazards associated with using electricity. For each hazard, try to think of a way you could reduce or eliminate the risk.

2. Now, as a unit, share all of the ideas you have thought of. How many hazards and safety precautions have you identified?

3. Next, in Sixes or Patrols or as a unit, create a video advising others how to stay safe around electricity.





Book/newspapersBroom/Electric Shock Rescue Hook

ESTIMATED TIME: 30 MINUTES

1. As a unit, discuss what you already know about first aid. What would you do if you came across a person lying unconscious on the floor, especially if there were wires or powerlines nearby?

If you suspect that the person has sustained an electric or high voltage shock, it's important that you act carefully so that you don't suffer a similar shock too.

2. If the situation looks too dangerous to attend to the casualty, for example, if a high voltage line has fallen to the ground, you should call 999 and not move any closer.

3. If you think you are able to clear the power source away from the casualty, you should first stand on a dry, insulating material such as a book or newspaper. Then, using a long, low-conductivity object such as a broom handle, carefully push the power source away from the casualty.

4. Now, put what you've learnt into practice!

Choose someone to lie down and pretend to be a victim of an electric or high voltage shock. Can you work together to decide what action should be taken in this situation? What items do you have to hand in your unit meeting place to help you?



It's important that you take these precautions so that electricity doesn't flow from the casualty to yourself. By standing on an insulating material you are blocking the flow of electrons.



FRSTA





EQUIPMENT:

Feaper
Fens

ESTIMATED TIME: 30 MINUTES

1. As a unit, discuss why you think energy efficiency is important.

2. There are lots of reasons, as lots of our lifestyle choices affect issues such as climate change and water scarcity (where there isn't enough clean water to go around). If we keep taking as much as we want, whenever we want, our planet's resources could one day run out.

3. The real secret of how to save the planet? Sharing your knowledge with others, and helping them to become eco-heroes too! It takes lots of people working together to make change happen - so share, share, share!

Make a poster to put in your unit meeting place or house window to let others know how important it is.

Guidance for Leaders:

To make this activity more challenging for Rangers, they could write a blog or film a vlog for The Guiding Vibe

<u>Welcome to The Guiding Vibe -</u> <u>Girlguiding North West England</u>



211

CARBON FOOTPRINT -PAST, PRESENT & FUTURE



DUNA

EQUIPMENT;

F Paper
F Pens
F Pens
F Paper
F

ESTIMATED TIME: 45 MINUTES

1. Our carbon footprint is the term given to the amount of carbon dioxide we emit going about our daily lives. Lots of our lifestyle choices and dayto-day activities emit excess carbon dioxide and add to our carbon footprint.

2. Find out about the history of carbon footprints. What happened in the industrial revolution that kickstarted the increase in carbon dioxide levels?

3. Share what you've found, and discuss what you think has become the biggest contributor to our carbon footprint.



Competition!

4. Now, think about what might happen to help reduce our carbon footprint in the future.

Design your own carbon-free invention that would help to limit the excess carbon dioxide we produce - don't worry about the science, just the idea!

5. When your Leader requests badges for your unit, she can submit your idea and the winning design will win an exciting prize!



EQUIPMENT:

Paper
Pen/pencil
Clipboard (optional)

ESTIMATED TIME: 60 MINUTES

Fun Fact! There are currently over 30 million cars registered on UK roads

1. Lots of vehicles emit excess carbon dioxide in their exhaust fumes which is a big contributor to our carbon footprint. There are lots of ways to reduce this impact, for example by walking, cycling, or using public transport.

2. How many cars, bikes, buses and pedestrians travel past your unit meeting place? Head outside and keep a tally of how many of each of the different types of transport you see throughout your unit meeting.

3. Now, create a poster or leaflet to educate people about how harmful some forms of transport are to the environment, and the different forms of transport they could use to reduce their carbon footprint. You could even include some local data from your road survey to help persuade people!



Go

SAVE THE PLANET

ENERGY EFFICIENT HOUSE

EQUIPMENT (PER HOUSE):

House pattern (inside and outside) printed on white card (see appendix)
Colouring pens/pencils

- Felt or craft foam
- Glue
- Scissors
- F Clear plastic sheets (optional)

ESTIMATED TIME: 60 MINUTES

METHOD:

1. Colour in both sides of the house pattern, then cut them out along the thick, solid lines.

2. Now, stick both sides of the house together, making sure the pattern lines up and the decorated sides are facing outwards.

3. Cut the door along the top, bottom and one side of the door so that it opens.

4. With a Leader's help, cut out the windows. If you have clear plastic sheets, you can cut and stick this to your windows to represent actions you would take to properly insulate your home.

5. Now, carefully fold along the dashed lines and stick the house together with glue.

6. Next, glue the felt or foam to the floor of the attic, to insulate it.

7. Finally, use the glue to stick the roof to the top of your house.

8. Your house is finished! How many energy-saving tips can you find in your newly-built house?

COLOUR YOUR CARBON FOOTPRINT



211

EQUIPMENT:

Carbon footprint rings colouring sheet (see appendix)
 Red, blue, green and brown colouring pens/pencils

ESTIMATED TIME: 30 MINUTES

1. Have a look at the questions in this carbon footprint survey and use your answers to colour in your own carbon footprint.

Housing and Home Energy

1. If you live in a single-family home, colour 4 rings RED; if you live in an apartment or other type of home, colour 2 rings RED.

2. If you don't use energyefficient light bulbs such as CFLs (compact fluorescent), colour 1 more ring RED.

 If your home doesn't have a programmable thermostat, colour
 more ring RED.

4. If you are not familiar with the Energy Star appliance rating system, colour 1 more ring RED.

Transportation

5. For every small car in your family, colour 1 ring BLUE.

6. For every medium or large car in your family, colour 2 rings BLUE. 7. For every aeroplane trip you've taken in the past year, colour 1 more ring BLUE.

Personal Habits

8. If you are a vegetarian, colour 1 ring GREEN;

if you are not a vegetarian, colour 2 rings GREEN.

9. If you take baths, run the tap while brushing your teeth or washing dishes, or water your lawn several times a week, colour 1 ring GREEN.

Recycling and Waste

10. If you usually recycle your household rubbish, colour 1 ring BROWN; if you never recycle, colour 2 rings BROWN.

11. If you never compost your garden and kitchen waste, colour 1 more ring BROWN.

2. Now, using what you've found out about your carbon footprint, discuss what you could do to reduce its size.

FOOTPRINT

EQUIPMENT:

Paper
Pens
Calculator

1. As a unit, answer the following questions from our special Girlguiding North West carbon footprint calculator.

CALCULATE YOUR CARBON

Unit Size

1. How many girls make up your unit?

1-10: add 10 tonnes CO2 11-20: add 20 tonnes CO2 21-30: add 30 tonnes CO2 30+: add 50 tonnes CO2

2. How many leaders make up your unit?
1-2: add 5 tonnes CO2
3-4: add 10 tonnes CO2
5+: add 20 tonnes CO2

Transport

3. How many girls/leaders drive to/from the unit meeting place? 1-10: add 10 tonnes CO2 11-20: add 20 tonnes CO2 21-30: add 30 tonnes CO2 30+: add 50 tonnes CO2

4. How many girls/leaders share lifts to/from the unit meeting place? 1-5: minus 5 tonne CO2

6-10 minus 10 tonnes CO2 10+: minus 20 tonnes CO2 5. How many girls/leaders use public transport to/from the unit meeting place?

SAVE

1-5: minus 5 tonnes CO2 6-10: minus 10 tonnes CO2 10+: minus 20 tonnes CO2

6. How many girls/leaders walk to/from the unit meeting place?
1-5: minus 10 tonnes CO2
6-10: minus 20 tonnes CO2
10+: minus 30 tonnes CO2

Waste

7. How much waste do you generate in an average unit meeting?
No waste: minus 10 tonnes CO2
1 bin bag: add 5 tonnes CO2
2 bin bags: add 10 tonnes CO2
3+ bin bags: add 20 tonnes CO2

8. Does your unit meeting place have recycling bins? Yes, we always recycle everything we can: minus 20 tonnes CO2 Yes, we try to recycle when we remember: minus 10 tonnes CO2 No: add 20 tonnes CO2

> Don't miss more questions on the next page!

Energy

9. How many lights are currently on in your unit meeting place?
0: minus 10 tonnes CO2
1-5: add 5 tonnes CO2
6-10: add 10 tonnes CO2
10+: add 20 tonnes CO2 10. Do you use heating in your unit meeting place: Yes, it's on all the time: add 20 tonnes CO2

Yes, we only use it when we really need to: add 10 tonnes CO2 No, we never use any heating: minus 10 tonnes CO2

2. What was your unit's total carbon footprint?

0-49 tonnes CO2: Your unit has a low carbon footprint - amazing! 50-99 tonnes CO2: Your unit has a medium carbon footprint - well done, but there's still room for improvement! 100+ tonnes of CO2: Your unit has a high carbon footprint - how could you

reduce this in the future?

SEWING BEE CHALLENGE

EQUIPMENT:

- Items of clothing that you are happy to upcycle
- FNeedle and thread/fabric glue
- **F**Scissors
- Scraps of fabric
- Optional extras such as buttons, sequins and ribbon

ESTIMATED TIME: 60 MINUTES

1. One way to lower your carbon footprint is to limit the amount of new clothes you buy. Instead, to give old clothes a new lease of life you could have a go at upcycling them!

2. Find an old item of clothing that you don't mind cutting, sticking and sewing. This could be something that no longer fits you, or that you don't wear anymore.

3. Now, decide how you are going to upcycle your chosen item. A t-shirt into a tote bag? A pair of jeans into shorts?

4. Next, turn your idea into reality. Grab a needle and thread, or some fabric glue, and get creating.

5. Once your item is finished, why not hold an upcycled fashion show!



METHOD:

1. Remove the label from the bottle and wash off any sticky residue.

2. Next, use the permanent marker to mark out the placement of the holes of the watering can. On the side of the bottle, in the middle, draw a 5x5 square made up of 25 dots - like this:



3. Now, with a Leader's help, use a nail or drawing pin to push holes through where you have marked out.

4. With the help of a Leader, cut a 3 cm wide hole on the opposite side of the bottle. This will be where you fill the watering can with water.



5. Your watering can is finished! When you want to use it, make sure the bottle lid is on tightly and hold the bottle at an angle to fill it with water through the larger hole. Then turn the bottle horizontally so that water comes out of the small holes you made.



66 One person's trash is another person's treasure! 99

Another way to reduce waste and reuse items is to give them a new home!

Hold a spring fair selling unwanted items such as clothes, toys and books to generate funds for your unit or for a local charity that supports the environment.

CAMPAIGN

Think about a local energy efficiency issue that your unit is passionate about and think about ways that you can make a difference locally.

Perhaps you could invite a local Councillor or MP to a unit meeting, or write letters to discuss your concerns.

GREATE GHANGE



EQUIPMENT (PER GIRL):

Carbon footprint diary, printed on white paper or card
Colouring pens/pencils
Stickers (optional)

ESTIMATED TIME: 30 MINUTES

1. There are lots of different ways you can reduce your carbon footprint across lots of different aspects of your life, for example at home, shopping, food and recycling. Come up with a list of changes you can make to help reduce your carbon footprint and add these to your carbon footprint diary.

2. Now, decorate the carbon footprint diary however you would like - you are going to display it at home so make sure to choose a design you like!



3. Take the carbon footprint diary home with you and use it to record all the ways you reduce your carbon footprint over the next week. You could use your diary like a sticker chart, or just simply tick things off as you do them. Every time you do something to lower your carbon footprint, that's a point!

4. The following week, discuss how you got on with the rest of the unit. Were some things harder to do/change than others?

5. Now, add up all the points for all the girls in your unit. When your leader requests badges for your unit, she can let us know how many points you managed to rack up and the winning unit will earn a special prize!

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Competition!



LIVE WITHOUT ELECTRICITY



ESTIMATED TIME: 30 MINUTES

1. Try to live without electricity for a unit meeting - that means no lights and nothing that you have to plug into a socket to use!

2. Before you start, what are the things you need to think about? Are there any people in your patrol who may need some extra help and support during the meeting, how will you keep people safe? Power cuts might be planned, or the result of a fault in the electricity network. They can be caused by anything from water damage to birds flying into overhead cables!

3. At the end of the meeting, discuss how challenging you found it. How did you have to adapt? Was there anyone in your group who found it especially hard - why was that, what extra help or support did they need during the meeting? This may be someone who is unsteady on their feet or needed the toilet in the dark!

4. Create an emergency plan drawing from the challenges you have just faced and overcome so that you would be able to cope if there was a power cut or in an emergency that left you without electricity.

5. Why not put everything you have learnt into practice and set yourself a challenge to live without electricity for an evening, a day, or even a whole weekend!

GUIDANCE FOR LEADERS:

To make this activity more challenging for Guides and Rangers, ask the girls to create an emergency pack as well as an emergency plan.

What would go in the emergency pack, where would it be kept?





EQUIPMENT (PER GIRL):

Fea light

- Small foil pie dish
- Wooden peg
- Matches
- Something to cook, e.g. pancake batter or baked beans

ESTIMATED TIME: 45 MINUTES

METHOD:

1. Clip the wooden peg to the foil pie dish to create a miniature frying pan.

2. Light the tealight using a match. If you have long hair, make sure to tie it back before doing this.

3. Using the peg as a handle, hold the foil pie dish over the flame and add the food into it. You might need to use some oil if you are cooking something that might stick, like pancake batter.

4. Keep the foil pie dish held over the flame until the food has finished cooking.

5. Now it's time to tuck in - enjoy!

6. Now, either in groups or as individuals, create a menu for a three-course meal which wouldn't require any electricity to prepare or cook. When your leader requests badges for your unit, she can submit your innovative menus and there will be a prize for the most interesting meal that doesn't require power.





ESTIMATED TIME: 45 MINUTES

1. Every energy provider operates their own Priority Services Register so that people in vulnerable situations can access free support if they need it.

2. As a unit, discuss who you think would be eligible for the Priority Services Register and why these people might need more support.

3. These are some of the vulnerable people that the Priority Services Register can help - how many did you identify?

- Flderly people
- For Disabled people
- # People with long-term health conditions
- People recovering from an injury, or who have just come out of hospital
- People who have problems with their sight or hearing
- People with mental health conditions
- Pregnant women
- Families with children under 5
- People who don't speak or read English well



4. Now, identify somebody in your family or community whom you think is eligible to the Priority Services Register and encourage them to sign up.

They can make sure to select 'Girlguiding North West England' as their reason for signing up so we can keep a grand total of everyone we reach!



UISIBLE & NON-UISIBLE UULNERABILITIES

(RAINBOWS & BROWNIES)

EQUIPMENT;

Identifying vulnerabilities printout (see appendix)
Colouring pens/pencils

Pen/pencil

ESTIMATED TIME: 30 MINUTES

1. There are lots of groups of people who are vulnerable, meaning they might sometimes need more help than other people do. Sometimes signs of vulnerability are visible and easy to spot, but sometimes it might not be as obvious.

2. How many visible vulnerabilities can you identify in the picture? Every time you spot a vulnerable person, colour them in and label what you think their vulnerability is.

3. Now, think about what types of vulnerabilities you haven't been able to identify in the picture. Around the picture, write down some non-visible vulnerabilities. If you can think of an image to represent these, add that too.



Why might vulnerable people need more support during a power cut than others? What might they find more difficult without electricity?

VULNERABLE PEOPLE



MAKE YOUR OWN ELECTRIC CAR



- Empty disposable plastic bottle
- 5 DC motor
- Fan
- FBattery holder
- Battery
- 5 2x crocodile clip wires
- Straw
- 2x skewers
- Scissors
- 🗲 Glue gun

ESTIMATED TIME: 60 MINUTES

METHOD:

1. Remove the label from the plastic bottle and cut a 'U' shape flap into the side of the bottle. Fold the flap up so that it forms the windscreen of the car - like this:



2. Now, cut two 5 cm pieces of straw and use a glue gun to attach them to the underside of the bottle, one at the front and one at the back.

Finish your electric car on the next page!

ELECTRIC VEHICLES 3. Next, cut both of the skewers to 10 cm and thread these through the straw pieces. Glue bottle lids to each end of the skewers - these should look like the wheels of the car.



4. Next, attach the fan to the motor and use the glue gun to attach this to the top of the back of the car, making sure that the fan is able to spin around without hitting the end of the bottle.

The car should now look like this:



5. Using crocodile clip wires, attach the motor to the battery holder and place this in the 'cockpit' of the car, tucking the wires in too.

6. Now, place the battery into the battery holder and watch your car speed away!



EQUIPMENT:

ESTIMATED TIME: 10 MINUTES

METHOD:

1. Blow up one balloon and fill the other balloon up with cold water.

2. Now, with a Leader's help, hold a lit match underneath the air-filled balloon. What happens?

3. Next, do the same to the water-filled balloon. Does the balloon burst?

4. You should notice that the water-filled balloon stayed intact! Discuss why you think the air- and water-filled balloons respond differently to heat.



Geothermal Science! The water-filled balloon doesn't burst because water carries heat away from the surface of the balloon, preventing the rubber from melting and the balloon from popping.

GEOTHERMAL ENERGY



EQUIPMENT:

- Windmill blades template, printed on card (see appendix)
- Foilet roll tube
- Piece of card
- Colouring pens/pencils
- Skewer
- F Blu tac
- Glue
- Scissors
- A heat source, e.g. a radiator

ESTIMATED TIME: 60 MINUTES

METHOD:



1. Cut out the windmill blade template and cut the three solid lines, making sure not to cut all the way to the centre of the circle.

2. Now, carefully fold along the dashed lines of the fan blades, alternating folding up then down.

3. Measure and cut the skewer to a few centimetres longer than the toilet roll tube and push the skewer through the centre of the fan blades.

4. Secure the fan blades to the skewer by adding Blu tac to the top and underside of the fan blades.

5. Now, cut two squares, slightly bigger than the diameter of the toilet roll tube, out of the card. In one of these squares, poke a hole through the middle using the skewer.

6. Glue the square with the hole in on top of the other square, then glue the toilet roll tube to this, making sure the hole lines up in the middle of the toilet roll tube.

7. Next, cut out a circle exactly the same diameter as the toilet roll tube and poke a hole through its centre. Then glue this to the other side of the toilet roll tube.

Finish your windmill on the next page!



8. When the glue has dried, decorate the windmill however you would like!

9. Now, slot the fan blades through the hole at the top of the windmill. The finished structure should look like this:

10. Simply place your windmill on something heat resistant, such as a coaster, on top of a radiator and watch the fan blades start to spin!



EQUIPMENT (PER SOLAR COOKER):

- Cardboard box with a lid
- Fin foil
- FBlack paper/card
- **F**Skewer
- **F**Scissors
- Glue
- Sticky tape
 Chocolate digestive biscuits
- Marshmallows

ESTIMATED TIME: 45 MINUTES

METHOD:

1. Cut along 3 sides of the top of the cardboard box, approximately 5cm from the edge. Leave one side intact to make a flap in the lid of the box - like this:

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Solar Science! By covering the entire inside of the box in shiny tin foil, heat energy from the sun is reflected into the centre of the solar cooker. The cooking surface is black paper because black absorbs heat, speeding up the marshmallow melting process!

2. Now, cut enough tin foil to cover the inside bottom of the box and stick this down using glue.

3. Next, measure and cut a piece of tin foil to fit the flap you created on the lid of the box. Stick this piece of tin foil to the inside of the flap, making it as smooth as possible, like a mirror.

4. Now, measure and cut a piece of black paper that is approximately 5cm smaller than the bottom of the box. Use tape to stick this down in the middle and on top of the tin foil.

Your finished cooker should look like this:



6. Prepare the s'mores and place these on top of the black paper inside the box. Prop the flap open with the skewer and find a sunny spot to leave your solar cooker in.

7. After 30 minutes, check back on your solar cooker. The solar energy will have melted the marshmallows so your s'more is ready to enjoy!

































