



# GOING GREEN

AT MONTROSE PORT

FEATURING  
**CAPTAIN TOM**

in association with



# AHOY, SAILORS!

## Welcome to Montrose Port, Captain Tom here!

Did you know that Scotland is on an ambitious journey to transform its carbon footprint?

We've been working very hard at Montrose Port with our friends in industry to make sure we can do everything we can to help out.

In 2021, we are due to become the operations and maintenance base for Seagreen, the largest

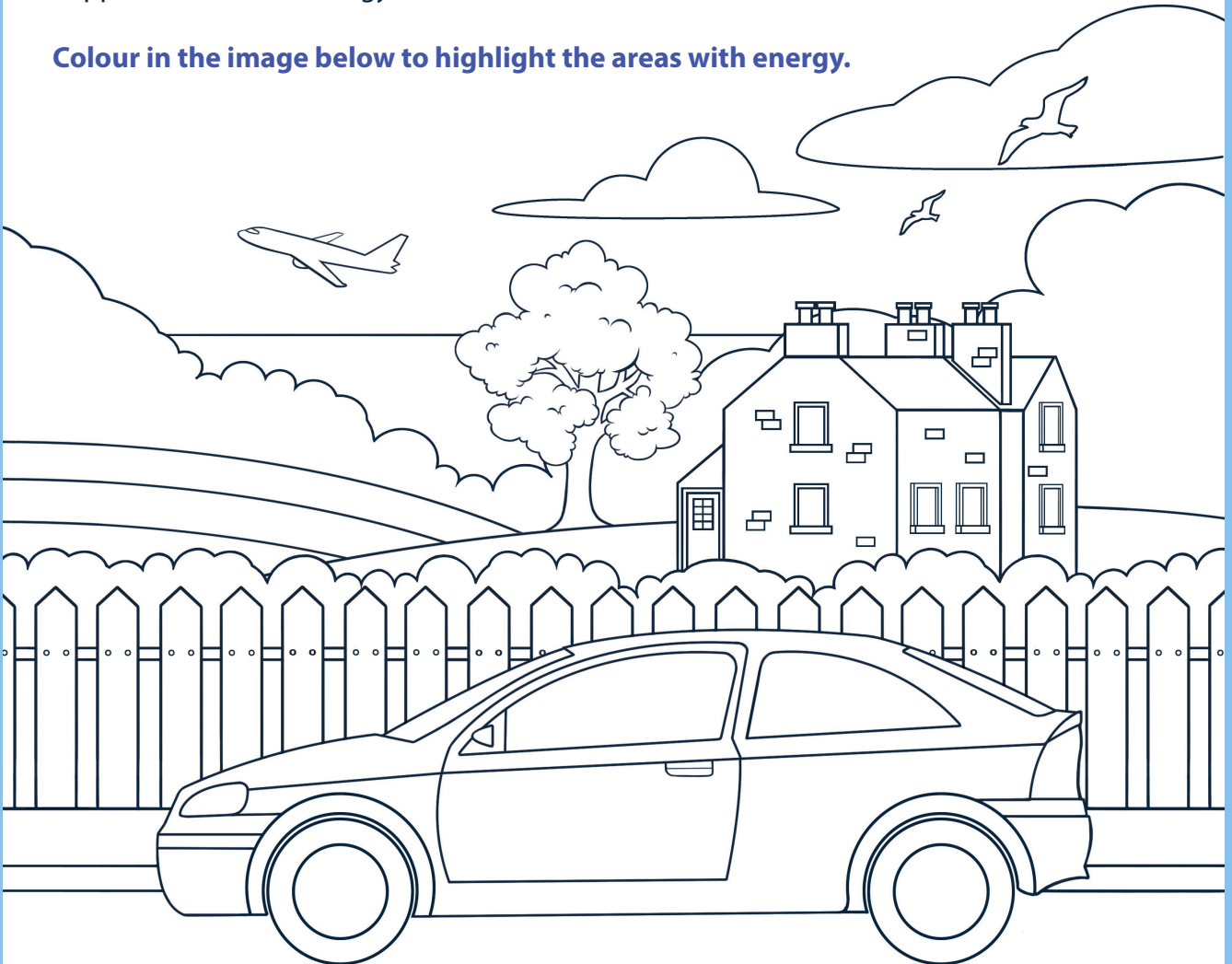
offshore wind farm in Scotland. To celebrate, we have teamed up with them to create this activity pack that is jam packed with fun challenges.

Share your findings with us using **#montroseport** so that we can encourage more people to get involved and help Scotland on its journey to carbon neutral living.



Take a look around. There are lots of things happening. Leaves move on trees. Cars travel along the road. Planes soar through the sky. Lights brighten up our rooms. All of this happens because of energy.

**Colour in the image below to highlight the areas with energy.**



Can you think of any other examples where energy is used?

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Don't forget to share your findings online using **#montroseport**



# RENEWABLE ENERGY

Renewable energy comes from resources in our environment that will never run out.

Colour in the renewable energy sources.

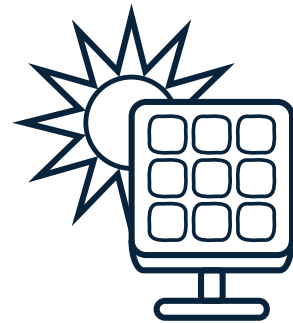
RAIN



COAL



SUNLIGHT



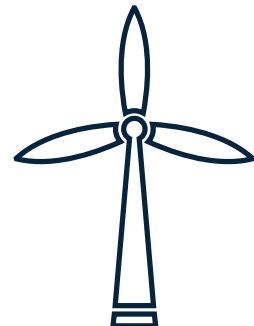
NATURAL GAS



NUCLEAR



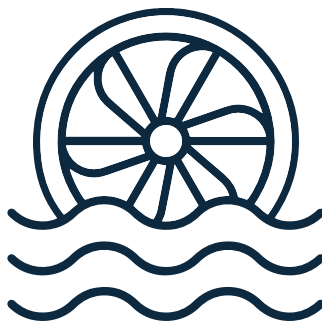
WIND



OIL



HYDRO



BIOMASS



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# TRUE OR FALSE?



Renewable energy has lots of benefits over alternative energy resources.

**Circle whether the following statements are true or false.**

Renewable energy sources will not run out.

**TRUE FALSE**

Renewable energy is bad for the environment.

**TRUE FALSE**

Solar energy uses the Sun to create power.

**TRUE FALSE**

Wind turbines can only operate on land.

**TRUE FALSE**

Coal is a renewable resource.

**TRUE FALSE**

Geothermal energy is created from the Earth's natural heat.

**TRUE FALSE**

Challenge a friend about renewable energy with your own set of true or false questions.

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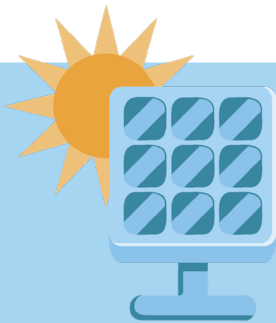


# MAKE A POSTER



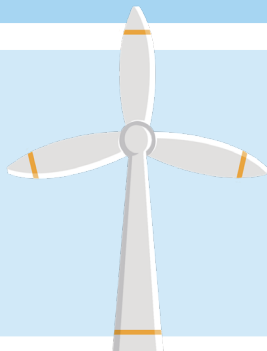
By 2030 the Scottish Government aims to generate 50% of Scotland's energy from renewable sources.

**On the following page, create a poster to help promote one of the renewable energy resources below.**



## SOLAR ENERGY

Solar energy comes from the Sun. The Sun can be used to give us heat energy. Solar panels are used to convert solar energy into electricity.



## WIND ENERGY

Wind turbines are used to convert wind energy to electricity. The wind blows the blades around and this movement is converted into electricity. A group of wind turbines is called a wind farm.



## HYDRO ENERGY

Hydro energy is energy that comes from moving water. Water that flows down fast-flowing rivers is used to spin turbines that generate electricity. The movement of big waves at sea can also be used to generate electricity.

Which renewable energy resource are you making a poster for?

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# MAKE A POSTER (CONTINUED)



A large, empty white rounded rectangle intended for creating a poster.

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# HOW IS ENERGY MADE FROM WIND?

As the Earth is heated by the Sun, some regions become warmer than others. The air in the warm regions rises. Air from the cooler regions rushes in to replace it. This creates air currents that we call wind.

The power of wind will cause our turbine blades at Seagreen wind farm to move round. This turning energy is then used to

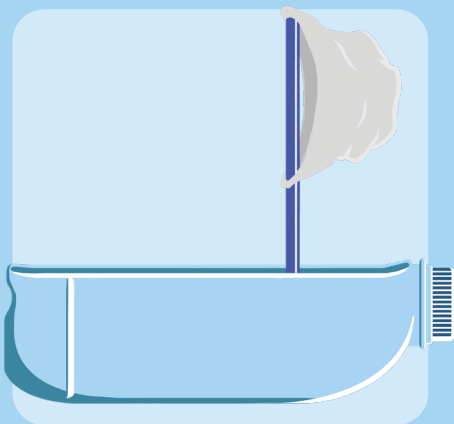
power a generator which creates electricity. Let's try and explore the forces of wind and how it can make an action occur.

You can try using different materials, such as everyday items you find around the home.

**The important thing is that the items are lightweight.**

## MAKE YOUR OWN SAILING BOAT

Difficulty: Fairly simple

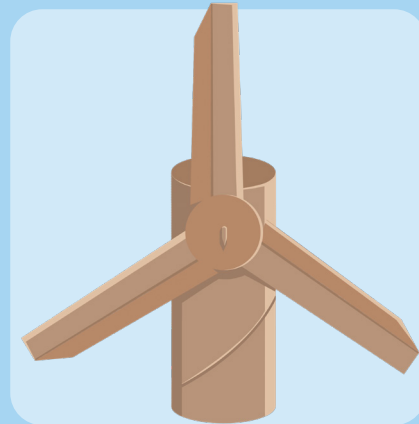


### MATERIALS WE USED:

Milk bottle (x1),  
Plastic straws (x4),  
Cellotape,  
Plastic bag (x1),  
Scissors

## MAKE YOUR OWN WIND TURBINE

Difficulty: Slightly tricky



### MATERIALS REQUIRED:

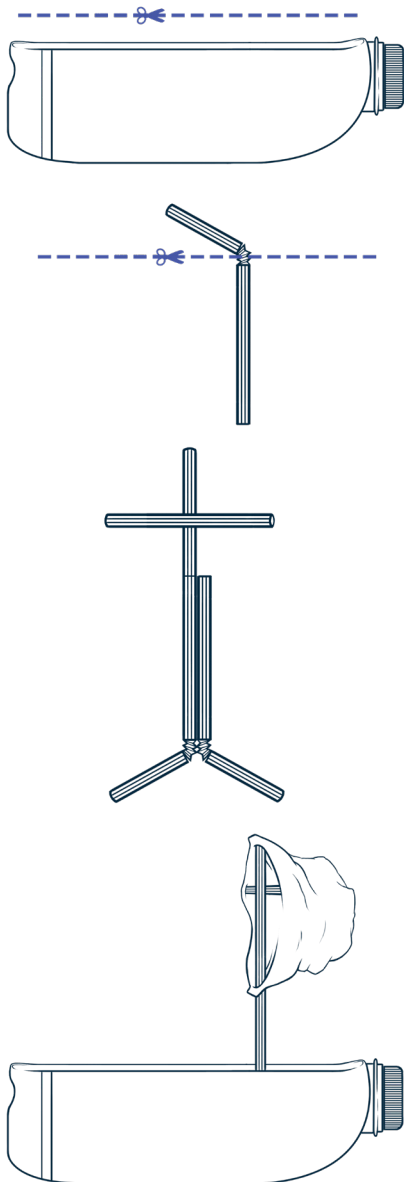
Toilet/kitchen roll holder (x1),  
Cereal box (x1),  
Plastic straw (x1),  
Needle (x1),  
Cocktail stick (x1),  
Thread,  
Small button (x1),  
Scissors

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# MAKE YOUR OWN SAILING BOAT



## A STEP BY STEP GUIDE

(Adult supervision required!)

**STEP 1:** Cut the milk bottle in half.

**STEP 2:** Cut the bendy section off of one straw and discard it. Take the remaining part of the straw, fold the tip in half, and squeeze it inside the second straw (the non-bendy end) to turn it into a longer straw.

**STEP 3:** Cut the bendy end off of the third straw and discard again. Attach the remaining section of the straw horizontally across the extra long straw (created in Step 2) near the top. It should look like a T shape.

**STEP 4:** Use the fourth straw to reinforce the extra long straw at the bottom with the bendy sections pointing in different directions, just like little legs. You now have a mast.

**STEP 5:** Cut the plastic bag to the size of the mast so that it covers most of it and attach with cellotape.

**STEP 6:** Cellotape the bendy sections of the straws (the legs) to the inside of the milk bottle about 2/3 of the way up, near the neck of the bottle.

**STEP 7:** Put your boat in the bath and blow behind the sail.

What happens to the boat? \_\_\_\_\_

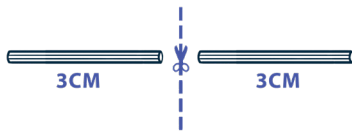
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# MAKE YOUR OWN WIND TURBINE

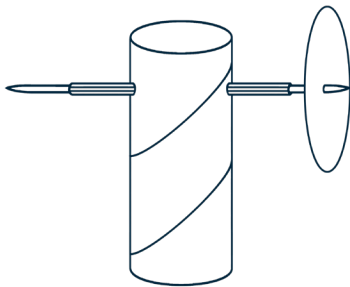
## A STEP BY STEP GUIDE

(Adult supervision required!)



**STEP 1:** Cut the largest side off the cereal box and discard the rest.

**STEP 2:** Using the template on the following page, draw the wind turbine onto the large side of the cereal box.



**STEP 3:** Cut out the shape and score along the mid point of each wind turbine blade, then fold the numbered sides upwards.

**STEP 4:** Make a hole in the centre of the wind turbine using the needle, then push the tip of the cocktail stick through.

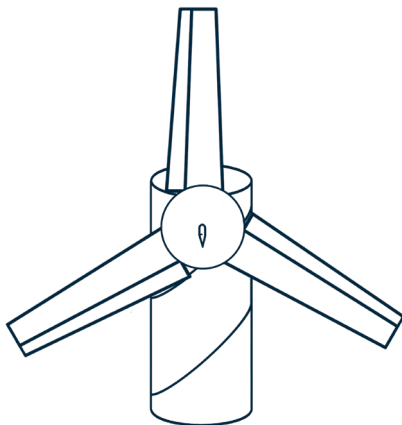
**STEP 5:** Cut two pieces from the straw measuring 3cm each.

**STEP 6:** Make two small slits on opposite sides of the toilet roll near the top and push the 3cm straw pieces halfway through.

**STEP 7:** Push the long end of the cocktail stick through both straw pieces inside of the toilet roll.

**STEP 8:** On the exposed part of the cocktail stick (between the two straw pieces) attach one end of the thread using cello tape and let the other end hang down through the toilet roll.

**STEP 9:** Tie the button to the loose end of the thread and blow on your wind turbine from the side to make it spin.



What happens to the button? \_\_\_\_\_

\_\_\_\_\_

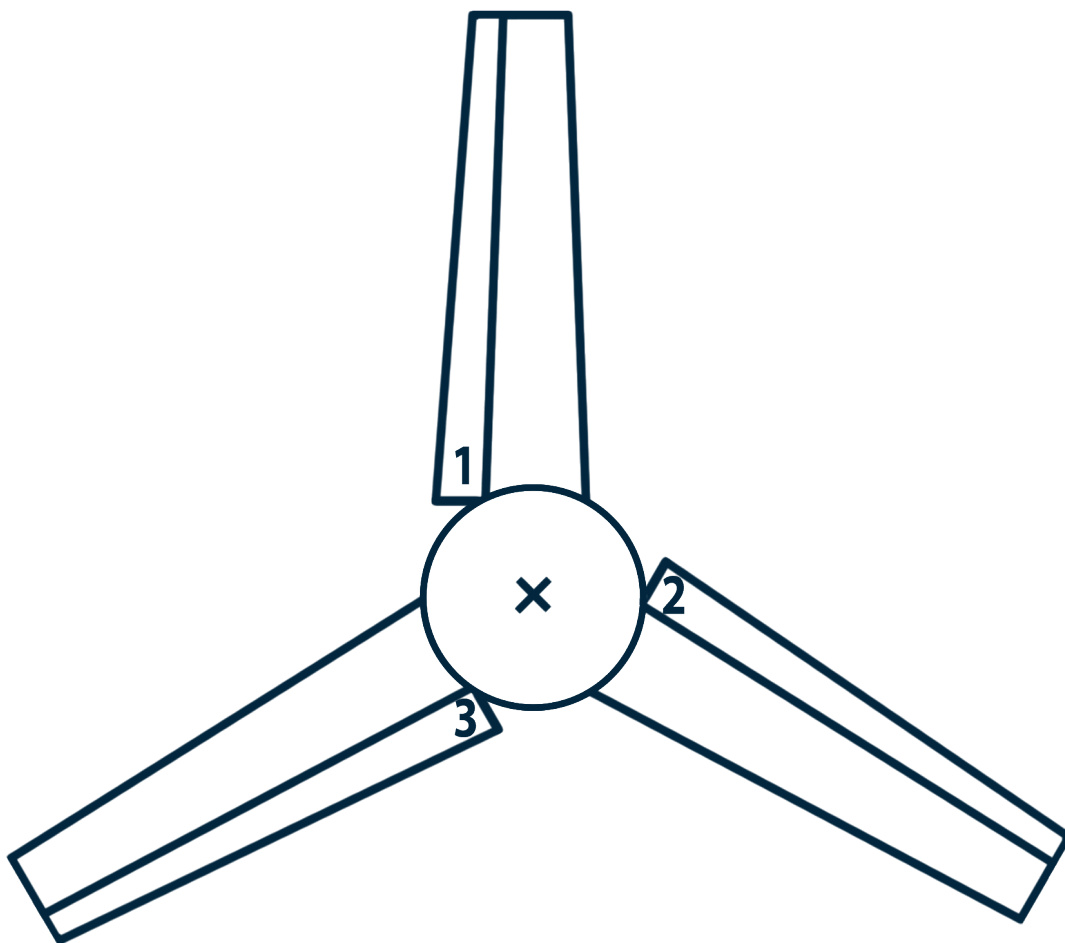
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# WIND TURBINE TEMPLATE

## WIND TURBINE TEMPLATE

(Adult supervision required!)



The wind turbine template above can be cut out and used as a stencil to draw around when creating your very own wind turbine.

Remember, once your outline has been drawn onto the side of the cereal box and cut out, score along the mid point of each wind turbine blade, then fold the numbered sides upwards.

On the X in the centre of the wind turbine, make a hole using the needle, then push the tip of the cocktail stick through.

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# CROSSWORD



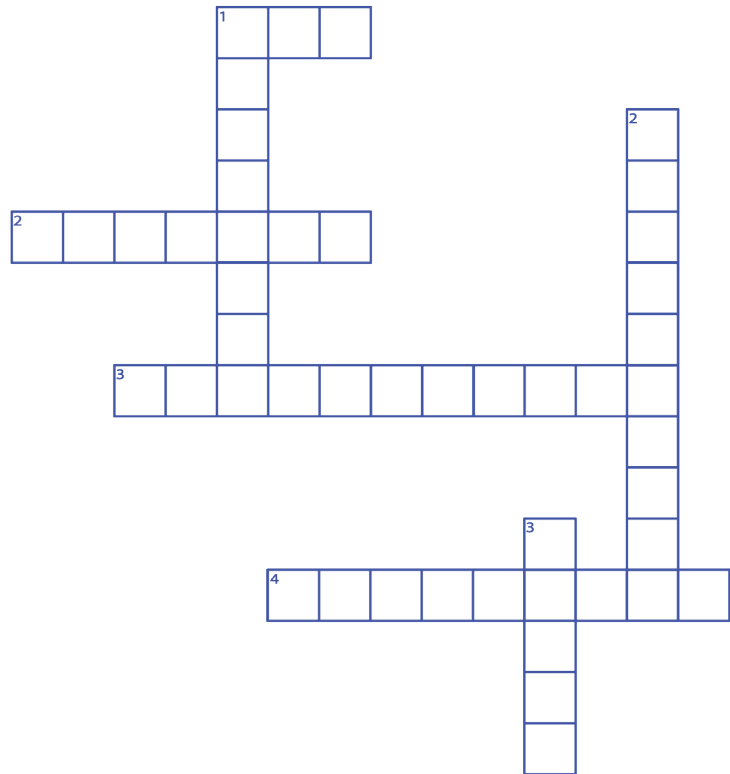
Using the clues below, see if you can complete the crossword.

## ACROSS

1. Solar energy is created from what? (3)
2. Renewable energy is made from what kind of resources? (7)
3. What device is used to create wind energy? (4,7)
4. Solar, wind, geothermal and biomass are all what types of energy resources? (9)

## DOWN

1. Montrose Port will be supporting the operations of which wind farm? (8)
2. Energy created from the heat under the Earth's surface is? (10)
3. Hydro energy is generated using the power of? (5)



## ANSWERS:

**ACROSS**  
1. Sun 2. Natural 3. Wind Turbine 4. Renewable

**DOWN**  
1. Seagreen 2. Geothermal 3. Water

Why not race a friend and see who can successfully complete their crossword puzzles first?

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