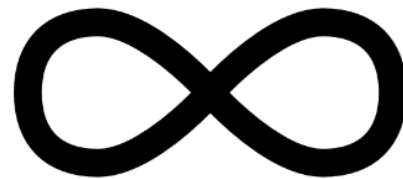
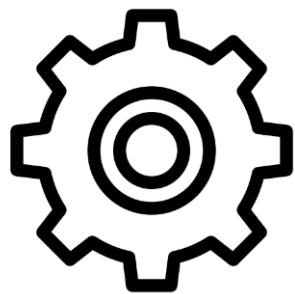
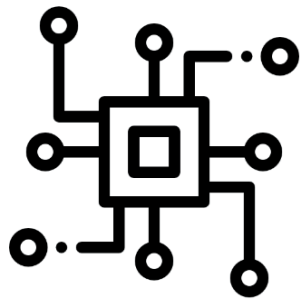
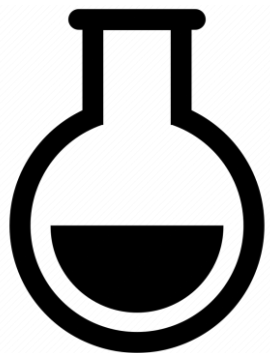
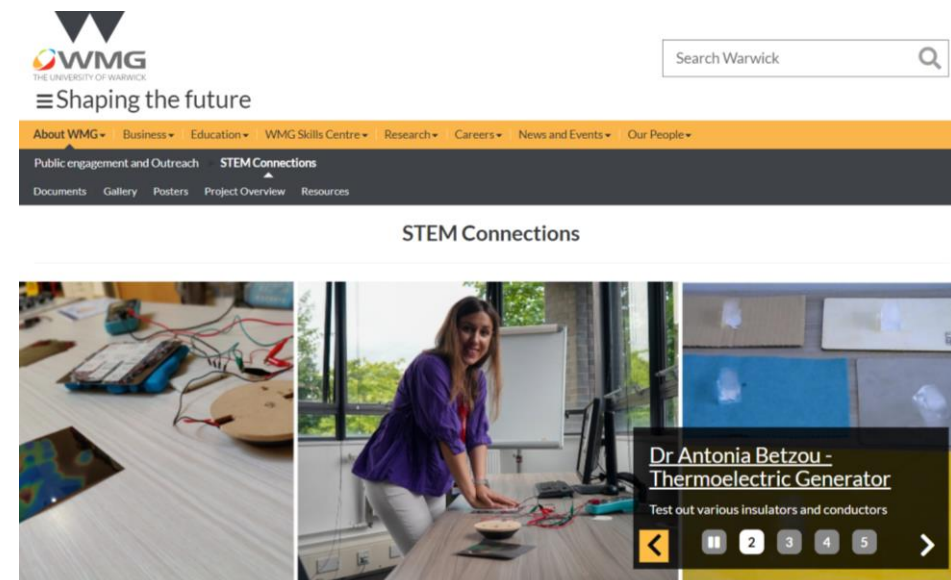


# STEM Connections



# STEM Connections

STEM Connections is a Research England funded project at the University of Warwick that highlights the technology that is being researched at the university, the impacts that research could have on the local population and wider society, and the personal stories of the people involved in that research.



# Clean Energy from Wind Turbines



Meet the Academic:  
**Magdalena Rybak**

**STEM** +  
**Connections**

## Creating Energy from Wind Turbines

This demo was part of a team with Piotr and Adriana and the three presenters were keen to have a model village as part of the demo. Grounding the activity in something so homely made it relatable and made the learning so much more engaging.

# STEM Connections

Meet the Academic

Dr Adriana Smith-Ortiz

**What would be your dream research project?**

If I had the time and the money I would love to do a project that involves implementing green technologies like generating energy through solar panels in my home country.

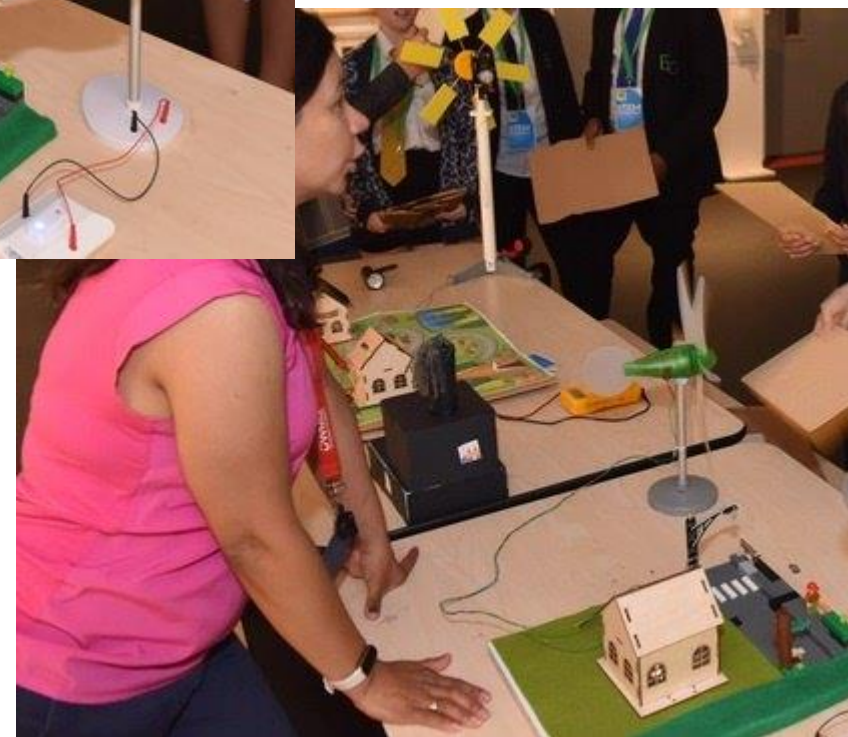
Find out more:




[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)



Adriana's project showed how we can generate electricity from renewable sources. The unlimited energy of children was harnessed to make wind to spin turbines and show them how we can make the future green.





# STEM Connections


Meet the Academic  
Piotr Mazurkiewicz

**Why is teaching STEM subjects so important?**


When we teach a class we end up with hundreds of people with skills and knowledge that approach the world with a technical background, with engineering.

They can make the world more sustainable. Together, we can make the world develop much faster than if we do it on our own.

Find out more:



[www.warwick.ac.uk/stemconnections](http://www.warwick.ac.uk/stemconnections)



# Dr Adriana Ortiz Magdalena Rybak Piotr Mazurkiewicz



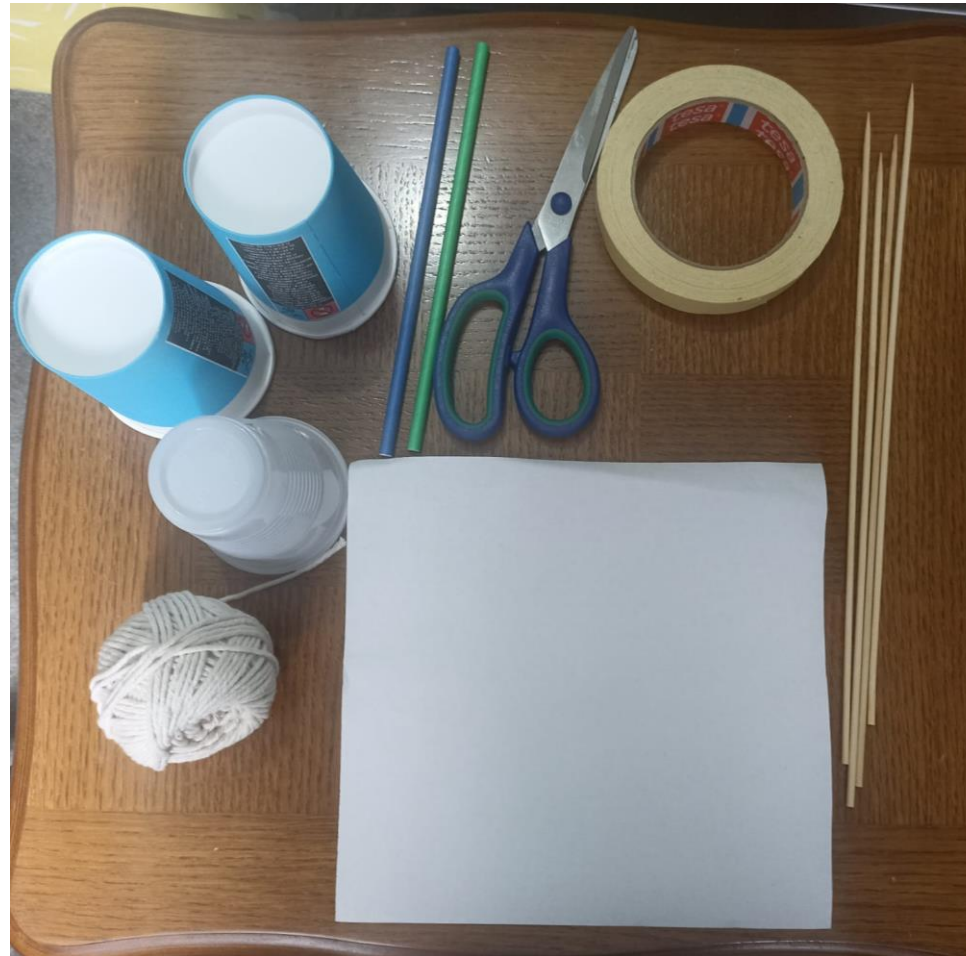
Meet Piotr Mazurkiewicz, an assistant professor who shares his knowledge of STEM with people to think about how we manufacture products and how we can make that process more efficient and sustainable.



# Investigating wind turbines

## Materials Required:

- Scissors
- Tape/glue ( both are fine )
- Plastic or paper cups
- Yarn
- Paper
- Straws
- Skewer sticks

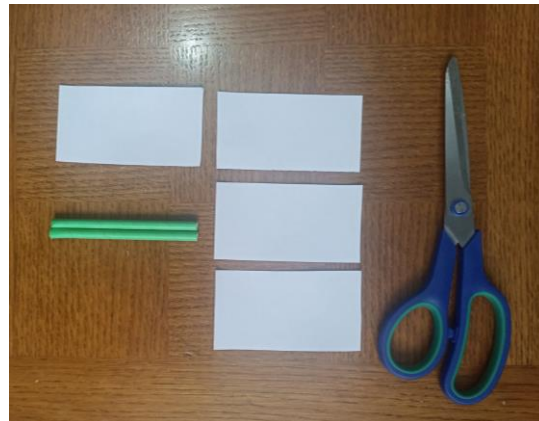


## Step by step instructions:

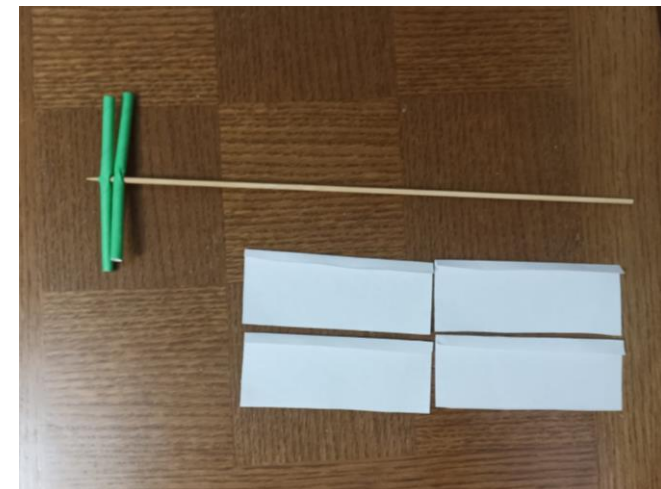
1. Take two cups and tape them together as shown in the picture. On the top, tape one straw.



2. Cut four equal pieces of paper in the shape of a rectangle and then cut a straw in half.

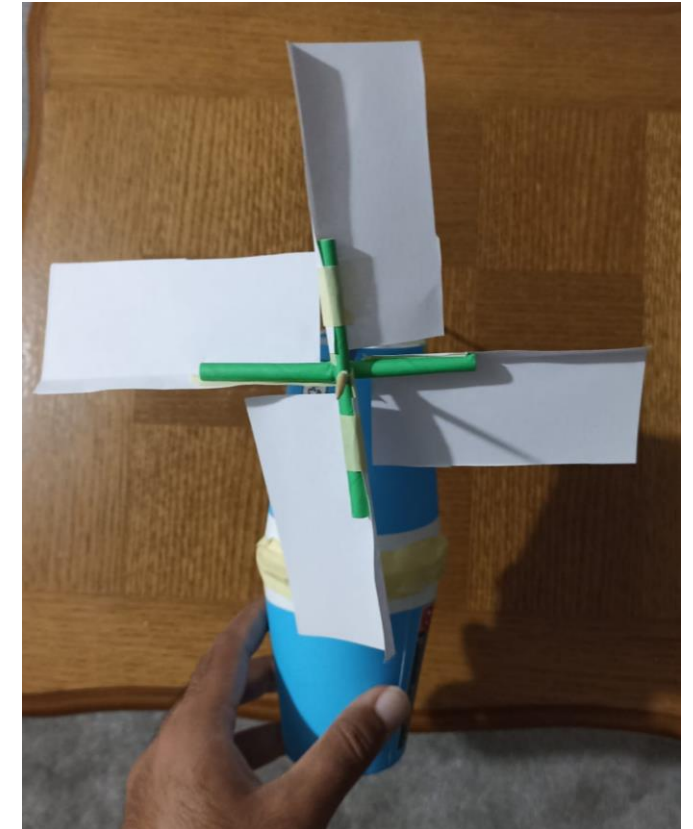
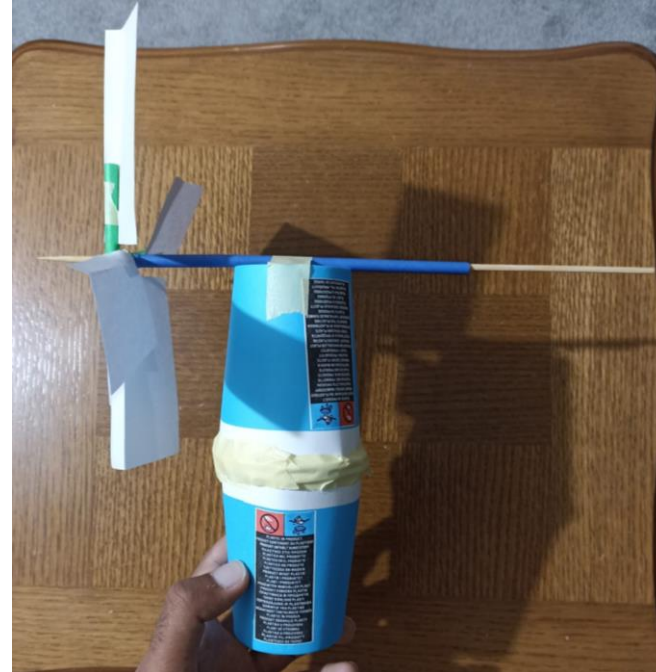
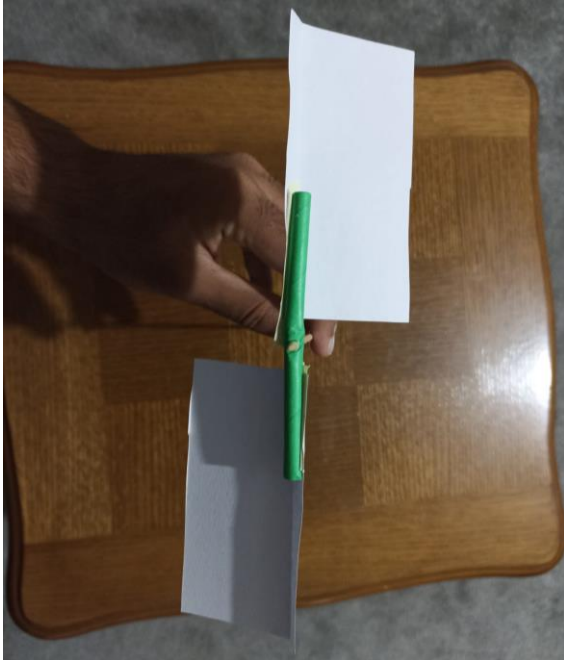


3. Make holes through the centre of the two pieces of straw and make sure the stick can fit through the straws. Now make a small fold on each piece of paper as shown in the picture.



4. Tape the folded section of the pieces of paper onto the straws. Very important that facing from the front, the folded side goes on the side of the straw and not on the back. The picture shows 2 blades done on one half of the straw.

5. Similarly put the other 2 blades on the other half of the green straw and place the stick inside the bigger taped blue straw on the cup.

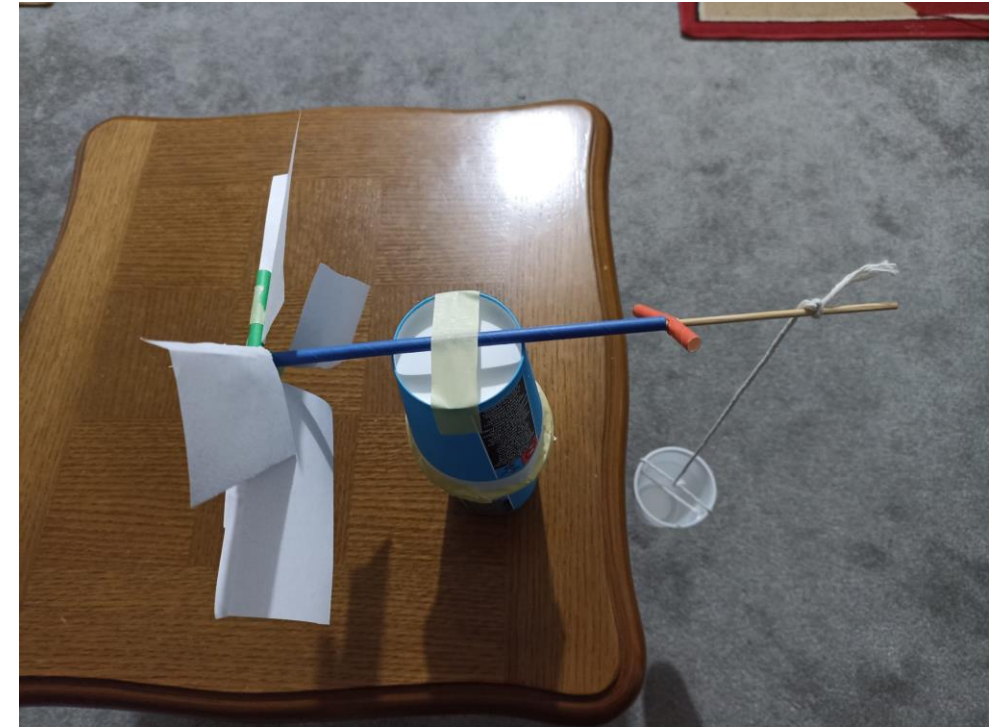
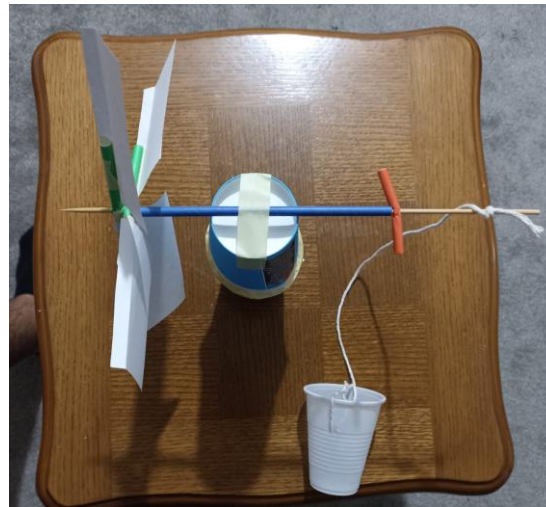




6. Make two holes in a cup and put a string through it. Tie the string onto the cup as shown in the picture. After the knot, cut one half of the string so that only one single string remains above the knot.



7. Tie the string onto the stick so that the cup is now hanging from the stick. To prevent the stick from moving through the straw, look how an orange straw is placed which prevents it from happening.



## Exploring this concept further:

- Compete with your friends to design a wind turbine that can bring up the cup in the shortest amount of time.
- Think about the material used for the blades. Can you use materials other than paper?
- How does the angle of the blades and number of the blades affect the rotation and therefore efficiency? Best way to find out is try it yourself! Experiment with different number of blades and test different angles.



SECONDARY: Linking Academics area to careers and industry  
Other useful websites

PRIMARY: Linking to subjects offered in Secondary schools  
Maths, Science (Biology, Chemistry, Physics), Design &  
Technology (Engineering)

Thank you!

STEM Connections

