



## Create your own pinwheel

### SEQUENCE 1

Age group	6-9 y.o.
Prior knowledge	None
Material needed	The Create your own pinwheel box
Subjects	Renewable energy
Skills involved	Engineering Fine motor skills Type of energy
Time to carry out the sequence	1h

#### Step 1: Introduction

Ask your students to name some forms of energy that they know of and write them down.

Talk about renewable and non-renewable energy sources and explain the difference between them. Go through the list of forms of energy that you have written down, and have the students sort them into one of the two groups.

#### Step 2: Discovering the content of the box

Use the storytelling resources and tell your students the story of the wind. Ask them if they know what a pinwheel is and if they have seen one before. After that, let the students discover the content of the box. Give them enough time to examine everything.



Co-funded by  
the European Union

# TECHNOLOGY

## Step 3: Creating a pinwheel

Have the students use the box to make a pinwheel. Then, let them experiment with it and see how it works.

Ask them if they have seen something similar in real life and talk to them about wind turbines. Do they know how they work? Explain to them that all the electricity that they use in everyday life comes from nature but is “manmade” by converting it from forms of energy, like wind or water, or by using different types of fuel, like oil or coal.

## Expanding on the lesson

To explore renewable energy more deeply, you can explore other options like hydropower. You can use cups and a stylophone to create a model of a hydrogenator and test it with your students. For the expansion, you can use other boxes that we made, like the “Watermill” and “Solar energy” boxes.



Co-funded by  
the European Union

MY BOX OF STEAM (project nr. 2022-2-EE01-KA220-SCH-000099273) is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

# TECHNOLOGY

## SEQUENCE 2

Age group	10-12 y.o.
Prior knowledge	/
Material needed	Create your own pinwheel box, scissors, glue, cardboard, objects to try and lift with the pinwheel, kitchen scale, pen, paper
Subjects	Construction
Skills involved	Engineering Fine motor skills Math skills Problem-solving skills
Time to carry out the sequence	1-2h

### Step

#### 1: Introduction

Talk to your students about construction sites. Have they ever seen a tall building and wondered how it was built? Have they ever seen how a crane operates?

Ask them to think of a way that you can build a crane in the class with the common materials that they can find in the classroom.

#### Step 2: Discovering the content of the box

After the students have had enough time to think of different ideas for building a crane, give them the box and let them explore it. Ask them to predict what they will be using the box for. Afterwards, create the pinwheels and read them the story of the "Wind game".

#### Step 3: Building the crane



Co-funded by  
the European Union

MY BOX OF STEAM (project nr. 2022-2-EE01-KA220-SCH-000099273) is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

# TECHNOLOGY

Have the students use the box and make a pinwheel. Has any of them thought of using it as a crane in step 1? Let them hypothesise about how to use a crane to lift objects.

Afterwards, create a small paper cart and attach it to the pinwheel with a piece of thread. Put different objects into the cart and see how hard they have to blow to lift it. Let them experiment and see what is the heaviest object that they can lift.

Use a kitchen scale to weigh each object before the students put it into the cart. Make a table and have them write down the mass of each object. Then, let them predict whether they will be able to lift it or not. After they see the results of the first object, let them try to predict the mass of the heaviest object that their pinwheel can lift.

## Expanding on the lesson

The pinwheel design that we used in this lesson is meant to show the concept and is not suitable for heavy lifting. If you want to go further and lift a larger variety of objects, you can create a different, sturdier model of the pinwheel. It can be a great exercise in developing problem-solving skills. Don't hesitate to let your students make a prototype and fail, as you can analyse it with them and then build a better model.



Co-funded by  
the European Union

MY BOX OF STEAM (project nr. 2022-2-EE01-KA220-SCH-000099273) is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.