

## Be an advocate for clean energy!

Share what you know! Offshore wind can have a huge impact on helping generate clean energy. List at least three things you learned today to tell your community about how offshore floating wind turbines are the wave of the future.

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## NYPA Structural Engineers, it is your turn!

### Floating Offshore Wind Turbine

**Project Overview:** Working as a team of NYPA structural engineers, you are tasked with building and testing two floating offshore wind turbine platform prototypes.

Before you get started here are **keywords** list for you:

- **Ballast** is a material that is used to provide stability.
- **Buoyancy** is an object's ability to float in water or air.
- **Destructive force** is a force that acts to bring a body down.
- **Gravity** is the force that attracts a body toward the center of the earth.
- **Interconnectors** are cabling that brings created energy to shore.
- **Restorative force** is a force that acts to bring a body to its upright (equilibrium) position.
- **Renewable energy** is energy derived from natural sources.
- **Transmission** is the carrying of electricity from the point it is generated to a home or a business.
- **Wind** is the movement of air, ranging from light breezes to natural hazards such as hurricanes and tornadoes.

## Materials:

- 3 test tubes
- 1 roll of masking tape
- 20 marbles
- 1 small wind turbine
- 2 pieces of double-sided tape

## Activity Steps:

### Floating Structure

#### Test Tubes:

- Tape three of the test tubes together using masking tape. Before taping make sure the test tubes are all the same level when standing, Wrap tape around two sections, this will ensure a tight fit.

#### Marbles:

- Add one marble to each test tube, then test. What happened?
- Add another marble to each test tube, then test. What changed? Continue adding one marble to each test tube until you have a stronger restorative force versus a destructive force.

#### Wind Turbine:

- Now attach the wind turbine to one of the test tubes using the double-sided tape.



## What's happening?

As engineers, it is important that you are able to share your understanding with others. Now that you have completed the activity, take a few minutes to **Sketch your completed design**. Label what is happening and why it works. Use the keywords and collaborate with others.

*Engineers and scientists always work together.*

