



# BRING IT ON Company Challenge - JDR Cables

## What is the Engineering Challenge?

This challenge is based on working out the most efficient arrangement of wind turbines to use the least amount of power cables. Laying undersea cables is difficult and expensive and hard to maintain so the less you use, the better. Complexity of the challenge can be determined by each teacher as they see fit by altering the number of turbines.

One example might be: There are 15 turbines. Work out the most efficient way to arrange all of them using the least amount of cable. There will need to be rules around how close each turbine can be to another. This can be done simply on a piece of paper, measuring and drawing on, or using string or paper straws. Or even as a larger model with lego blocks or objects to represent the turbines with the pupils moving objects around to see what works best. Identifying one turbine as the 'termination point' is also useful to ensure a relation to the authenticity of the task.

## Ideas

This challenge was designed to be a practical maths investigation. The focus is on trying something, recording their results and then trying an improved solution using new results to compare. Letting the children try literally anything initially is a good way to highlight that investigation needs to be structured. For example, introducing use of a grid to help position the turbines would be a great structural tool and a great way of using co-ordinates in context. A structured approach might be to explore efficient patterns of turbines starting with just 3, then trying 4, then 5 and so on. Does a pattern emerge? How can this be recorded, can it be predicted for higher numbers of turbines?

## Who are JDR?

JDR are an international specialist cable production company with a major base in Hartlepool. Their cables are primarily designed to carry power and are usually designed to be laid under the sea. This makes them an ideal solution for bringing power back to shore from offshore wind farms.

## Curriculum Links

Maths - the challenge is a great way of focussing on the identified aims of the Maths NC putting specific knowledge into a context where they must investigate, reason and argue their solution

## Useful Links

JDR website for info about the company: [www.jdr cables.com](http://www.jdr cables.com)  
Why Offshore: [https://youtu.be/Cxb\\_o1aoiNY](https://youtu.be/Cxb_o1aoiNY)

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[www.bringitonne.co.uk](http://www.bringitonne.co.uk)

