TRITON KNOLL
OFFSHORE WIND FARM

Activity 2:

Map Crib Sheets

RWE J-POWER EPDC Kansai Electric Power power with heart

TRITON KNOLL

Triton Knoll – Offshore Windfarm Activity

TEAM: GEOTECHNICAL ENGINEERS

JOB DESCRIPTION

What do Geotechnical Engineers Do?

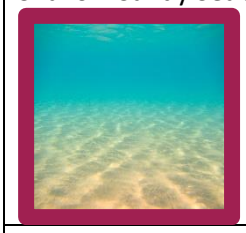
Geotechnical Engineers are needed especially during the planning stages for an offshore windfarm as it is important that Triton Knoll know all about the seabed and physical environment of where they plan to place the windfarm. This is often the most expensive part of the survey work and there are many different jobs to be done within this sector.

Main Job Roles:

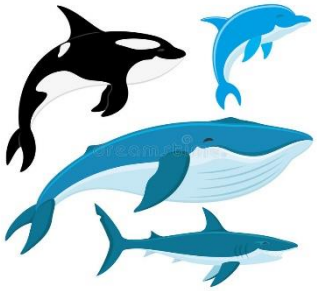
- ☑ Analyse the physical conditions and chemistry of the sea. This includes looking at the currents, waves and tides and the chemicals present in the seawater and seabed that might cause problems for the windfarm.
- ☑ Mapping the shape of the seabed and recording the depth of the ocean of the proposed wind farm site.
- ☑ Look at how the seabed is made up of different rocks and sand. This information can be critical for deciding where a windfarm can be built.

GEOTECHNICAL ENGINEERS: MISSION STATEMENT

In your team of Geotechnical Engineers, you must advise Triton Knoll on where you think it would be best to place a new offshore windfarm on the map! You will have to justify your choice to the rest of the group. Use the table on the back to make notes on each feature on the map that might help you to make this decision!

Map Feature	Handy Hints and Extra Information	Your Ideas! (Should this area be avoided or what would the windfarm company need to think about?)
Shallow Sandy Seabed 	• The sea here is less than 10 metres deep and the waves and tides are quite gentle. The sand is soft to dig through and relatively stable.	
Sandbank Zone 	• The water is 30 meters deep here. These sandbanks are moved around daily by the waves and strong tides and can be very dangerous for boats and ships sailing near them.	
Stable Rocky Seabed 	• The water is 40 meters deep here. The waves can be high but the tide is calm this far from the coast. This type of seabed will not be changed by the waves and tides.	
Undersea Volcano 	• The water is 40 meters deep here. The waves and tides are calm here…. Although normally dormant, this volcano may erupt if disturbed, releasing a slow flow of hot lava and gases onto the seabed around it.	
Deep Sea Trench 	• The seabed is made up of lots of stable and secure rocks and is found 8000m below the surface. There are lots of mysterious sea creatures found here.	

TRITON KNOLL



Triton Knoll – Offshore Windfarm Activity

TEAM: MARINE BIOLOGISTS

JOB DESCRIPTION

What do Marine Biologists Do?

Marine Biologists are needed during the planning and maintenance stages for an offshore windfarm as it is important that Triton Knoll are aware of the sea life that they may impact through building and operating a windfarm in the sea. The main role of **Marine Biologists** working within an offshore windfarm project is to survey the underwater and coastal environment to see what wildlife can be found there (fish, mammals and seabirds etc.) and advise Triton Knoll based on their findings where it would be best to place the windfarm and how to reduce the environmental impact.

Main Job Roles:

- ☑ Observe, monitor and record the presence of marine mammals (whales, dolphins and seals) in the region. As many of these animals can migrate long distances, this can be a challenging job!
- ☑ Collect data of plant and animals that live on the seabed including shellfish, coral, crabs, lobsters and lots of fish species. As wind turbines are built upon the seabed, it is especially important that this information is available before the windfarm is built!
- ☑ Survey the skies for the presence of seabirds that might be impacted if a wind farm is constructed.
- ☑ Asses the plants and animals that can be found along the coastline. This might involve monitoring seal or seabird breeding grounds which can be found on beaches or cliffs. As cables from the windfarm need to run under the seabed to an onshore substation, the area between land and sea must also be surveyed to reduce damage to the environment.

MARINE BIOLOGISTS: MISSION STATEMENT

In your team of Marine Biologists, you must advise Triton Knoll on where you think it would be best to place a new offshore windfarm on the map! You will have to justify your choice to the rest of the group. Use the table on the back to make notes on each feature on the map that might help you to make this decision!

Map Feature	Handy Hints and Extra Information	Your Ideas! (Should this area be avoided or what would the windfarm company need to think about?)
Seal Breeding Area. 	Every autumn, hundreds of Grey Seals return to this beach to have their young. This is important to support the global population of Grey Seals.	
Crab and Lobster Breeding Reef 	Crabs and lobsters like to live in between boulders and rocks on the seabed. They only like this special type of habitat, but are only temporarily unhappy when construction happens. They like new rocky structures.	
Shell-Fish Bed 	Shell fish are abundant all across this area. they are important members of the underwater community as they clean the water by filtering it when they feed!	
Humpback Whale Breeding Ground 	Humpback whales are globally rare and endangered by years of hunting. They come here every autumn to have their young. They enjoy the peace and quiet and eating local fish.	
Cod Fishing Ground 	Cod are found all around the UK. They move around easily and follow their food, and like being undisturbed by large fishing boats that hunt them.	

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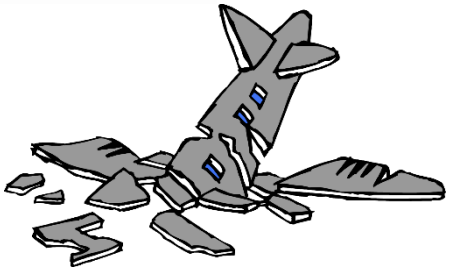
Triton Knoll – Offshore Windfarm Activity

TEAM: MARINE ARCHAEOLOGISTS

JOB DESCRIPTION



What do Marine Archaeologists Do?

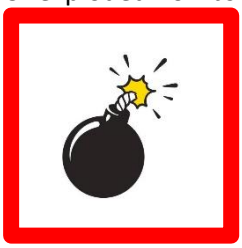
Marine Archaeologists are needed especially during the planning stages for an offshore windfarm as it is important that Triton Knoll know about any historical artefacts, shipwrecks or important historical sites that could be damaged or disturbed through building a windfarm. **Marine archaeologists** will research and gather this information and advise the windfarm company upon which areas to avoid when building an offshore windfarm.

Main Job Roles:

- ☑ Research and collect information of any known historical sites in the areas that have been suggested for the building of a windfarm.
- ☑ Advise the windfarm company where historical sites (shipwrecks, plane wrecks, ruins etc.) are and must not be damaged through building a wind farm there.
- ☑ Suggest how damage to a historical site could be reduced if a wind farm has to be built nearby.

MARINE ARCHAEOLOGISTS: MISSION STATEMENT

In your team of Marine Archaeologists, you must advise Triton Knoll on where you think it would be best to place a new offshore windfarm on the map! You will have to justify your choice to the rest of the group. Use the table on the back to make notes on each feature on the map that might help you to make this decision!

Map Feature	Handy Hints and Extra Information	Your Ideas! (Should this area be avoided or what would the windfarm company need to think about?)
WW2 Plane Wreckage 	This aeroplane crashed into the sea as it tried to land in 1940. The Museum of Bottomsrest is keen to teach school children about the world war but does not have the money to bring this wreckage up from the sea floor. There are hundreds of such wrecks under the sea in the wider area.	
Unexploded Bombs 	This area is littered with unexploded bombs which were dropped in an air attack in World War 2. They can still blow up if disturbed and not handled by experts!	
Ancient Underwater City Ruins. 	Historians have dated these ruins to be over 2000 years old and are of global importance! It is a unique site that needs lots of exploration to be fully understood.	
500 Year Old Shipwreck 	This sunken warship was caught in a storm on its way to a battle. Sadly the 25 crew on board all perished with the ship and their skeletons rest in peace inside the wreck. The wreck is also now home to many rare sea creatures, some of which are not found anywhere else in the world!	

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Triton Knoll – Offshore Windfarm Activity

TEAM: THE LOCAL TOURISM BOARD

JOB DESCRIPTION

What does the Local Tourism Board Do?

The Local Tourism Boards are regional organisations that encourage people to visit an area for a day trip or a holiday. They provide visitors and holiday makers with information about where to stay and work with local companies and organisations to help promote tourism in the area and therefore help to bring money into the region. In the planning stages of an offshore windfarm project, it is important that companies such as Triton Knoll think about how the building of a windfarm might affect the other industries and the local economy. As suitable sites for offshore windfarms are often found near popular seaside resorts, it is important that the windfarm companies negotiate with organisations such as the **Local Tourism Board**.

Main Job Roles:

- ☑ Communicate with the windfarm company about how local tourism businesses may be affected by the building of an offshore windfarm.

- ☑ Work with the windfarm company to think about how the building of a windfarm could result in more opportunities for tourism in the future.

LOCAL TOURISM BOARD: MISSION STATEMENT

In your team making up the Local Tourism Board, you must advise Triton Knoll on where you think it would be best to place a new offshore windfarm on the map! You will have to justify your choice to the rest of the group. Use the table on the back to make notes on each feature on the map that might help you to make this decision!

Map Feature	Handy Hints and Extra Information	Your Ideas! (Should this area be avoided or what would the windfarm company need to think about?)
Water sports Zone 	Tourists like to visit here to have a go at jet skiing, paddle boarding and surfing. They don't have too many options in this region. The water here is shallow, warm and does not have large boats cutting across it.	
The Museum of Bottomsrest 	The Museum is keen to teach children about the world war as many of the towns great great grandparents were involved. The Museum does not have the money to bring in new artefacts. If it had new things to show it could attract new visitors to the town.	
Luxury Hotel 	How might business for the hotel be impacted through building an offshore windfarm that visitors can see?	
Lobster Fishing Ground 	Lobster can be sold on land for lots of money in restaurants and the local luxury hotel.	
Scuba Diving Site 	People travel from all over the world to go Scuba Diving here to explore the unique underwater sunken city ruins!	

Seabird Watching Trips 	There is a tour boat that leaves the harbour twice a day to take paying tourists to see the nesting seabirds. The tour boat operators can only make money out of this in the summer when the birds are nesting. During the rest of the year there is nothing else interesting for the tourists to see.	