



Renewable Energy Discovery Island

REDi Island

Scavenger Hunt



REDi Island Scavenger Hunt

DIRECTIONS

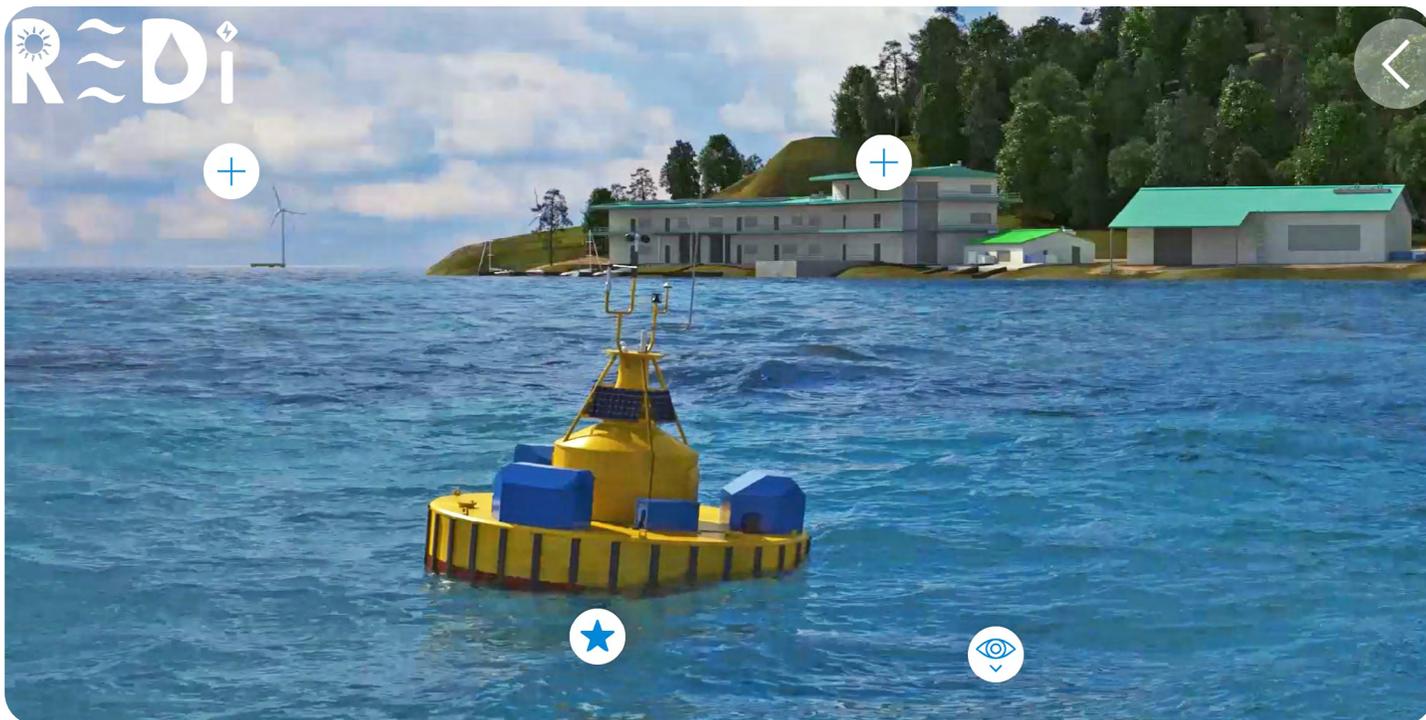
Renewable Energy Discovery (REDi) Island is a virtual, renewable-energy-powered world. This world is home to several water power waystations or hotspots (and a few other renewables, too). Learn more about climate change, clean energy, and the vast power flowing through the world's rivers and oceans through the REDi Island web app.

Select the scavenger hunt questions based on your teacher's instructions. The "simple" version will help you become familiar with navigating around the island its regions. The "in-depth" version involves digging deep into "The Shores" region of the island and requires more time and attention to detail. Use the scavenger hunt questions as your guide to explore the island, or explore the sites following your own path. You do not have to go in order, just remember to go back and answer each question!

QUICK START GUIDE

Navigate around REDi Island, looking for points of interest, technology to explore, and video clips to watch by clicking on the symbols you see below. Click on all the ⊕, 👁, and ★ you see. To take a closer look, and to see video clips, more info, and 3D animations, click anywhere you see "Learn More".

- Click the 🔍 to explore a specific section of the island.
- Explore each site you see marked with a ⊕ symbol or a ★ symbol by clicking on the symbol. More information will appear about each site.
- Click the buttons to enlarge, watch animations, or learn more. Check out video clips, and read short articles where they are available. Click the ⊗ when you've seen all there is to see at a site.
- Click on the 👁 icon to explore something below the water or head back above the surface.
- Scroll up and down using your mouse.
- Head to another part of the island by clicking the ⬅ in the upper right corner or by navigating through the ☰ main menu.



REDi Island Research Reef

REDi Island Scavenger Hunt

BASIC

1. REDi Island is divided into four (4) regions. What are the names of the four regions?
2. Which region of the island contains the city?
3. What is the name of the city? Click on its  to explore.
4. Click on the  inside the city. What is the name for the item that delivers electricity to homes and businesses from power plants?
5. Click the  in the city to take a deeper look. What are the four things you can learn about? Click the  to head back.
6. Find The Hills waystation that stores energy like a battery. What is its name?
7. Click the  at this waystation to learn about the hydropower storage technology used in this region. What is the name for this storage type?
8. Click “learn more” and record one fact you learned about the storage technology from the pop-up resources.
9. Click the  in the top right corner until you are viewing the entire island. Find the section of the island that contains its own island – click to explore The Shores. Write the four (4) waystations you can explore on the small island.
10. Click the  for desalination station. What is the name of the wave technology used to produce clean drinking water for their desalination facility?

REDi Island Scavenger Hunt - In Depth

THE SHORES

WEST SIDE OF THE SHORES

1. What is the name of the facility that is creating clean drinking water?
 - a. How is this site powered?
2. Find Hydro Hollow, the island's conventional hydropower dam. Explain how hydropower works by watching the short clip.
3. What is the name of the city that is powered by the renewable technologies on and around REDi Island?
4. Look closer at what is underwater. Find the technology powering the Desalination Station plant. What is the name of this type of wave technology that is anchored to the seabed?
 - a. Watch the U.S. Navy video on surge flap technology. What is the acronym (name) for the facility in Hawaii where the U.S. Navy helps to test wave energy generation technologies like those on REDi Island? Hint: the juicy information starts at about 6 minutes.
 - b. True or false: LeBron James, a 6'9" basketball player, would stand taller than this technology.
5. List at least three factors that should be considered when finding the right location for wave energy technology like surge flaps.

EAST SIDE OF THE SHORES

6. What are three examples of data and information that research and observation buoys, satellites, and underwater sensors, like the ones at Research Reef, help to provide?

REDi Island Scavenger Hunt - In Depth

THE SHORES

7. Take a closer look and explore Research Reef's observation buoy by viewing the 3D animation. The cables on the buoy serve two roles. What do they do?

a. Can you find and list two types of cameras on the buoy?

8. Find Windy Way, the island's offshore wind farm. Explain how wind turbines work by watching the short clip.

a. Name one benefit and one challenge of using offshore wind?

9. Coral reefs support what fraction of all marine species?

a. How can marine energy devices help coral reefs?

NORTH SIDE OF THE SHORES

10. Find the facility that generates electricity from moving currents of water. What is the name of this facility?

a. Watch the video on the O2. Describe at least one interesting thing you learned about this engineering marvel.

11. Find the system that helps make the best use of renewable energy technologies around REDi Island by storing excess power.

REDi Island Scavenger Hunt - In Depth

THE SHORES

a. When combined with tidal power, these systems can also be used to create what other green (renewable) energy source?

12. Explore the tidal turbine in 3D. List three different parts of the turbine.

13. Studies show that marine animals and fish regularly avoid marine turbine technology, but monitoring must take place to make sure. Play the Marine Energy Adventure Game and pretend you are a fish near the marine energy technology. What is the term used when fish make a last-second movement to avoid a turbine?

a. What is the survival rate for fish in test areas that have collided with a turbine?

SOUTH SIDE OF THE SHORES

14. What items around REDi Island helps vessels in the area operate safely around the marine technology?

15. Take a closer look at the 3D animation of the Navigation Buoy. What is the name of the technology that is used to provide power to the buoy's systems?

16. What are the anchoring systems called that tether marine technology to the seafloor?

a. List the three types of anchoring systems.

b. Which type of mooring system uses propellers to maintain stability?