

TROUBLE ON TRAGIC ISLAND

Magic Island

...and it's Nick Beamer to the rescue!

SPONSORED BY  www.Measutronics.com



HELLO THERE! I'M **NICK BEAMER**, THE **MEASUTRONICS** SURVEY VESSEL. I'D LOVE TO STAY AND CHAT BUT I'M ON MY WAY TO MAGIC ISLAND -- OR SHOULD I SAY, TRAGIC ISLAND! THE PLACE HAS BEEN HIT WITH A HANDFUL OF NATURAL DISASTERS, AND MY HELP IS NEEDED!

WAIT A MINUTE, DO YOU THINK YOU COULD PITCH IN AND HELP OUT TOO? HAVE A LOOK AROUND THE ISLAND, THEN SEE IF YOU CAN TACKLE THE DISASTER-BASED CHALLENGES BELOW!


TASK 1:

NATURAL DISASTERS - WHEN NATURE GOES NUTS

(GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY / LOCATIONAL KNOWLEDGE / LITERACY LINKS - RETRIEVE, RECORD AND PRESENT INFORMATION FROM NON-FICTION)

There are all kinds of destructive events occurring on Magic Island - some are manmade (like the landslide caused by careless deforestation, or the oil leak from a damaged ship), and some are natural. Can you prepare yourself to tackle nature's fury by

completing the information table on natural disasters? You will need to find out about hurricanes, earthquakes, volcanic eruptions, tsunamis, landslides, flooding and wildfires. When you've completed the table, check the poster to see which natural disasters are occurring on Magic Island. We need to be ready for anything! The first one has been completed for you as an example:

DISASTER TYPE	DEFINITION	CAUSE	WARNING SIGNS	DIAGRAM
EARTHQUAKE	A SUDDEN, VIOLENT SHAKING OF THE GROUND, OFTEN CAUSING DESTRUCTION.	EARTHQUAKES ARE THE RESULT OF MOVEMENTS WITHIN THE EARTH'S CRUST -- FOR EXAMPLE, WHEN TECTONIC PLATES SLIP, CAUSING SHOCK WAVES.	CHANGES IN ANIMAL BEHAVIOR. SUDDEN WATER LEVEL CHANGES. POSSIBLE FORESHOCKS.	

TASK 2:

SUPER SONAR TO THE RESCUE!

(GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY / LOCATIONAL KNOWLEDGE - SCIENCE OBJECTIVES - SOUNDWAVES AND BIOLOGICAL STUDY)

Take a quick peek at B,2 and H,6 in the Environmental Disaster Poster, and you'll see two different vehicles using the same technology to 'see' below the surface of the water. That technology is sonar, and it's my favorite kind of survey tech! Sonar is short for sound navigation and ranging, and it is used to detect objects underwater by emitting sound waves and detecting and measuring their return once they've bounced off an object. This is a lot like the echolocation used by animals like bats and dolphins!

Vessels like me, Nick Beamer, can use this technology to scan and map the sea floor. We can

find depth and elevation changes, and we can locate objects that might cause a hazard - which, looking at the state of Magic Island, will be very important if we want to bring emergency service or search and rescue vehicles through the water to the island!

Use the Echolocation, Location, Location sheet to explore how bats, dolphins and submarines use echolocation. Once you've completed it, you'll have a better understanding of why sonar will be so important to our rescue mission!



TASK 3:

WHERE IN THE WILD WORLD OF WEATHER

(GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY / LOCATIONAL KNOWLEDGE)

Magic Island has been hit by a number of natural disasters, but could we expect a hurricane, a cyclone or a typhoon? That depends on where in the world Magic Island is! You see, hurricanes, cyclones and typhoons are all the exact same type of weather system: large, powerful storms with strong winds, heavy rains, storm surges, and an 'eye' in the middle. So why the different names? Well, what these wild weather phenomena are called depends on where in the world they are. Hurricanes are tropical storms that form over the North Atlantic Ocean and Northeast Pacific. Cyclones are formed over the South Pacific and Indian Ocean. Typhoons are formed over the Northwest Pacific Ocean. Use the Wild World Weather worksheet to match the

name of the weather system to the place where you would find them - then see if you can identify which wild weather you would encounter if you were in different parts of the world.



TASK 4:

PLOT A PATH

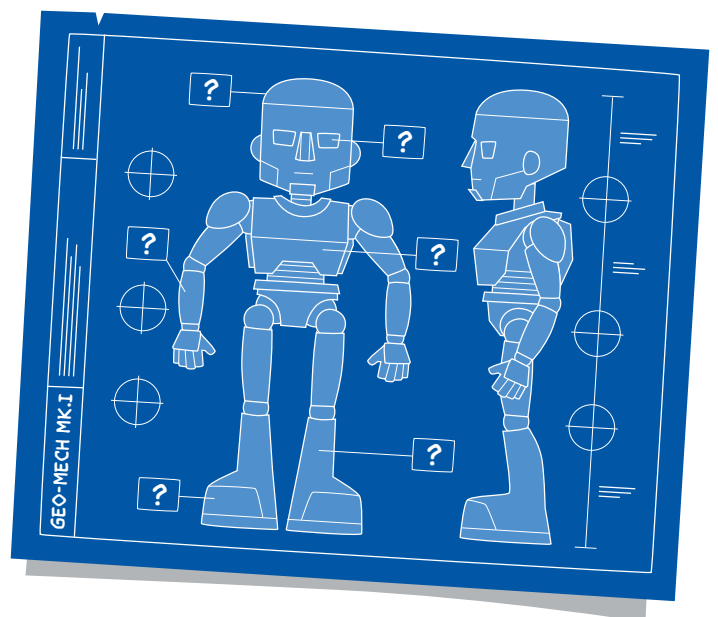
Now that you've got a good grasp of the wild weather and destructive events we might encounter around Magic Island, it's time to do what GeoSurveyors do when disaster strikes: lead the rescue efforts safely to those who need it! Survey vessels use their scanning and mapping technology to determine and verify hazard-free routes for inbound relief vessels; it wouldn't be much good if a rescue boat got damaged by debris, or ran aground on shifting coastlines after a landslide or earthquake! Can you use the aerial view of Tragic Island to plot a safe course, so that I can lead the relief vessels to the people stuck on the island?

TASK 5:

PREP A MECH


(GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY / LOCATIONAL KNOWLEDGE - DESIGN TECHNOLOGY OBJECTIVES - DESIGN AND EVALUATE A SOLUTION)

Zoom in on E,4 - what do you see? That's a special addition to the GeoSquad: a team of Geosurvey mega mech's controlled by four smart, super-skilled kids, who you can also find somewhere on Magic Island! Each of the team's mechs has been specially designed with survey tech to explore and map the most treacherous of places, but they might have met their match on Magic Island! It's your job to take the basic mech model on the worksheet and add on any tech you think would be needed to tackle the troubles of Tragic Island. For example, would it be useful for the mechs to be able to put out that forest fire? Maybe they need foam extinguisher shooters mounted to their arms! Might it be good if they could stop those oil leaks? Customize your mech and get it ready for a rescue mission!



TASK 1: NATURAL DISASTERS - WHEN NATURE GOES NUTS

Can you prepare yourself to tackle nature's fury by completing this information table on natural disasters? You will need to find out about hurricanes, earthquakes, volcanic eruptions, tsunamis, landslides, flooding and wildfires. The first one has been completed for you as an example:

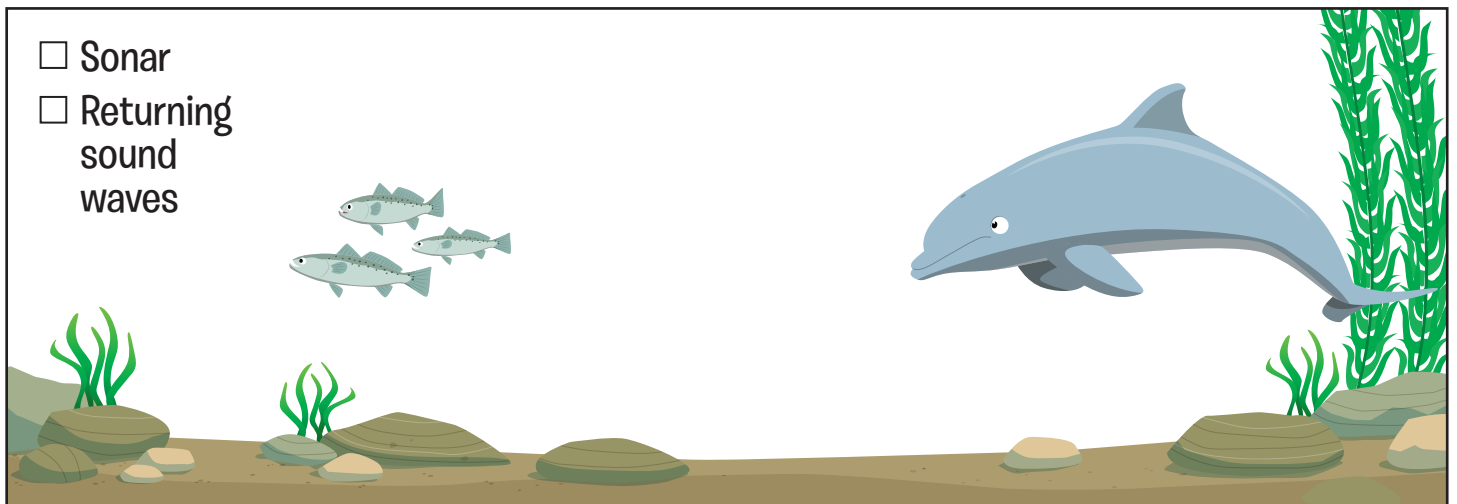
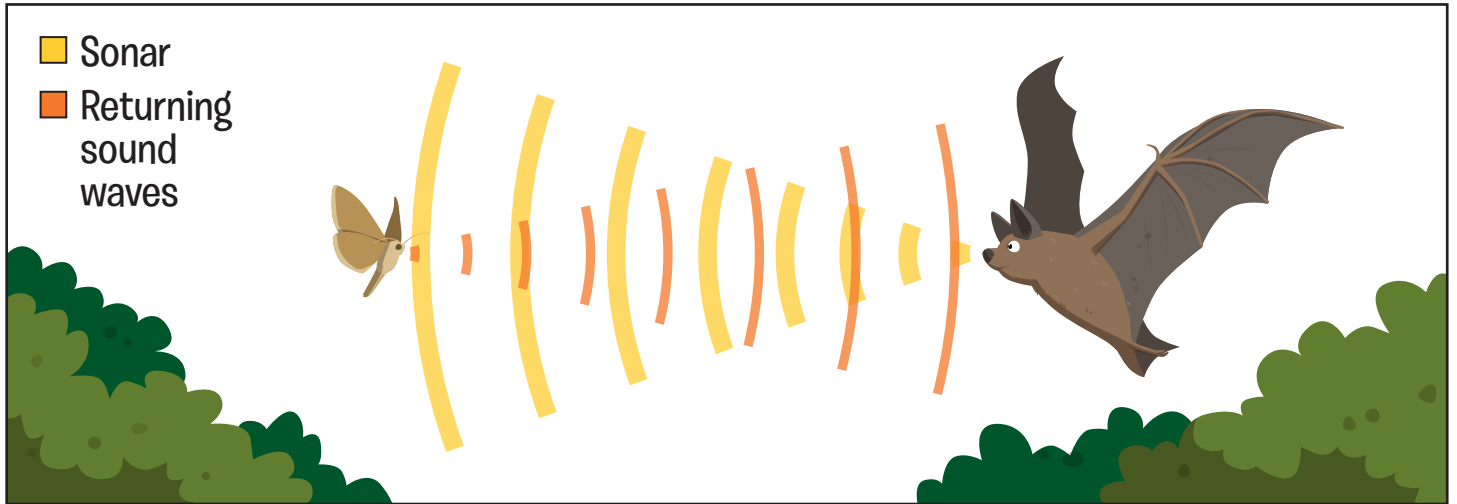
DISASTER TYPE	DEFINITION	CAUSE	WARNING SIGNS	DIAGRAM
EARTHQUAKE	A SUDDEN, VIOLENT SHAKING OF THE GROUND, OFTEN CAUSING DESTRUCTION	EARTHQUAKES ARE THE RESULT OF MOVEMENTS WITHIN THE EARTH'S CRUST -- FOR EXAMPLE, WHEN TECTONIC PLATES SLIP, CAUSING SHOCK WAVES.	CHANGES IN ANIMAL BEHAVIOR. SUDDEN WATER LEVEL CHANGES. POSSIBLE FORESHOCKS.	
HURRICANES				
VOLCANIC ERUPTIONS				
TSUNAMIS				
LANDSLIDES				
FLOODING				
WILDFIRES				



ECHOLOCATION, LOCATION, LOCATION!

TASK 2: SUPER SONAR TO THE RESCUE!

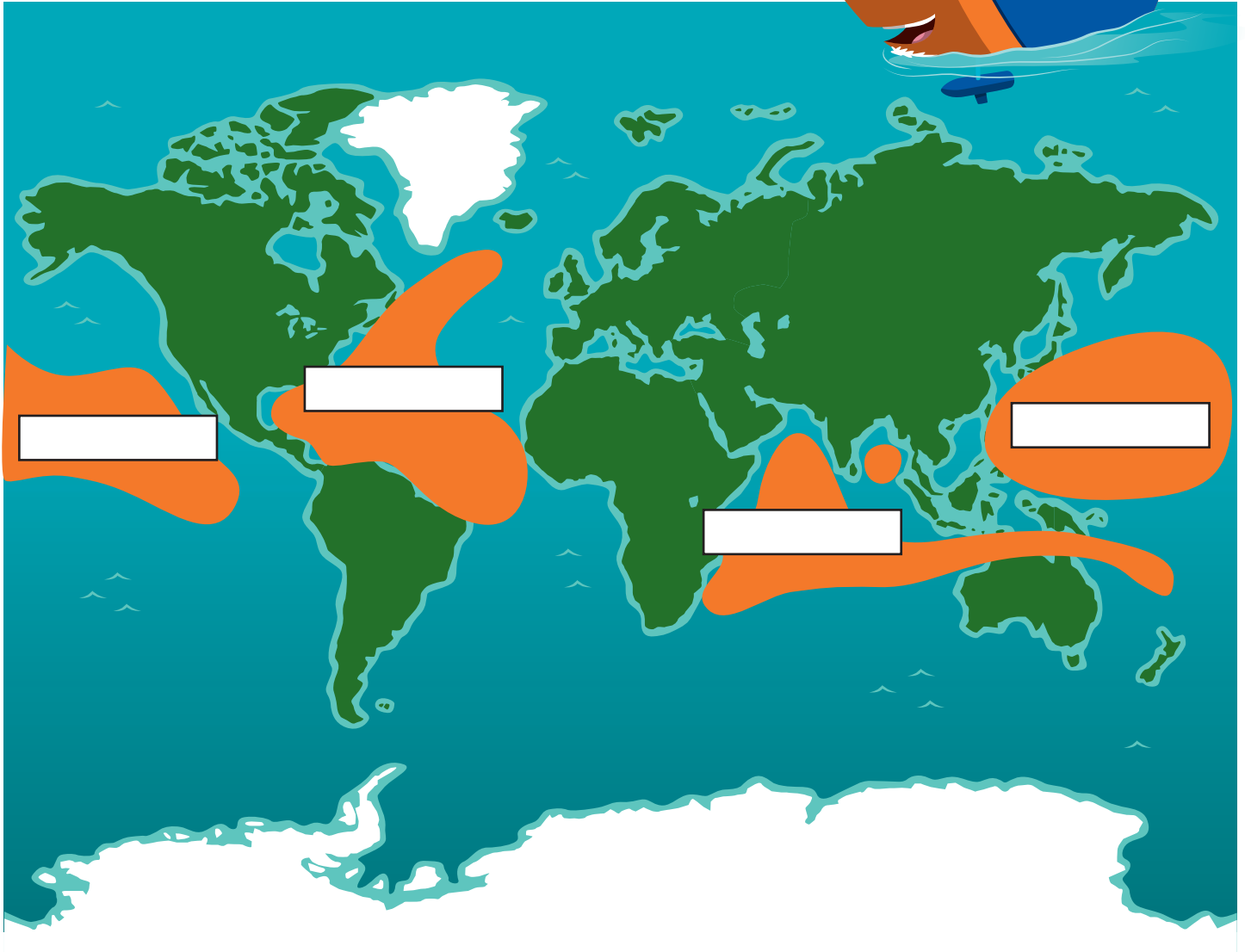
Use this sheet to explore how bats, dolphins and submarines use echolocation to navigate and locate objects around them. Add the sonar waves and returning sound waves to the dolphin and submarine images to demonstrate how sonar works: sending out waves of sound and sensing / measuring the distance to the object where the echo occurs. The bat example has been done for you.



WILD WORLD WEATHER!

TASK 3: WHERE IN THE WILD WORLD OF WEATHER

Use your research skills to discover which type of weather system occurs in which area of the world. Once you've found out where cyclones live, where hurricanes hang out, and where typhoons typically come from, use the knowledge to answer the questions below the map.



What is the name of the wild weather system you might encounter if you lived in:

Mexico? _____

Japan? _____

India? _____



TASK 4: PLOT A PATH

Can you use the aerial view of Tragic Island to plot a safe course, so that Nick Beamer can lead the relief vessels to the people stuck on the island?

START



TASK 5: PREP A MECH

It's your job to take this basic mech model and add on any tech you think would be needed to tackle the troubles of Tragic Island.

For example, would it be useful for the mechs to be able to put out that forest fire?

Maybe they need foam extinguisher shooters mounted to their arms!

Might it be good if they could stop those oil leaks?

Customize your mech and get it ready for a rescue mission!

Make sure you label each piece of tech you add.

