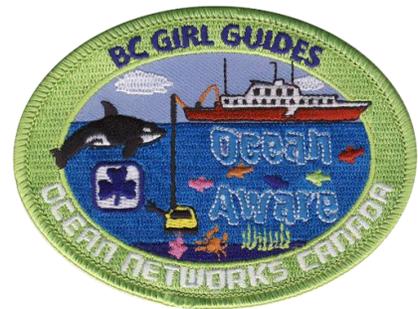


OCEAN AWARE: PART 2

AN INSTANT MEETING FOR BROWNIES FROM THE BC PROGRAM COMMITTEE

The Ocean is an amazing place, something that everyone can experience, regardless of where they live. The Ocean Aware challenge is designed to get girls and Guiders thinking about the ocean in different and exciting ways, while exploring the principles of ocean literacy. Through this challenge, we hope to create a growing awareness, understanding and curiosity about the ocean, Ocean Networks Canada, and the seven principles of ocean literacy.



There are many activities within the Ocean Aware Challenge crest, so if you would like to exchange one activity for another, please feel free to do so!

Doing both instant meeting plans in this document will earn the Brownies the Ocean Aware challenge crest.

Meeting Plan

- 10 min: Gathering: Whale Sounds
- 5 min: Brownie Gathering
- 15 min: Opening Discussion: Sounds in the Sea
- 15 min: How big is that animal?
- 20 min: Erosion Cycle Race
- 10 min: Parachute Water cycle
- 10 min: Become an HOV
- 5 min: Brownie closing

90 minute meeting. Approximate activity times shown.

Program Connections

Key to the Living World:

1. Wonderous Walks, 6. Weather Watch Saving our Planet, Animal Interest Badge and Special Interest Badge

Key to STEM

SSSS Stands for Sound, Surround, Soothe & Stimulate interest Badge
Special interest Badge

Key to Active Living

Go For It! Interest Badge

Meeting Supplies

- whale sounds from Ocean Networks Canada “Sounds of the Deep” playlist <http://www.youtube.com/playlist?list=PLD01ED3024EAE9A3F>
- a ball of yarn or string (you’ll need quite a lot, 30m or so)
- measuring tape
- masking tape
- markers
- animal size chart (end of document)
- animal pictures from Ocean Networks Canada and Wikimedia Commons (end of document)
- computer with speakers
- erosion cycle cards, printed on cardstock
- colouring supplies
- water droplet cut-outs (about 36) from blue paper
- bed sheet or parachute
- 10 to 20 metres of string or rope (to help keep everyone safe)
- fish stickers or fish toys (or other small objects for the girls to look for)
- coats, boots, shoes, chairs and other objects to make your “terrain”
- toilet paper tubes
- various craft supplies to decorate the tubes

Gathering: Whale Sounds

Directions

Download some whale sounds from Ocean Networks Canada. Play the whale sounds while the girls arrive.

If you do not have access to internet, you can download videos for playback while not online see <http://www.wikihow.com/Download-YouTube-Videos> for instructions.

Supplies

- downloaded whale sounds
- computer with speakers

Opening Discussion: Sounds in the Sea

Light doesn’t travel very far in the ocean, so many animals have adapted to use sound instead of sight to communicate or “see” their environment. In this activity, listen to some amazing ocean sounds!

Directions

1. Ask the girls to think about what their lives would be like without sound? How important is sound to them? Guide their discussion by asking, “What can sound tell us?” “How do sounds help?”
2. Ask the girls, “What sounds might you hear in the ocean?” “Do you think you could you hear boats, whales, ships, seals or earthquakes?” “What do they think each will sound like?”
3. Play some of the sound clips from the “Sounds of the Deep” playlist or from the Audio Highlights page on the Ocean Networks Canada Website <http://www.oceannetworks.ca/sights-sounds/sounds/audio-highlights>. Ask the girls to

Supplies

- downloaded whale sounds Whale sounds from Ocean Networks Canada “Sounds of the Deep” playlist <http://www.youtube.com/playlist?list=PLD01ED3024EAE9A3F>
- computer with speakers

guess what it might be. After the girls have had a chance to guess, explain what the sound is.

4. Some clips you may enjoy playing are:
 - Humpback Whale Solo
 - Haida Gwaii Earthquake Rumbles
 - Humpback Quartet
 - Sperm Whale Clicks
 - Clear Recording of Inner Coast Bigg's Killer Whales
 - Any others you enjoy!

Encourage the girls to guess what the sound might be. The answer and a brief description are found below each clip.

5. Ask the girls why is it important to listen to an environment as well as observe it visually? How can sound (such as a whale song) help us understand how whales live in their marine environment?

How Big is That Animal?

The ocean supports the greatest diversity of life on our planet. It has more animal species than all of the land combined. The ocean holds some very small animals, and some very big ones! In this activity, see what size a few of these animals are. Can you find any as big as you?

Directions

1. Take the string and the measuring tape to measure out different sea creatures. The list below is only a suggestion, you can add your own if you like!
2. Starting at one end of the yarn, measure out the first creature. Mark it off with tape. Next, take the measurement for the next creature, subtract the first, add the difference to the string and mark with tape. For example, measure the plankton and mark 1mm. Then add 9mm for the sea gooseberry. Next, add the 4.5cm for the shore crab. Each animal is measured from the end of the string, rather than between each piece of tape.
3. As you go, it can be fun to have the girls guess the length of the next animal to be added. When you are finished, your string will be 30 metres long. This is the size of a blue whale, which is the largest animal to ever live.
4. Use the pictures to help the girls visualize the animals being measured. How many are new to them? How many are familiar?

TIP: If your string is not long enough to reach 30 metres, measure 30 -1 metre spaces on the ground and mark with tape. You may even have to go around a corner or back and forth –blue whales are huge!

Supplies

- a ball of yarn or string (you'll need quite a lot, 30m or so)
- measuring tape
- masking tape
- markers
- animal size chart (end of document)
- animal pictures (from Ocean Networks Canada and Wikimedia Commons- end of document)

Erosion Cycle Race

Erosion is the process that changes rocks and landscapes over time. Erosion takes a long time, and is too gradual to observe directly, but we can see the results around us. For example, beach rocks become smooth as waves wash over them again and again. The Erosion Cycle also allows new rocks to form in the Earth. In this activity, explore the basic concept of erosion.

Supplies

- erosion cycle cards, printed on cardstock (for more durable cards, consider laminating them)
- colouring supplies

Directions

1. Print a set of cards so that each girl will have one card. For example, if you have 20 girls, you will need 4 sets of cards. Girls can colour one card each, as you explain the Erosion Cycle.
2. Each card is one step in the Erosion Cycle. You can simplify the Erosion Cycle like this:
 - a. Large rocks break away from cliffs or mountains through weathering. These rocks can be changed by wind, rain and waves.
 - b. Over a long time, these large boulders become smaller rocks as they are worn down by wind, waves, freezing, and plants growing in cracks.
 - c. Water drops carry the tiny pieces of eroded rock (called sediment) to lakes, rivers and oceans. During heavy rain, water can have lots of rock pieces in it, making it look muddy. Water helps move rocks to the next part of the cycle.
 - d. Plants can help slow erosions by holding rocks, sediment and dirt with their roots, or by absorbing water. Plants do not stop erosion, but they do slow it down.
 - e. Any sediment that gets to rivers, lakes or the ocean is laid down in a thin layer of rocks and minerals. Over millions of years, these layers become new rocks.
 - f. Eventually, the new rocks will become exposed to air, where the process of erosion starts all over again.
3. When the girls are done colouring the cards, line the girls up on one end of the playing area, and cover the other end with the rock cards. Place the rock cards face down.
4. On “GO”, have the girls run to the other end of the area to find a card. Each girl only gets ONE card. Leftover cards can remain on the ground.
5. When a girl has a card, she must complete the Erosion Cycle by finding girls with the other 5 cards from the cycle. Girls are to form groups of 6, then stand in the order of the Erosion Cycle.
6. When a group has formed a full erosion cycle, they yell “WE ROCK” and sit down. A leader checks they are in the correct order, and the first team completed wins.
7. Repeat the game, making sure each girl gets a new card in each round.

Parachute Water Cycle

All the water on Earth is connected via the water cycle. Streams, rivers, and lakes drain into the ocean, where water can collect and evaporate. Water vapor then goes into the sky, where it forms clouds. From here, the water returns to the Earth as rain, where it

Supplies

- water droplet cut outs (about 36) from blue paper
- bed sheet or parachute

enters lakes, river, and streams, keeping the water cycle going. Try this fun game to visualize this cycle.

Directions

1. Put the water droplets in the centre of the bed sheet or parachute. This is the ocean.
2. The girls hold onto the sides of the sheet and gently toss the water droplets up and down. This is when the sun heats up the water and it evaporates into the sky, to form clouds. When water changes from a liquid (water) to a gas (water vapor) this is called evaporation.
3. At the shout of "RAIN", the girls toss the sheet high in the air, making the water droplets fly – the clouds are full of water – shake the parachute to make all of the water drops fly off like raindrops.
4. Have the girls collect the scattered rain drops. They are like the rivers and streams bringing the water back to the ocean.

Become an H.O.V.

The deep sea is an amazing place, yet one that is very hard to get to. Exploring the deep sea is done with robots, as it is too cold, deep and dark for people to go without equipment. People from a ship control these robots. Because the people are not inside the robot, we call them ROV's (**R**emotely **O**perated **V**ehicles). If people are actually inside (like a car), then we call them HOV's (**H**uman **O**perated **V**ehicles).

Directions

1. For this activity, you will need to do a bit of setting up beforehand. Get the girls to help you set up this activity, to save time.
2. Lay the string or rope along the ground in a wide, curving pattern. This is the path the girls will follow to help keep themselves safe.
3. Have the girls put the "terrain" objects along one side of the rope (for example, all on the left). The more terrain, the more interesting the activity. Keep the other side of the rope clear, so the girls can walk with their viewfinder without stumbling or tripping.
4. Give each girl a toilet paper tube. This is her viewfinder in the H.O.V. Have the girls decorate the viewfinders while one leader hides the scavenger hunt items in the terrain (the small stickers or toys). The girls should be able to see everything without touching the terrain.
5. When the viewfinders and terrain are ready, take the girls to one end of the rope (the bottom of the ocean). Explain they are now an H.O.V, and they are looking for animals at the bottom.
6. Have each girl look through the tube and follow the rope path from one end of the rope to the other. As the girl walks down the path, she should look for some scavenger hunt items.
Optional: Guiders may choose to walk beside very young girls, to help keep them safe.
7. After everyone has a turn walking down the path, take a second turn without the viewfinder. Explore them. What was it like to see out of a tiny HOV window? What was it like without

Supplies

- 10 to 20 metres of string or rope (to help keep everyone safe)
- fish stickers or fish toys (or other small objects for the girls to look for)
- coats, boots, shoes, chairs and other objects to make your "terrain"
- toilet paper tubes
- various craft supplies to decorate the tubes

it? Why would exploring the ocean be difficult inside an HOV? Why would it be important to always have a good view?

Closing

Before Brownie closing, reflect with the girls on what they learned about the ocean today. Explain to them that they will have one more ocean meeting and then they will earn the Ocean Aware crest.

Close the meeting using your usual closing.

How Big is That Animal Size List

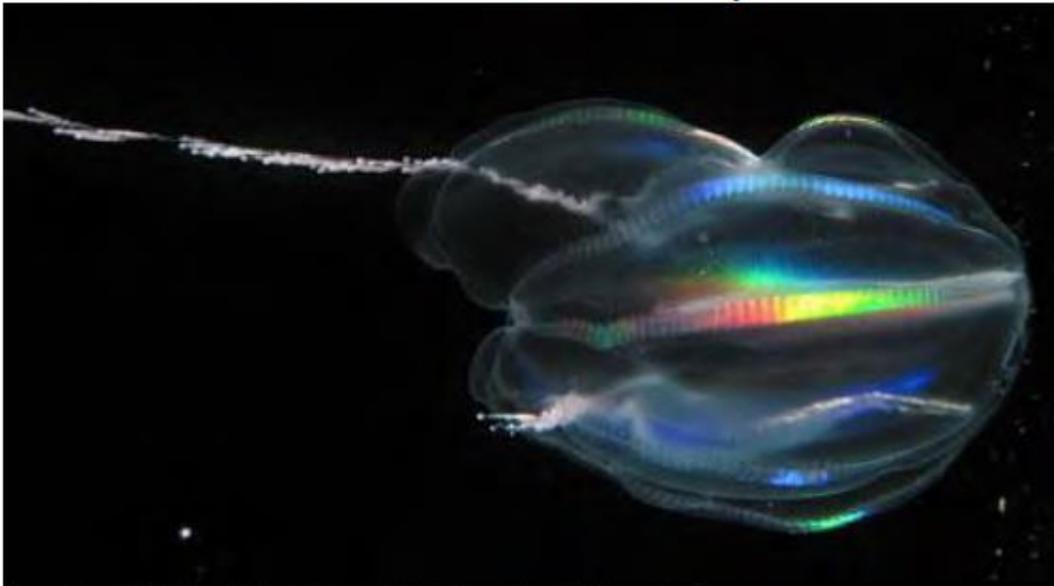
| Animal | Approximate size |
|----------------------------|-------------------------|
| Plankton | <1 mm |
| Sea Gooseberry | 1 cm |
| Shore Crab | 5.5 cm |
| Herring | 23 cm |
| Red-rock Crab | 25 cm |
| California Sea Cucumber | 50 cm |
| Salmon | 71 cm |
| Otter | 1.5 m |
| Wolf Eel | 2.5 m |
| Harbor Seal | 1.8 m |
| Pacific Whitesided Dolphin | 2.5 m |
| Humboldt Squid | 3.6 m |
| Orca Whale | 8 m |
| Sperm Whale | 16 m |
| Blue Whale | 30 m |

Plankton



Zooplankton. Photographer: Matt Wilson/Jay Clark, NOAA NMFS AFSC [\[CC-BY-2.0\]](#). via [Flickr.com](#)

Sea Gooseberry



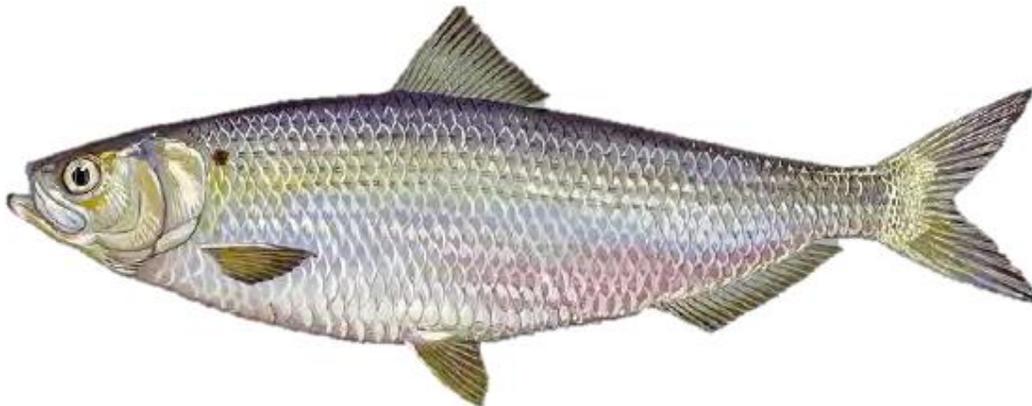
Kevin Raskoff, [NOAA Photo Gallery](#) [Public Domain], via [Wikimedia Commons](#)

Shore Crab



Matthew Zalewski (Own work) [CC-BY-SA-3.0], via [Wikimedia Commons](#)

Herring



Duane Raver, U.S. Fish and Wildlife Service [Public domain], via [Wikimedia Commons](#)

Red Rock Crab



VENUS; [Ocean Networks Canada](#)

California Sea Cucumber



Wikimedia Commons: "Parastichopus californicus" - Giant california sea cucumber From [NOAA](#).

Salmon



Knepp Timothy, U.S. Fish and Wildlife Service [Public domain], via [Wikimedia Commons](#)

Otter



Ken Thomas [Public domain], via [Wikimedia Commons](#)

Wolf Eel



Alaska Fisheries Science Center [Public domain], via [Wikimedia Commons](#)

Harbor Seal



Boyd Amanda, U.S. Fish and Wildlife Service [Public domain], via [Wikimedia Commons](#)

Pacific Whitesided Dolphin



Pacific Whitesided Dolphin: (cropped), Françoise Gervais, [\[CC BY-NC-SA 2.0\]](#), via [flickr.com](#)

Humboldt Squid



Rick Starr. NOAA/CBNMS (NOAA Photo Library: sanc1686) [Public domain], via [Wikimedia Commons](#)

Orca Whale



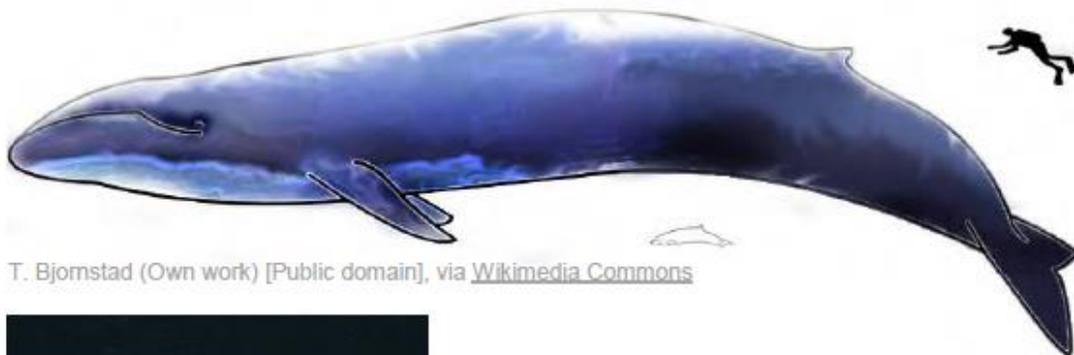
Mlewan (Own work) [Public domain], via [Wikimedia Commons](#)

Sperm Whale



Gabriel Barathieu, [CC-BY-SA-2.0], via [Wikimedia Commons](#)

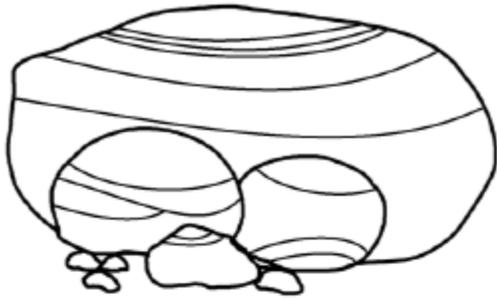
Blue Whale



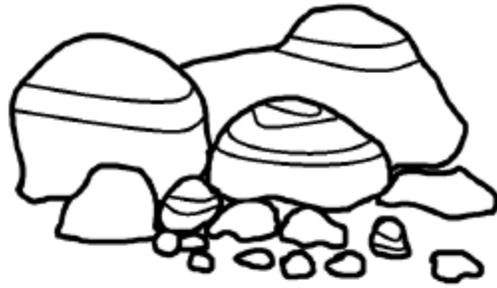
T. Bjornstad (Own work) [Public domain], via [Wikimedia Commons](#)



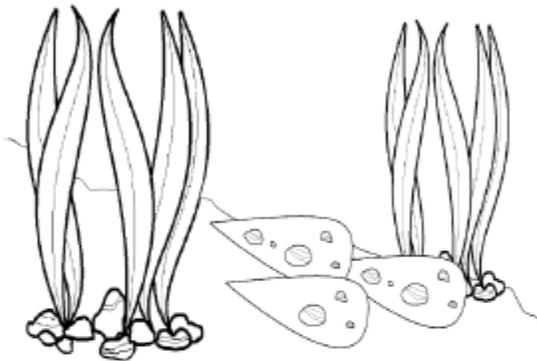
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Large rocks break away from cliffs or mountains.



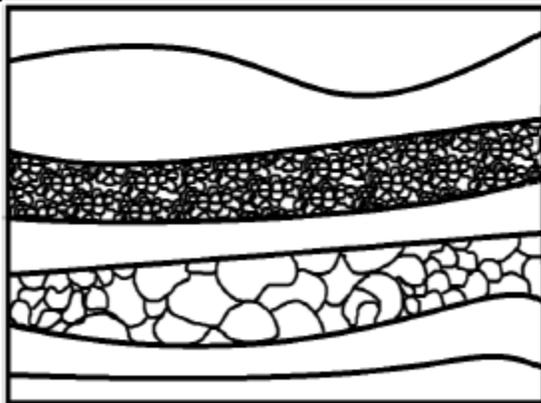
Wind and water break large rocks into smaller rocks.



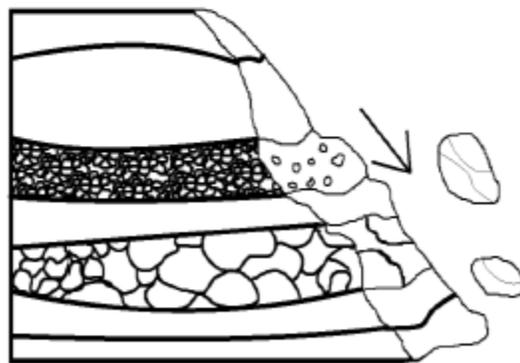
Water droplets carry tiny pieces of rock, called sediment, into lakes, rivers and oceans.



Plants help slow erosion by holding small rocks and sediment in their roots.



Tiny pieces of rock and sand collect at the bottom of waterways as sediment layers.



After millions of years, sediment layers become exposed to weathering and large rocks can break away.