CURRICULUM SUPPLEMENT

For use with the **Action!** section of Watching Walrus

ACTIVITY ONE: IMAGINING A RESEARCH SITE

Materials:

-pens/pencils
-blank site diagram for each student (see below)
-Videos: **Round Island** & **Cape Seniavin**

Time: 30 minutes

Background:

When the researchers select a haulout site to monitor, they must carefully decide the best areas around the site to setup their cameras. They hope to pick camera locations that give them a complete view of the haulout so they can monitor walrus behavior. They also want to place cameras aimed at areas of nearby land and water so they can see what may have caused a disturbance when one occurs. Ideal sites are out of the way of the walrus, with unobstructed views of desired areas. In this activity students will use the blank site diagram (provided with this lesson) to design a possible monitoring site. Students may use up to four cameras to monitor the land and sea around the haulout. The goal of this activity is to get students to recognize that there are many correct ways to monitor one site (see one possibility on next page). Footage in the ***video: Challenges*** shows footage of haulout site similar to the one in this video. Replay this footage to help inspire students as they work on their diagrams.

Discussion:

After watching **Round Island** and **Cape Seniavin** videos facilitate discussion prepping students for activity:

- What did the sites at Round Island and Cape Seniavin have in common?
-What was it about the geography of these sites that made them ideal places to set up cameras?

Directions:

1. Hand out blank site diagrams, one to each student.

2. Explain that in this activity students will have a chance to design their own observation site. They will select locations near the haulout to place cameras, justifying why the selected each location.

3. Students may place a maximum of 4 cameras. Clarify that there isn't one correct way to arrange cameras, that what is most important is that students think through their locations and be able to justify how each placement meets researchers objectives.

4. Instruct each student to write or carefully illustrate what area each camera would document. They should note why they thought each selection to work well, and what the camera will capture.

**Footage from the videos shows haulout site similar to the one in this diagram. Replay this footage to help inspire students as they work on their diagrams.*

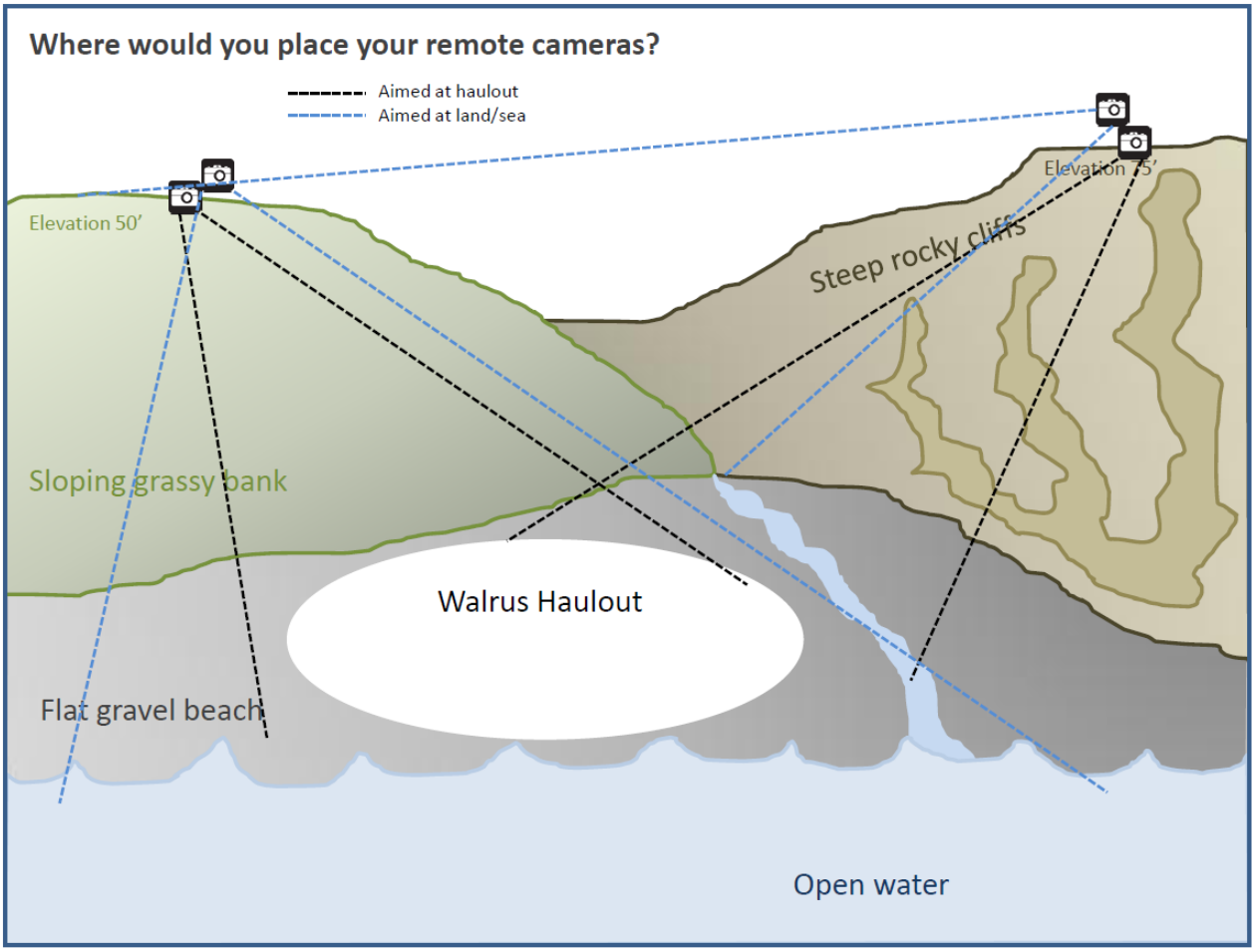
5. Have students share their designs with a partner. Give each student time to describe their camera placements. Wrap things up as a class. Ask:

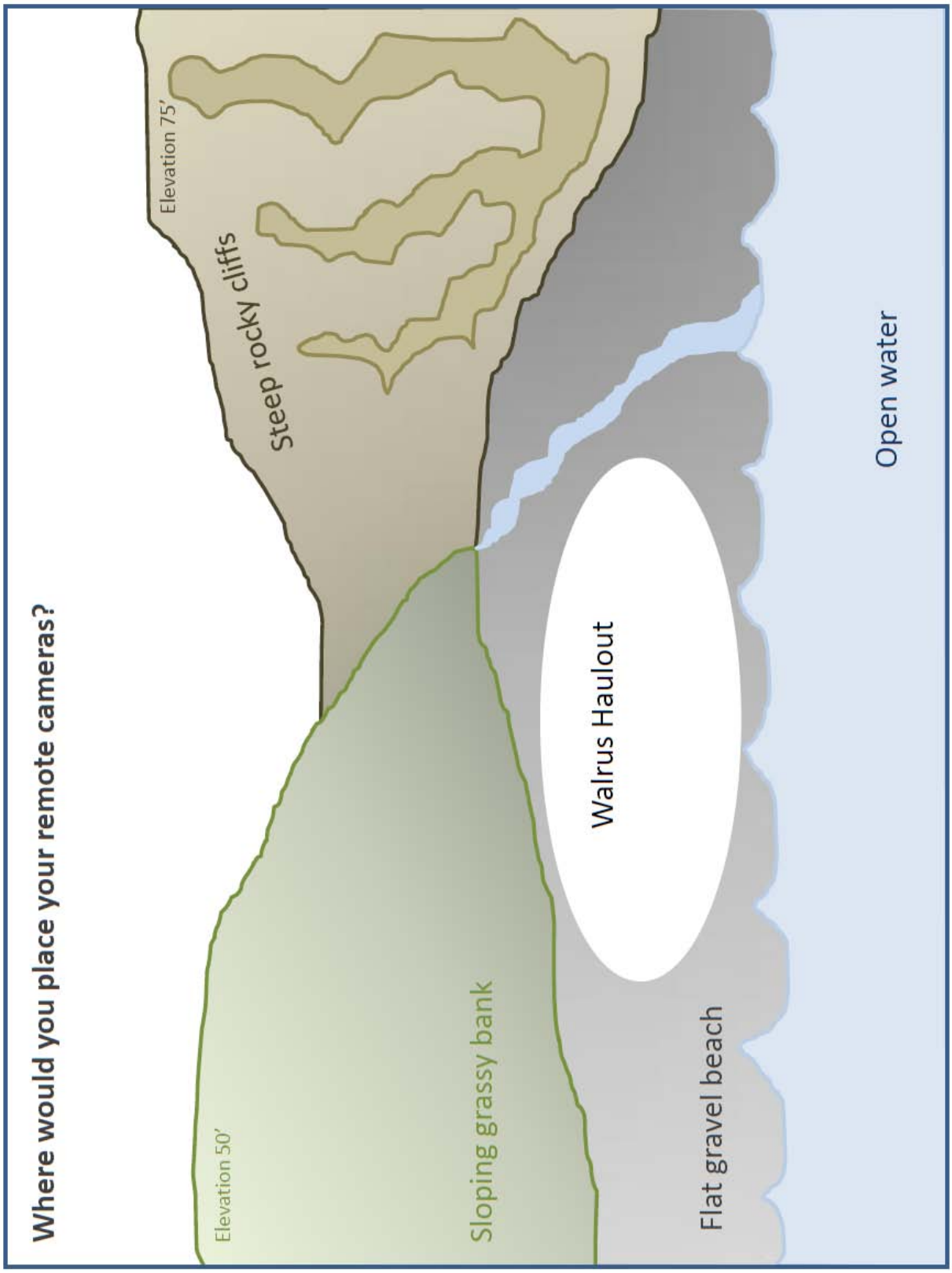
-Did you set up your site in the exact same way as your partner?
-Did you gain any insight from the way your partner designed their site?
-Was there anything you would do differently next time?

Conclusions:

Students should recognize that many methods can be used to answer a scientific question. Though some students' designs may be stronger than others, most likely represent possible solutions to the objectives setup by scientists.

SAMPLE DIAGRAM:




Where would you place your remote cameras?
Elevation 50'
Sloping grassy bank
Flat gravel beach
Walrus Haulout
Steep rocky cliffs
Elevation 75'
Open water

ACTIVITY TWO: CAMERAS IN ACTION

Materials:

-White board, smart board or other presentation tool
-Videos: **Taking Pictures** and **Collecting Data**
-Paper and pencils for doing calculations

Time: 15 minutes

Background:

In the **Taking Pictures** Video, Research Associate Jill Prewitt explains the camera timing systems the scientists chose to use in 2011. Using this information, your class can calculate exactly how many pictures scientists can expect to find on their memory cards at the end of the season, provided everything goes according to plan.

Directions:

1. After watching **Taking Pictures** video, ask students if they have any idea how many pictures the research team will have at the end of the season. Invite students to take a guess, recording their ideas in an area on the board.

2. Explain that using the data Jill Prewitt provided, that your class can work together to figure out exactly how many pictures the team will have to review.

3. Complete the calculation together as a class on the board at the front of the room. Make sure students have paper and pencil so they can follow along with the calculations.

A. Calculate how many picture one camera takes in one day.
B. Calculate the number of days between June 1st and September 30th. *for this activity we've averaged the start date- real start dates ranged from mid-may through mid-june.
C. Multiply number of days by pictures per day.
D. Multiply last number by 10 (to represent the 10 cameras during 2011 Season).

Completing the photo calculations

Time:	# picture/hr.	total hours	total pictures
6am-10am	1	4	4
10am-6pm	60	8	480
6pm-10pm	1	4	4
		total=	488

Month:	# of days
June	30
July	31
August	31
September	30
total days=	122

total pictures	488
x total days	122
total pics/cam	59,536
total pics/cam	59536
x toal cameras	10
TOTAL PICTURES	595,360

Discussion:

After completing your calculations ask students to reflect on how many pictures this is. ***Share this fun fact**: If two researchers spent twelve hours a day reviewing photos, and spent only 30 seconds on each individual photo it would take them more than 200 days to look at every picture! (That's more than six months).*

Ask students to think back on the **Collecting Data** video. Have them remind you what researchers are looking for in each picture.

-What shortcuts might they be able to take to make this task more manageable?

Conclusion:

It is important for scientists to develop efficient strategies for reviewing the data they collect. In the case of this project, the research team needed to know what clues of a disturbance might be. They also needed to be able to reliably conduct censuses of walrus at haulouts without counting every walrus, each time. In the next activity, students will have a chance try this out!