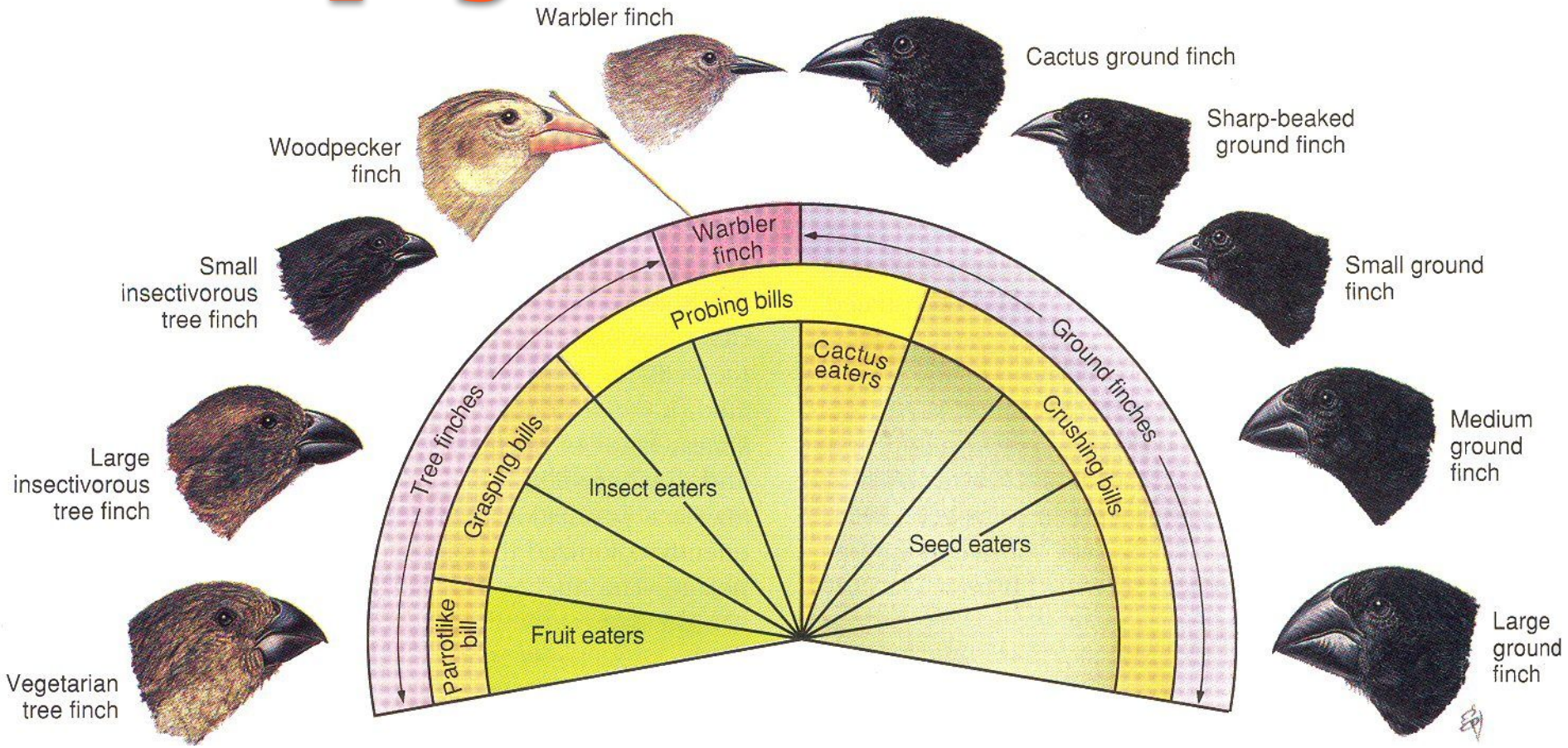
Names: christian

Galapagos Ground Finches



Background:

Ground finches are small brown birds that live in the Galápagos Islands. Two biologists, Peter and Rosemary Grant, have been studying the ground finch population on the island of Daphne Major since 1974. They travel to the island in the summer to capture, tag, and measure each finch on the island. By keeping track of each bird, they can see how many birds survive, how they physically change over time, and how the bird breeds and reproduces.

Background:

During the summer of 1976 there were 751 finches on the island of Daphne Major when the Grants made their observations. In 1977, a severe drought began on the island and only 20 mm of rain fell for the entire year! Many plants did not have enough water to survive which limited the food supply for many species on the island.

Some of the plant life affected by this drought on Daphne Major included two species of seed-producing plants. Their scientific names are *Tribulus terrestris* and *Portulaca oleracea.* The Tribulus plants produce large hard seeds and the Portulaca plants produce small, soft seeds. The ground finches like to eat the Portulaca seeds, because they are soft and easy to get. After the drought towards the end of 1978, the scientists recorded that only 90 ground finches remained on the island.

Assignment:

Today you will go back in time to be the researcher! Examine the data collected by your fellow scientists including: beak characteristics of the ground finch, population data, rainfall, and seed types. Using this data and what you know about natural selection, variation, and changes in population, determine what happened to the ground finches.

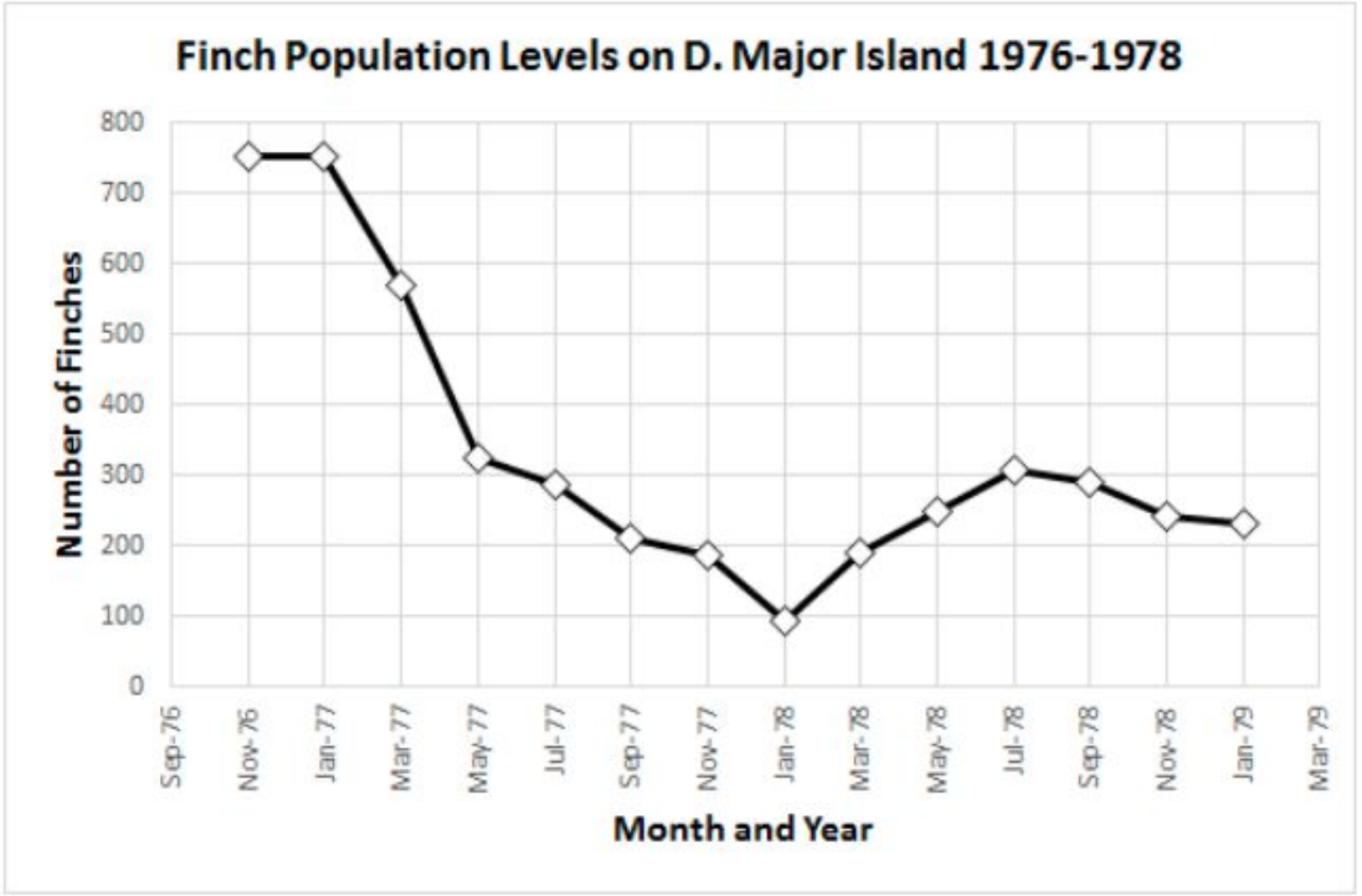
Clear Learning Target

I can analyze and interpret data to create an argument explaining how stressors in an environment affect changes within a species.

DATA Analysis

Data Analysis Instructions

1. With your partner, analyze each graph and record your observations on the following slide.
2. Feel free to make notes on a separate paper if need be.
   a. Take a picture of your notes.
   b. Upload into your slide presentation.
   c. **HCS@Home**: Click HERE to see the graphs side by side if needed!
3. **Think about:**
   a. **What are we comparing here? (HINT: Look at axes, title, and labels)**
   b. **What trends do I see? (HINT: ups, downs, compare/contrast)**
   c. **What else can I say about these things?**


Finch Population Levels on D. Major Island 1976-1978
Number of Finches
800
700
600
500
400
300
200
100
0
Sep-76
Nov-76
Jan-77
Mar-77
May-77
Jul-77
Sep-77
Nov-77
Jan-78
Mar-78
May-78
Jul-78
Sep-78
Nov-78
Jan-79
Mar-79
Month and Year

Finch Population Levels on D. Major Island ‘76-’78

Observations:

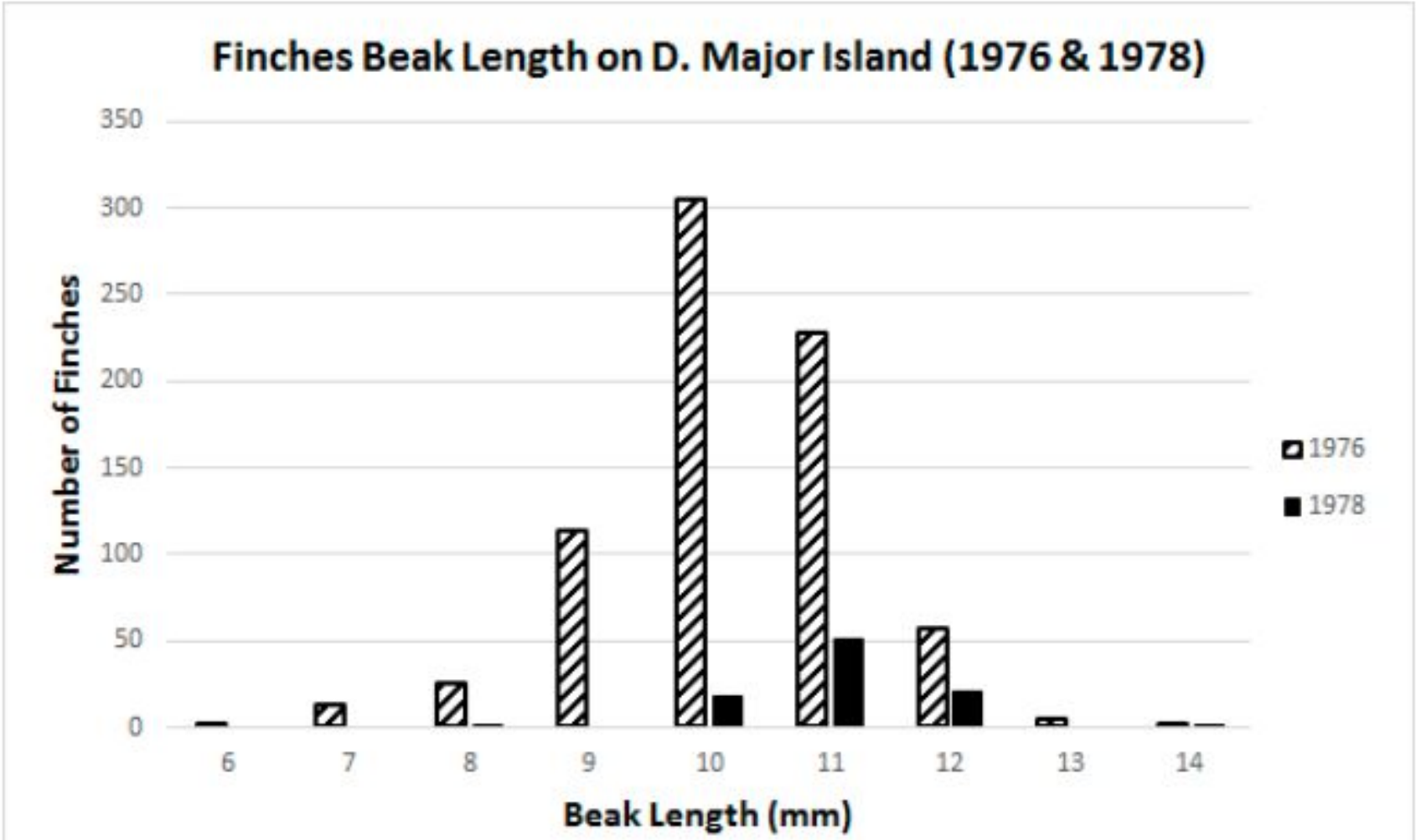
<Add Observations HERE>

went way down then up a bit

Almost went extinct

Some sort of change in the environment happened

They adapted to it

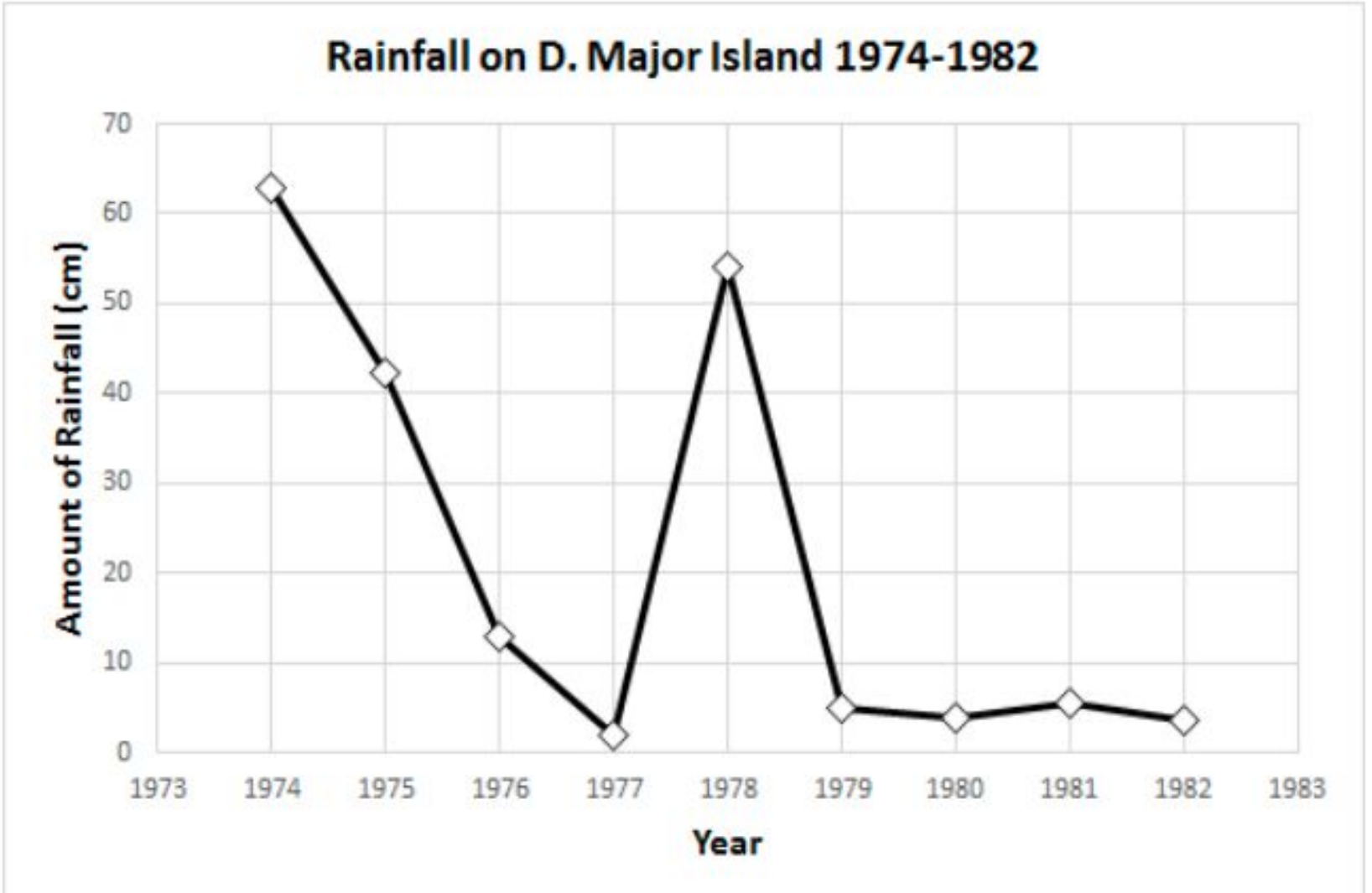

Finches Beak Length on D. Major Island (1976 & 1978)
Number of Finches
350
300
250
200
150
100
50
0
6
7
8
9
10
11
12
13
14
Beak Length (mm)
1976
1978

Finch Beak Length on D. Major Island (1976 & 1978)

Observations:

<Add Observations HERE>

some change to the food source happened

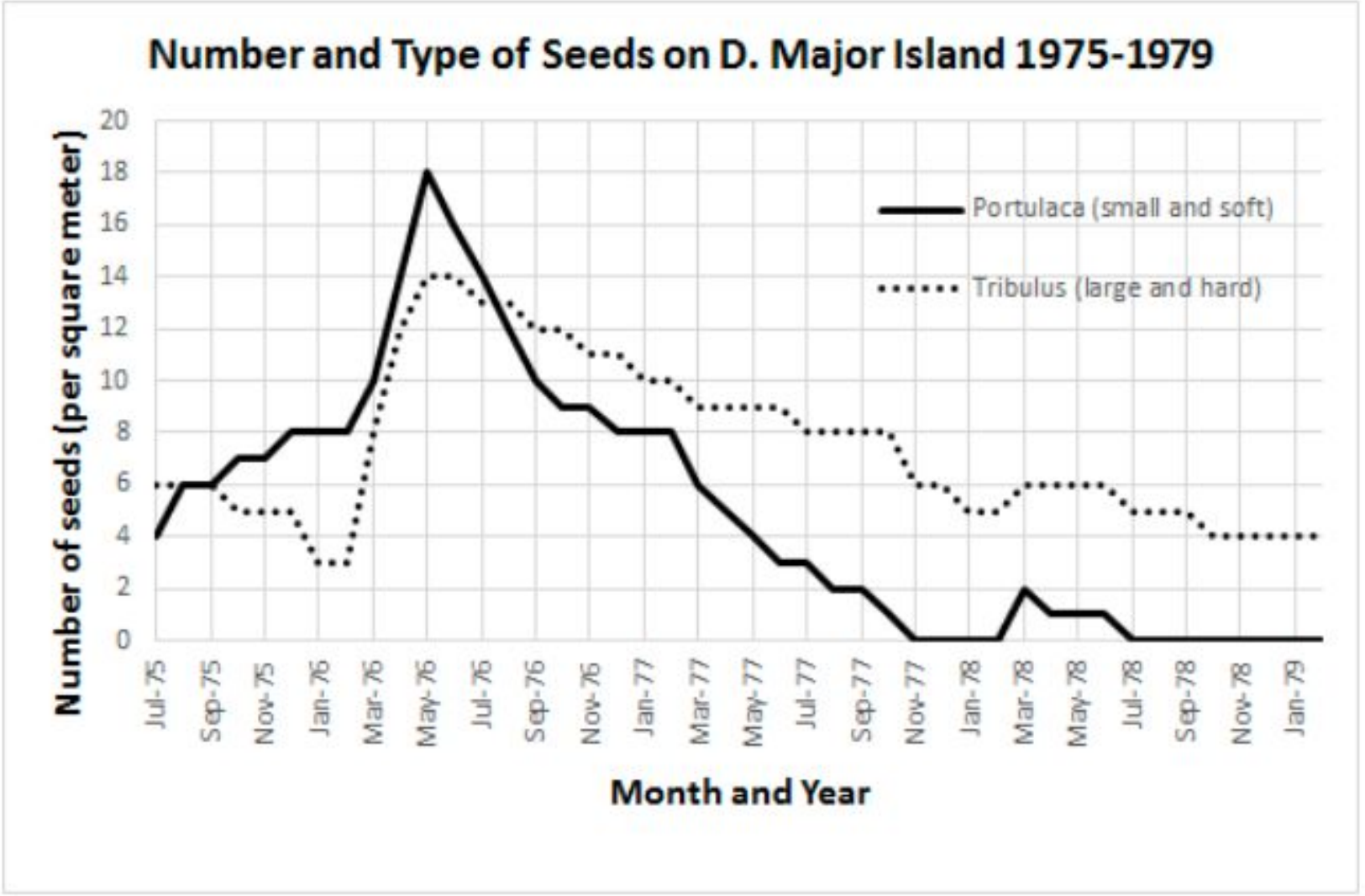

Rainfall on D. Major Island 1974-1982
Amount of Rainfall (cm)
70
60
50
40
30
20
10
0
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
Year

Rainfall on D. Major Island 1974-1982

Observations:

<Add Observations HERE>

Had a few droughts


Number and Type of Seeds on D. Major Island 1975-1979
Number of seeds (per square meter)
20
18
16
14
12
10
8
6
4
2
0
Portulaca (small and soft)
Tribulus (large and hard)
Jul-75
Sep-75
Nov-75
Jan-76
Mar-76
May-76
Jul-76
Sep-76
Nov-76
Jan-77
Mar-77
May-77
Jul-77
Sep-77
Nov-77
Jan-78
Mar-78
May-78
Jul-78
Sep-78
Nov-78
Jan-79
Month and Year

Number & Type of Seeds on D. Major Island 1975-1979

Observations:

<Add Observations HERE>the hard seeds were the ones still around and they had to get sharper and longer beaks to break it

Most Important Observations?

What do you think are your most important observations or connections? List them on the next slide.

Most Important Observations:

<Add Observations HERE>

the hard seeds were the ones still around and they had to get sharper and longer beaks to break it

some change to the food source happened

Almost went extinct

Some sort of change in the environment happened

They adapted to it

CER

Claim

Evidence

Reasoning

Claim Evidence Reasoning Public Record

1. With your partner, interpret your collaborative observations and state a claim to address the following driving question:

How do stressors in the environment affect variation within a population?

2. Use SPECIFIC data from the graphs to support your claim.
3. State your reasoning by explaining why this is happening.

If you need additional room, you can add additional slides.

How do stressors in the environment affect variation within a population?

Claim: (The answer to the driving question, simply stated.)stressers like the change of food because of the less rainfall for the finches made them adapt and change their beak forms

Evidence:
(What from our investigation made you think that?)
The drought
The population of the finches
The food dropage

Reasoning:
(Explain why this is happening. This is where you would bring in previous knowledge.)
The adaptation is happening because the rainfall slowed down and the seeds changed numbers and the ones that were around more were hard. So the finches had to change their beak form.

Submission:

1. Submit in ManageBac!
   a. Download as PDF
   b. Upload in MB DropBox
2. Upload on your digital science notebook (website)!
   a. Change share settings!
   b. Place in Unit 7, Activities/Labs