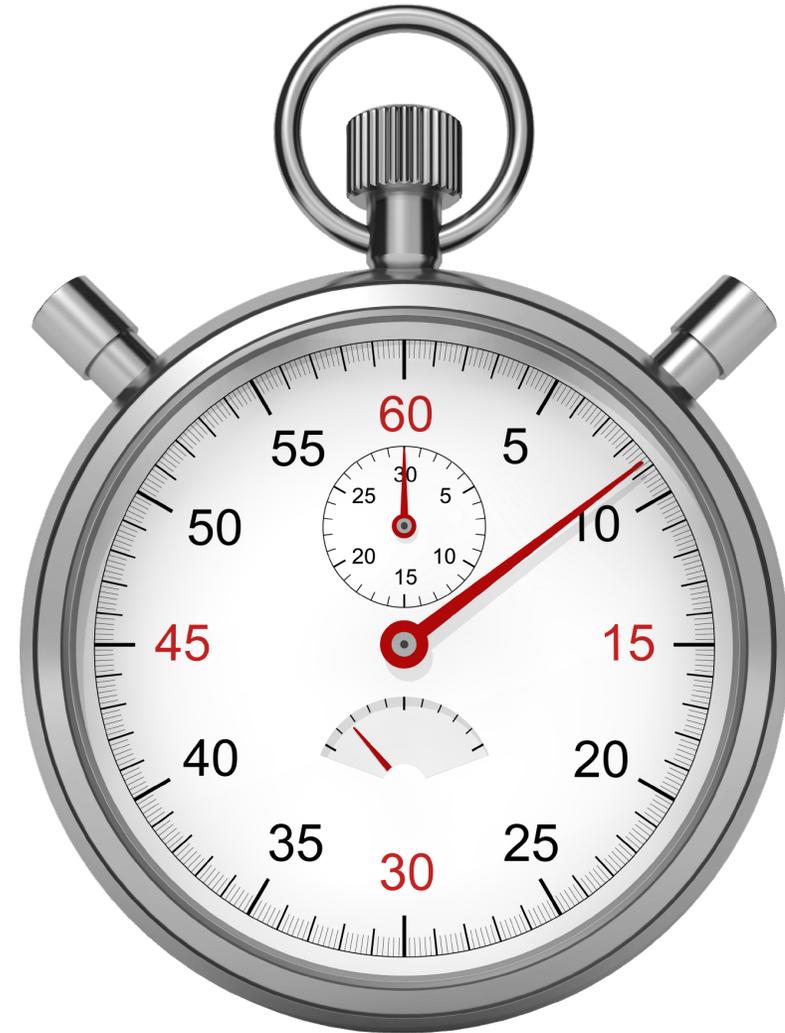


Lesson 18

Timed Observations

- Observe the behavior of a group of animals and use a sample protocol to quantify what you see.



Numbers are another way of visualizing and modeling things we observe.

- Conducting timed behavioral observations of animals is a way of using numbers to help learn about an organism.
- This turns general observations into more precise data that can be used for deeper analysis and understanding of the animal.
- Quantitative data on animals' behavior offers a window into patterns that we otherwise might not be able to see.





Natural Phenomena

- Find a group of animals that can be easily observed.
- This could be a flock of birds, ground squirrels, deer, lizards or other cooperative species
- Animals that exhibit repeated behavior and are less likely to run away, hide, or fly off are ideal.
- Try to find animals that are not so far off you need binoculars, or so close they will be disturbed by your presence.

Procedure Summary

Record the behaviors of five different individuals every 20 seconds.

At every 20-second mark, make a tally next to each type of behavior you observe.

Graph the data.

Procedure Step-by-Step



Observe the animal species for five minutes.

Make a list of the kinds of behaviors you see.



Be sure you focus on making observations, not trying to explain behaviors.(4-10 categories)



Create categories in your journal of the behaviors you observed.



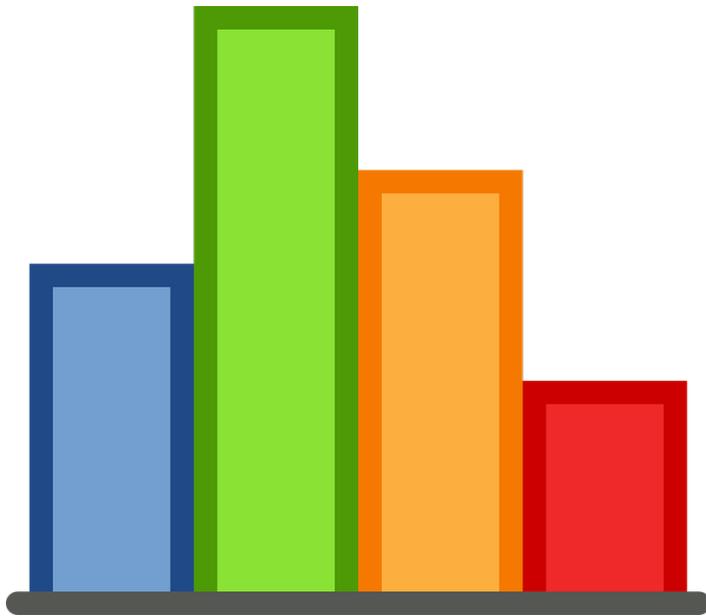
Now look at twenty second intervals and tally the behaviors you see.

If you're doing this with others, create three jobs: an observer, a recorder, and a timekeeper.



Observe and record for 10-15 minutes.

Graph your data



- Make columns for each behavior on the x-axis and the frequency of each behavior on the y-axis.
- Figure out how high the longest bar will go first, to make sure you have enough room for your graphs
- . Then mark the units of measurements on the horizontal (x) axis.



EXAMPLE

In this journal entry we study the behaviors of Monarch butterflies among milkweed flowers.

Gathering the Data

- Using one journal page, we head it with our metadata.
- After observing behaviors for five minutes, we write them down.
- Next, we start timing 20 second intervals, watching for behaviors during that time.
- After each 20 second period, we use tally marks to indicate how many times we observed the behaviors.
- We do this for 15 minutes.

3 September 2021 Lockwood Valley Home ~~3:22 PM~~ 10:00 AM
Milkweed patch East side of House winds 23 mph onshore (west)
Monarch Butterflies on migration west
FLAPPING IIII } while flying
GLIDING II
Feeding of Flower Nectar III III III II
Resting on leaf
INTERACTING w/ other Monarch III - can hear their wings hitting each other
Wings together I III III III } while feeding → flapping III III
Wings spread III III
Move to new flower III III
Only
Two monarchs - one moves from flower head to flower head a lot
the other does not Both females
I notice a wasp feeding nearby. when it gets close, the
butterflies move to other flowers
GREAT Golden Digger Wasp & Large Milkweed Bug (*Oncopeltus fasciatus*)

3 September 2021 FRIDAY, AND 4 September 2021 Saturday
 3:22 PM and 10 AM; 84° and 75°
 Lakewood Valley, East side of house, large milkweed
 plants - 3m

Next Journal Page

*I started observing two monarchs on Friday, but they both disappeared, could it be due to full sun or heat? OR they were wet the plants. Maybe they don't like wet plants. They were back so I did my observations then.

- Once we have gathered the data, it's time to create our journal page.
- Going to the next page in your journal, include the
 - ABC's
 - 123's
 - Drawing, sketch or diagram
- Part of your 123's will be the data you collected. We copied the data we collected onto the new page, then created a bar graph to create a visual of the data.

I notice: monarchs feeding on flowers of milkweed plants.
 Two monarchs feeding on flowers of milkweed plants.
 I notice: monarchs feeding on flowers of milkweed plants.
 Two monarchs feeding on flowers of milkweed plants.



Not aggressive
 birds will attempt to steal their captured prey while flying
 parasitism of prey by larvae



ADULT
 4 INSTARS
 MIGRATORY

MONARCH
 BUTTERFLIES
 DANAUS plexippus

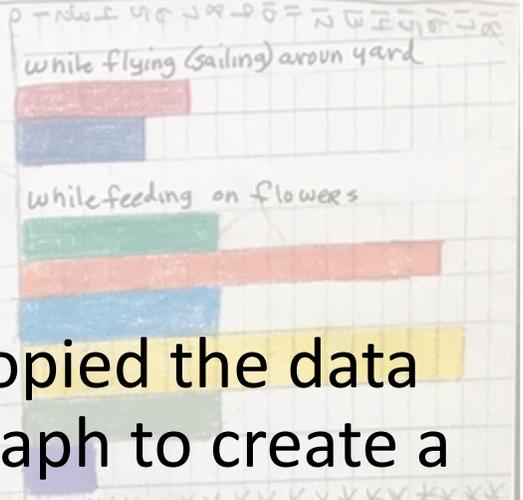


feeding on nectar of narrow-leaf milkweed flower -
 slight sweet scent
 The black is velvety-deep black

ARE the patterns of white spots individual when monarchs are interacting
 9-10cm wingspan

Female (No black patch on lower wings)

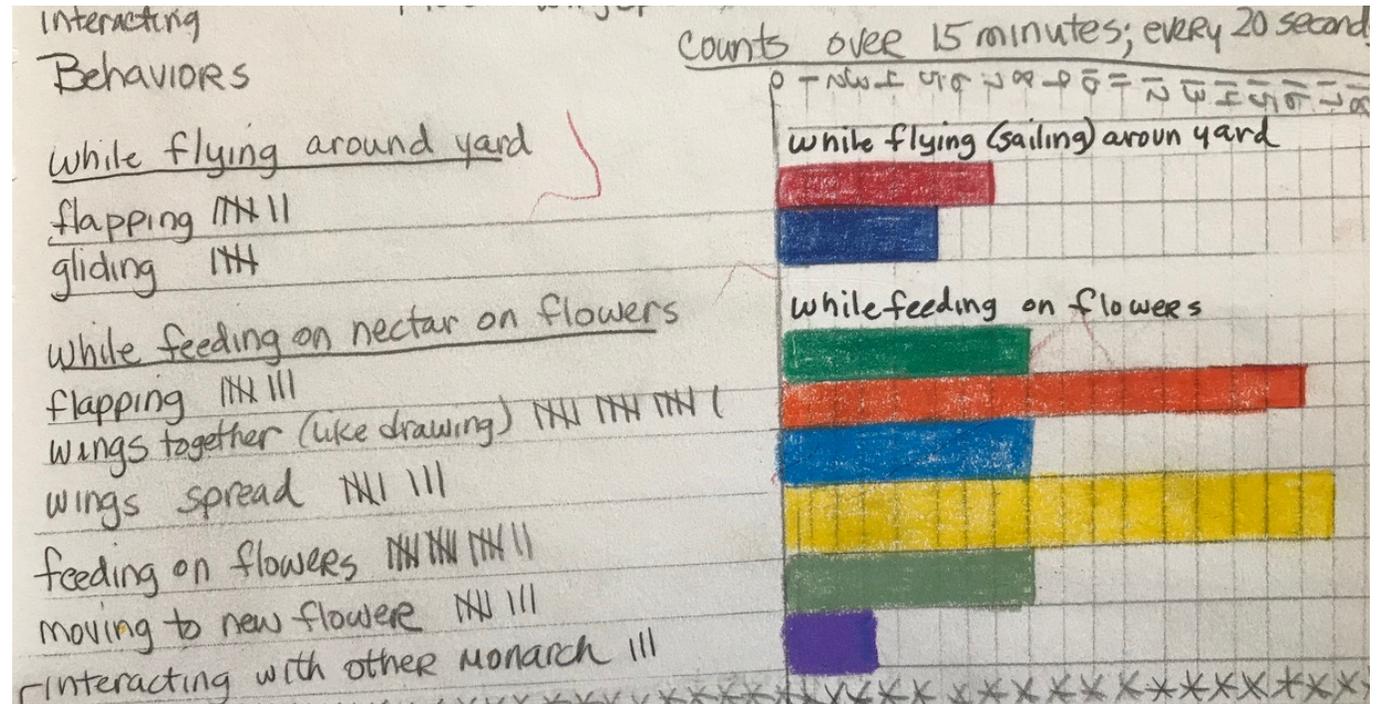
Counts over 15 minutes; every 20 seconds



while flying around yard
 flapping IIII
 gliding IIII
 while feeding on nectar on flowers
 flapping IIII
 wings together (like drawing) IIII IIII IIII
 feeding on flowers IIII IIII IIII
 interacting with other monarch IIII

When the 2 monarchs interact with each other, I can hear their wings beating against each other. The appearance is of fighting, perhaps for territory, however it's brief, about 3-5 seconds and I notice they feed on nectar next to and near one another. They only seem to interact when flying

In this example, the graph was created directly across from the recorded behaviors and tally marks.



3 September 2021 FRIDAY, AND 4 September 2021* Saturday
 3:22 PM and 10 AM; 84° and 75°
 Lockwood Valley, East side of house, large milkweed patch. ✕ 3 mph

*I started observing two monarchs on Friday, but they both disappeared, could it be due to full sun or heat? or sprinklers wet the plants. Maybe they don't like wet plants. On Saturday, in the morning they were back so I did my observations then.

Timed Observations

I notice: 2 female monarchs feeding on flowers of milkweed plants.

Two other prominent milkweed pollinators:

Great Golden Digger wasp
 Ichneumonidae
 sphex
 Large Milkweed bug
 Nectar drinking female predares insects in spring for her nests.
 in full sun, they hide on shady side of leaves, even going to other plants.
 Not aggressive
 birds will attempt to steal their captured prey while flying
 parasitism of prey by larvae



ADULT
 4 instars
 Migratory

MONARCH BUTTERFLIES
 DANAUS plexippus



ARE The patterns of white spots individual as finger prints?
 when monarchs are interacting

9-10cm wingspan

feeding on nectar of narrow-leaf milkweed flower -
 slight sweet scent
 The black is velvety-deep black
 Female (No black patch on lower wings)

BEHAVIORS

- while flying around yard
 flapping IIII
 gliding IIII
- while feeding on nectar on flowers
 flapping IIIIII
 wings together (like drawing) IIII IIII IIII
 wings spread IIII IIII
- feeding on flowers IIII IIII IIII
- moving to new flower IIII IIII
- interacting with other monarch IIII

Counts over 15 minutes, every 20 seconds



* * * * *
 When the 2 monarchs interact with each other, I can hear their wings beating against each other. The appearance is of fighting, perhaps for territory, however it's brief, about 3-5 seconds and I notice they feed on nectar next to and near one another. They only seem to interact when flying

Metadata

ABC's Drawing

123's

BYE FOR NOW, THANKS FOR JOINING ME



Tejon Ranch
CONSERVANCY

