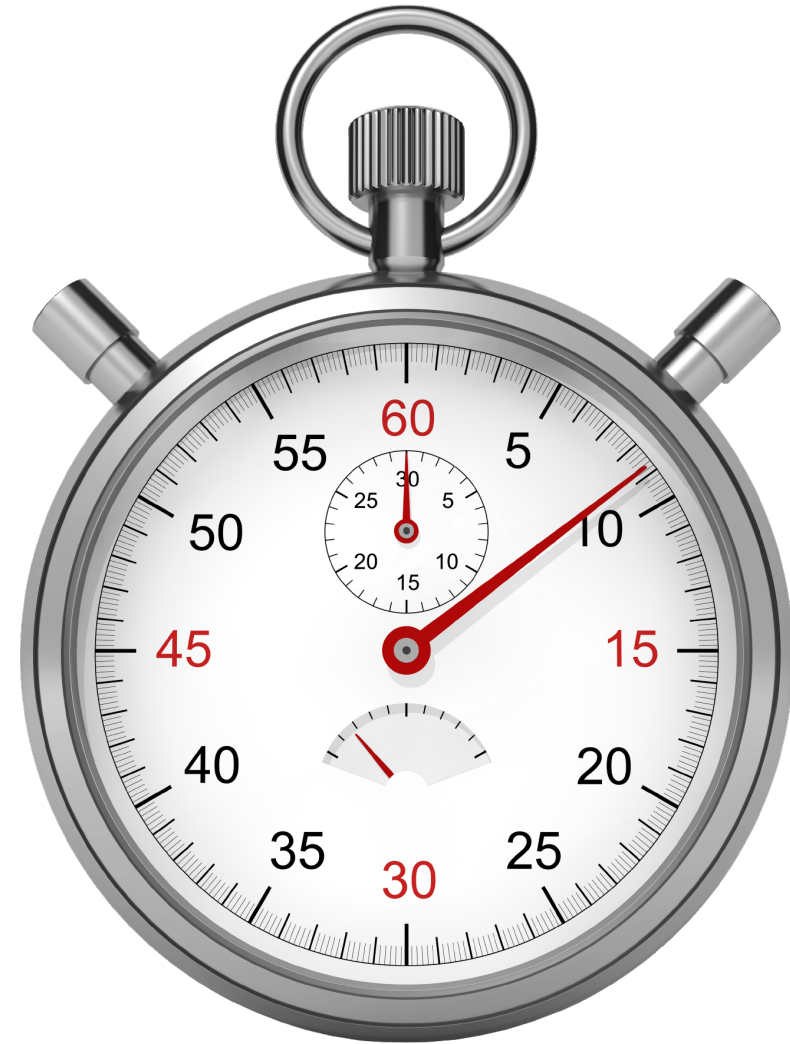


Lesson 18

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.



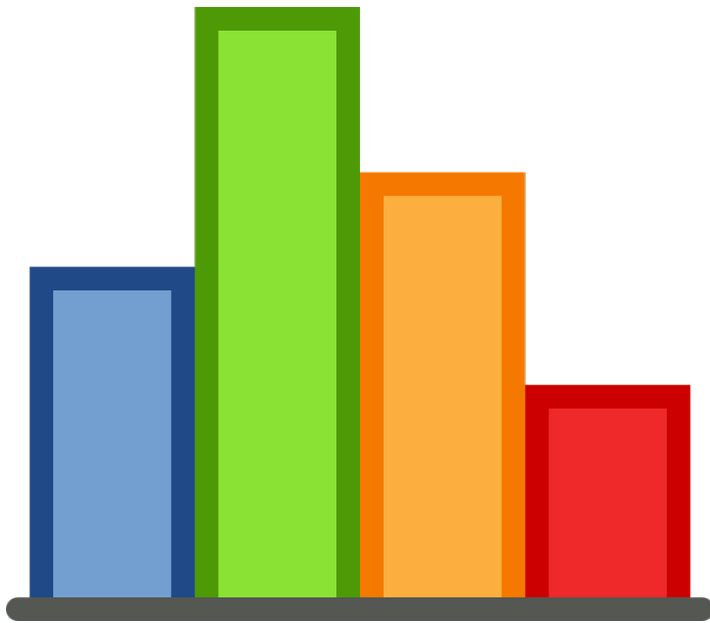
Now look at twenty second intervals and tally the behaviors you see.

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.

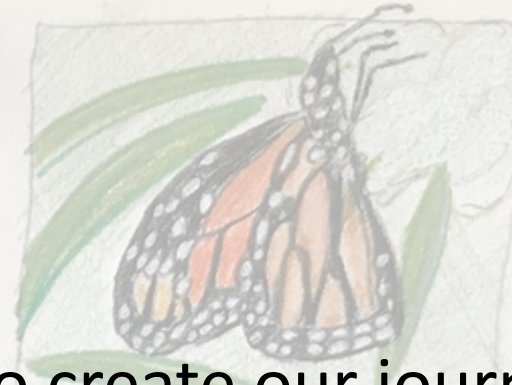
3 September 2021 Lockwood Valley Home 3:22 PM 84° 10:00 AM
Mukwood patch East side of House winds 13 mph onshore (west)
Monarch Butterflies on migration west
FLAPPING IIII } while flying
GLIDING II
Feeding of Flower Nectar III III III II
Resting on leaf
INTERACTING w/ other Monarch III - can hear their wings hitting each other
Wings together I III III III } while feeding → flapping III III
Wings spread III II
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 Mukwood Bug (*Oncopeltus fasciatus*)

Next Journal Page

- 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.

MONARCH BUTTERFLIES

DANAUS plexippus



feeding on nectar of narrow-leaf milkweed flower.

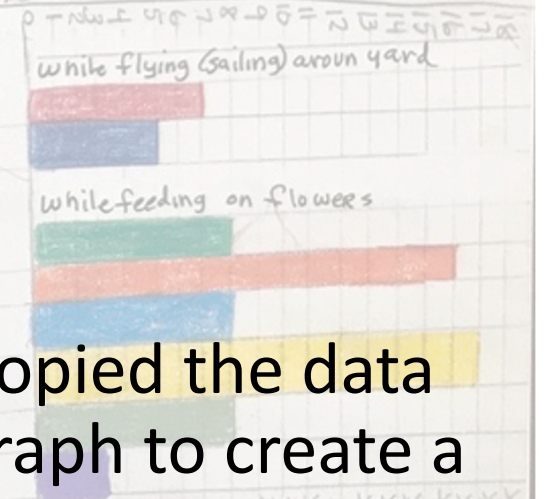
Slight sweet scent
The Black is velvety-deep black

Female (No black patch on lower wings)

ARE The patterns of white spots individual when Monarchs are interacting

9-10cm wingspan

Counts over 15 minutes; every 20 seconds



while flying around yard

flapping IIII

gliding IIII

while feeding on nectar on flowers

flapping IIII

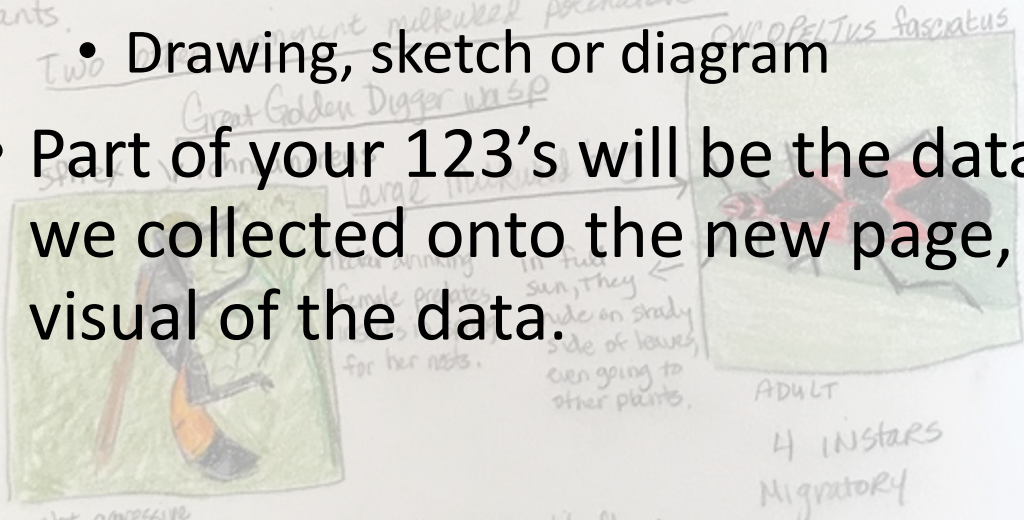
wings together (like drawing) IIII IIII IIII

feeding on flowers IIII IIII IIII

interacting with other monarch IIII

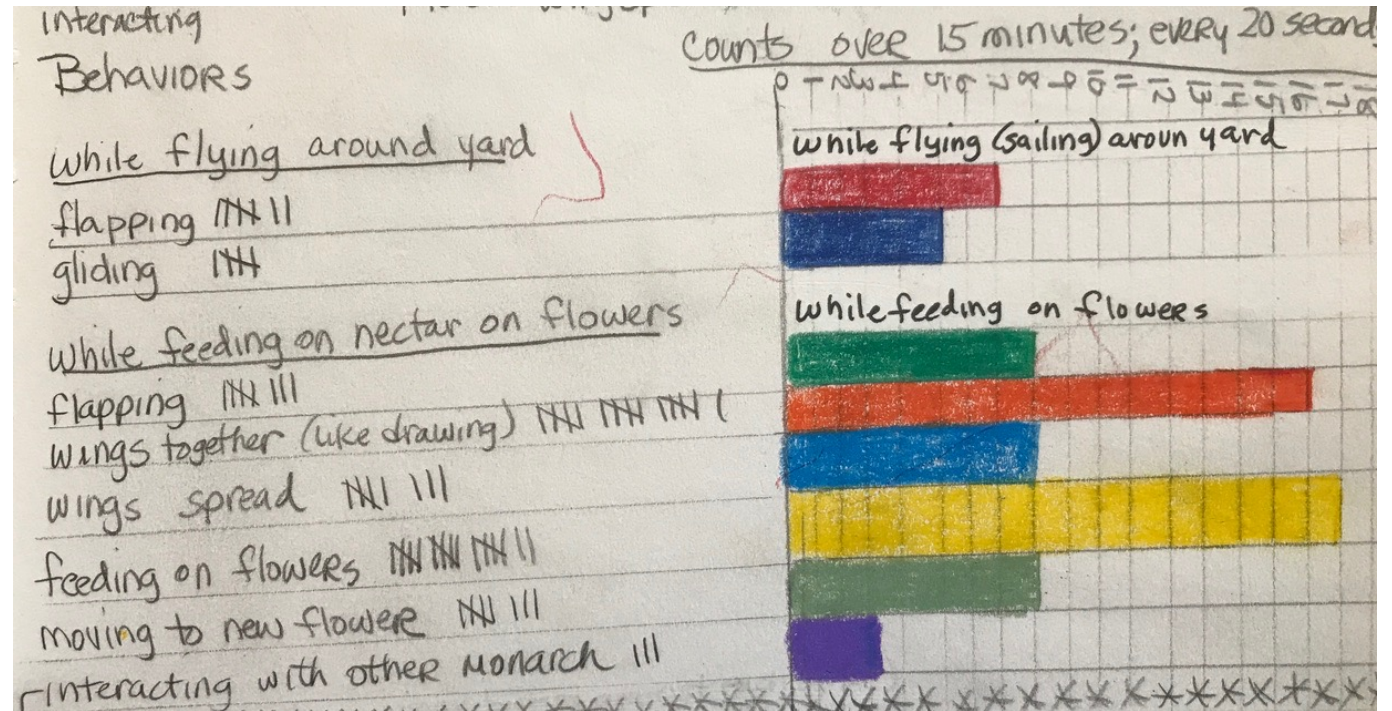
***XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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



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

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
 sphex
 Ichneumonius
 Large Milkweed bug



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

Neck drinking
 female predares
 insects in spring
 for her nests.

in full
 sun, they
 hide on shady
 side of leaves,
 even going to
 other plants.

Oncopeltus fasciatus
 ADULT
 4 instars
 Migratory

MONARCH BUTTERFLIES

DANAUUS plexippus

ARE The patterns of
 white spots individual
 as finger prints?

When monarchs are
 interacting

Behaviors

while flying around yard

flapping IIII

gliding IIII

while feeding on nectar on flowers

flapping IIII

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

* * * * *

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



9-10cm wingspan

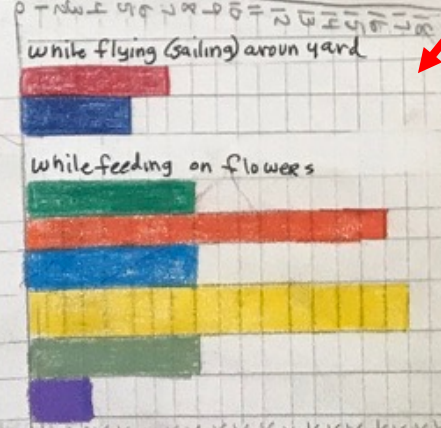
feeding on nectar of
 narrow-leaf milkweed
 flower -

Slight sweet scent

The black is velvety-deep
 black

Female (No black patch
 on lower wings)

Counts over 15 minutes, every 20 seconds



Metadata

ABC's
 Drawing

123's

BYE FOR NOW, THANKS FOR JOINING ME

