Name: _____ Date: _____

Science Friday Think Big

From “A Toast To Bats That Pollinate Agave, And Tracking Monarchs”
How does new technology track monarch migration?

Imagine going on a trip that’s thousands of miles long and flying the entire way! That’s what monarch butterflies do every year in one of the animal kingdom’s most epic journeys. For a long time, scientists could only track monarchs by placing tiny sticker tags on their wings, but now, solar-powered radio tags small enough to glue onto a butterfly's back are helping scientists uncover the secrets of this amazing voyage. Join journalist Dan Fagin and Science Friday Host Ira Flatow to learn what this groundbreaking technology is teaching us.

1. What information can scientists gather from the new tracking technology that they couldn't learn with the old sticker method?

_____

_____

_____

2. What evidence shows that monarch migration is in serious trouble?

_____

_____

_____

_____

3. How can changes along the migration route affect monarch populations?

_____

_____

_____

_____

Science Friday Big Think

From “A Toast To Bats That Pollinate Agave, And Tracking Monarchs”

How does new technology track monarch migration?

The audio for this story and the transcript can be found at:
hhttps://www.sciencefriday.com/segments/bats-agave-pollinator-monarch-migration-tracking/
The story begins at about 15 minutes 20 seconds. It is roughly 6 minutes 30 seconds long.

This story aligns with the following NGSS standards:

1. LS1.B: Growth and Development of Organisms
    a. How characteristic animal behaviors (migration) affect survival and reproduction
    b. Multi-generational life cycles and the behaviors that support them
    c. The role of environmental cues in triggering behavioral responses
2. LS2.A: Interdependent Relationships in Ecosystems
    a. How organisms depend on resources (nectar, water, shelter) for survival
    b. The effects of resource availability on individual organisms and populations
    c. Cause-and-effect relationships between resources and population outcomes
3. LS2.C: Ecosystem Dynamics, Functioning, and Resilience
    a. How changes to physical components (climate, weather) affect populations
    b. How changes to biological components (milkweed availability) affect populations
    c. The ripple effects of ecosystem changes on dependent species

Expected answers:

1. The old sticker tags could only show where a butterfly started and ended its journey (and only if someone found it). The new tags show the complete path—everywhere the monarchs go along the way. Scientists discovered that monarchs get blown way off course by storms and wind, but many can correct themselves and keep heading south.
2. The number of monarchs reaching Mexico has declined drastically over the years. Scientists measure the size of the overwintering colonies and have seen major reductions.
3. Monarchs need resources like nectar, water, and shelter to survive their journey. When these become scarce, fewer butterflies make it. Climate change is making storms and droughts more common and messing with the signals monarchs use to know when to migrate. There's also less food because of habitat loss and herbicides. When conditions along the route get worse, the whole population declines because fewer monarchs survive the trip.

Name: _____ Date: _____

Science Friday Think Big

From “A Toast To Bats That Pollinate Agave, And Tracking Monarchs”
How does new technology track monarch migration?

Imagine going on a trip that’s thousands of miles long and flying the entire way! That’s what monarch butterflies do every year in one of the animal kingdom’s most epic journeys. For a long time, scientists could only track monarchs by placing tiny sticker tags on their wings, but now, solar-powered radio tags small enough to glue onto a butterfly's back are helping scientists uncover the secrets of this amazing voyage. Join journalist Dan Fagin and Science Friday Host Ira Flatow to learn what this groundbreaking technology is teaching us.

1. What information can scientists gather from the new tracking technology that they couldn't learn with the old sticker method?

_____

_____

_____

2. What evidence shows that monarch migration is in serious trouble?

_____

_____

_____

_____

3. How can changes along the migration route affect monarch populations?

_____

_____

_____

_____