

Michigan Grade Level Content Expectations (GLCE)

S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.

S.IP.04.12 Generate questions based on observations.

S.IP.04.16 Construct simple charts and graphs from data and observations.

S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

S.IA.04.11 Summarize information from charts and graphs to answer scientific questions.

S.IA.04.12 Share ideas about science through purposeful conversation in collaborative groups.

S.IA.04.13 Communicate and present findings of observations and investigations.

S.IA.04.15 Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

S.RS.04.14 Use data/samples as evidence to separate fact from opinion.

L.OL.E.1 Life Requirements- Organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair.

L.OL.04.15 Determine that plants require air, water, light, and a source of energy and building material for growth and repair.



HUG A TREE LAB

Name: _____

Question: How do trees adapt and change over the year to survive Michigan's four seasons?

Hypothesis: I think Michigan trees survive the four seasons in Michigan by...

Procedure/Investigation:

Part One: Leaf Moisture

1. As a group decide what all living things need to survive and record your answer in **Table #1**.
2. Go to _____
3. Read the graph _____
4. Record the leaf moisture results from twelve (12) different days in **Table #2**.
 - a. Choose three (3) days from Spring (March 21-June 21), three (3) days from Summer (June 21-September 21), three (3) days from Fall/Autumn (September 21-December 21) and three (3) days from Winter (December 21-March 21)
5. Graph the points on **Graph #1**.
6. Make observations about the graph and discuss what you see with your group.
7. Record your groups agreed upon observations and your reasons for why the moisture level of the tree changes in the **conclusion section of the lab**.

Part Two: Daily Temperature

1. Go to _____
2. Read the graph that says _____
3. Record the temperature at noon from twelve (12) different days in **Table #3**.

- a. Choose the same twelve (12) days from part one of the lab. Three (3) days from Spring (March 21-June 21), three (3) days from Summer (June 21-September 21), three (3) days from Fall/Autumn (September 21-December 21) and three (3) days from Winter (December 21-March 21) should be chosen
4. Graph the points on **Graph #2**.
5. Make observations about the graph and discuss what you see with your group.
6. Record your groups agreed upon ideas to the question: How do trees adapt in Michigan to survive the four seasons? in the **Conclusion section**.

Part Three: Connections

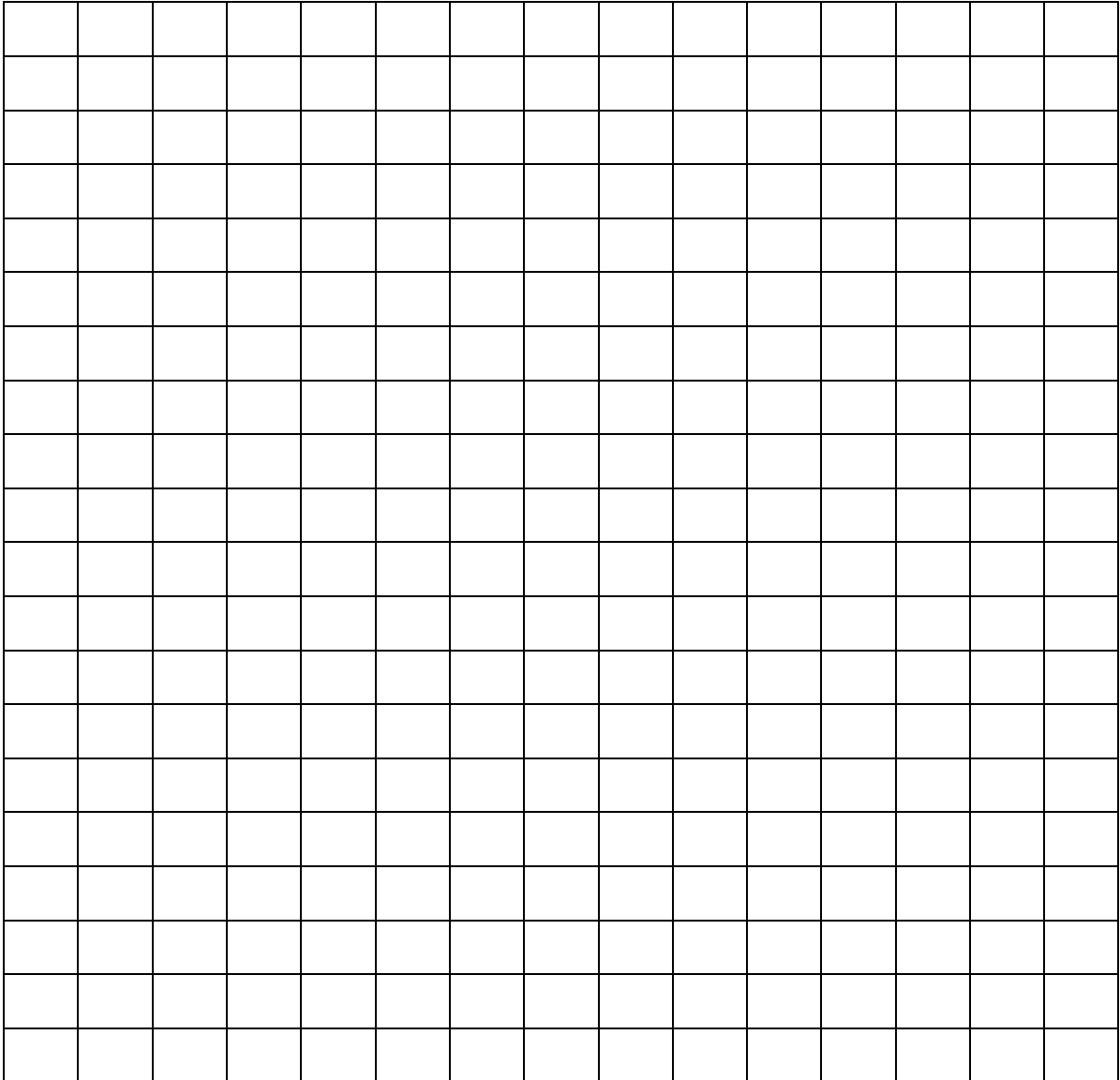
1. Compare the graphs #1 and #2. What connections can your group find?

Observations:

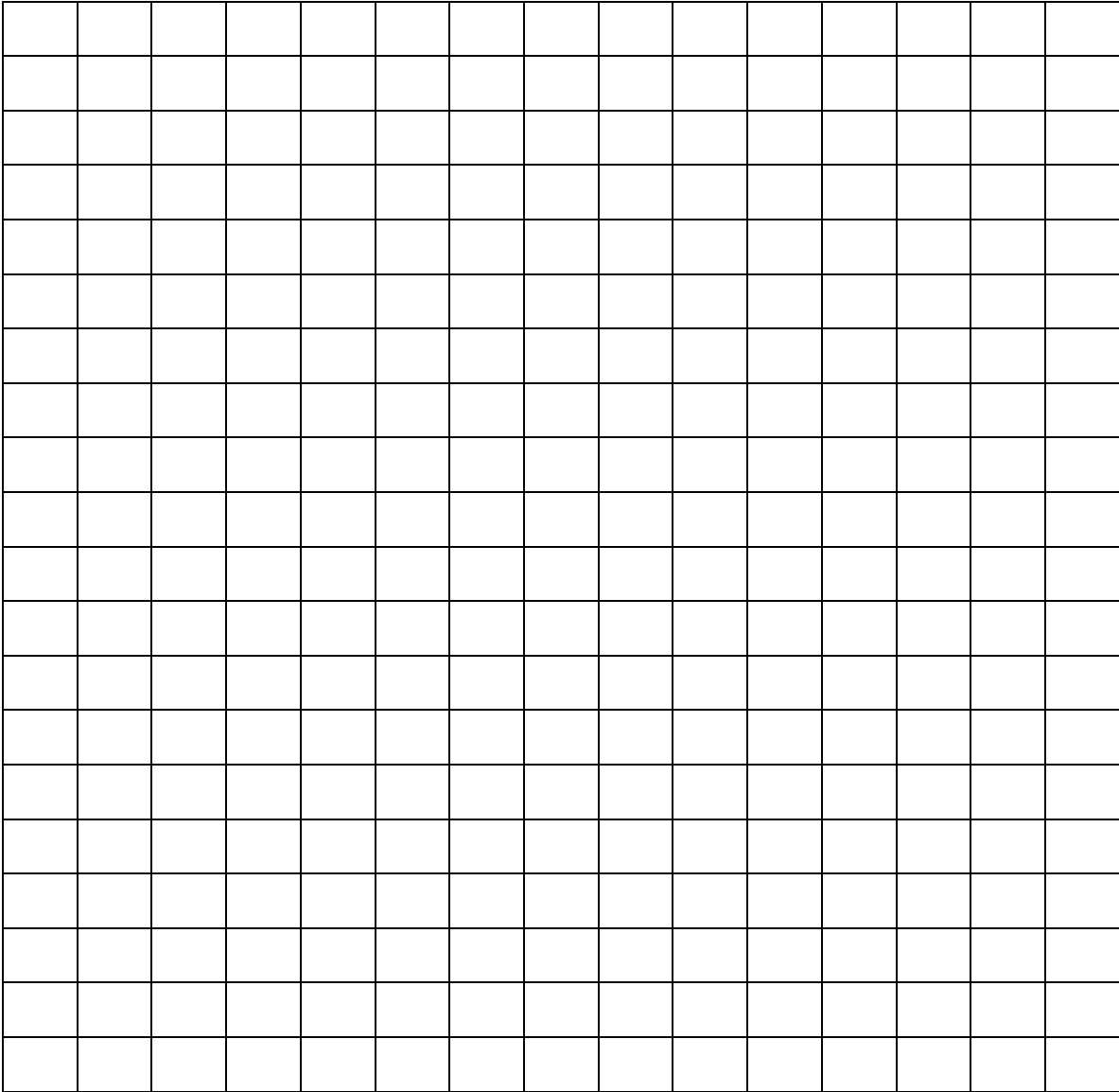
Moisture Observations:

Temperature Observations:

Graph #1
Leaf Moisture at Noon



Graph # 2
Temperature at Noon



Conclusions

How do trees in Michigan change to survive the four seasons in Michigan?

Why are these changes needed? Helpful?

Predictions of other changes that trees in Michigan make to adapt to the four seasons?