WORKSHEET

Name: _____ Hour: _____

Date: _____

Introduction to Michigan Cherries and their Annual Cycles

- Lesson 1 Worksheet Part 1-

1. **What did you learn from the Pure Michigan video and from your teacher about Michigan agriculture?**
   a. There are ____ varieties of crops grown in Michigan
   b. Michigan is the country's #_____ producer of _____.
   c. Michigan (especially Northern Michigan) grows ____% of the nation's tart cherries.
   d. Michigan's cherry industry is a $____ million industry.

2. **Take notes on the radio clip about Michigan cherry trees.**
   a. **When are cherries most vulnerable?**

   b. **What caused damage to cherry blossoms in 2012?** (Add to your notes after discussion.)

3. **What could be causing the cherries to bloom earlier in some years? In other words, what could be driving the cherry's cycle from bud, to blossom, to fruit?**

   Name at least three potential drivers of the cherry tree's annual cycles and provide a short explanation for your reasoning. (Add more after class discussion.)

   i. _____

   ii. _____

   iii. _____

   iv. Other potential explanations?:

WORKSHEET

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Climate Change and the Future of Michigan Cherries:

- Lesson 1 KWL Worksheet -

K (What I **Know**)	**W** (What I **Want** to Know)	**L** (What I **Learned**)

Climate Change and the Future of Michigan Cherries:
Lesson 1 KWL Worksheet Continued

K (What I **Know**)	**W** (What I **Want** to Know)	**L** (What I **Learned**)

WORKSHEET

Name: _____ Hour: _____

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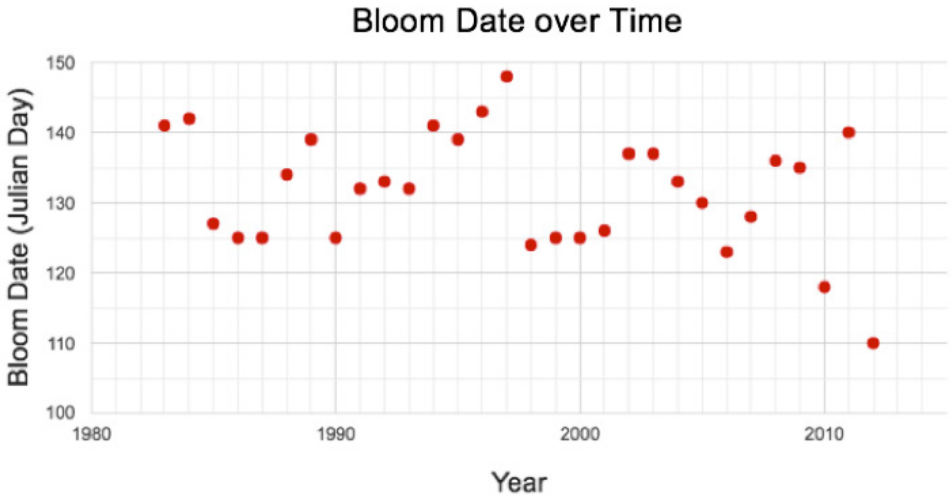
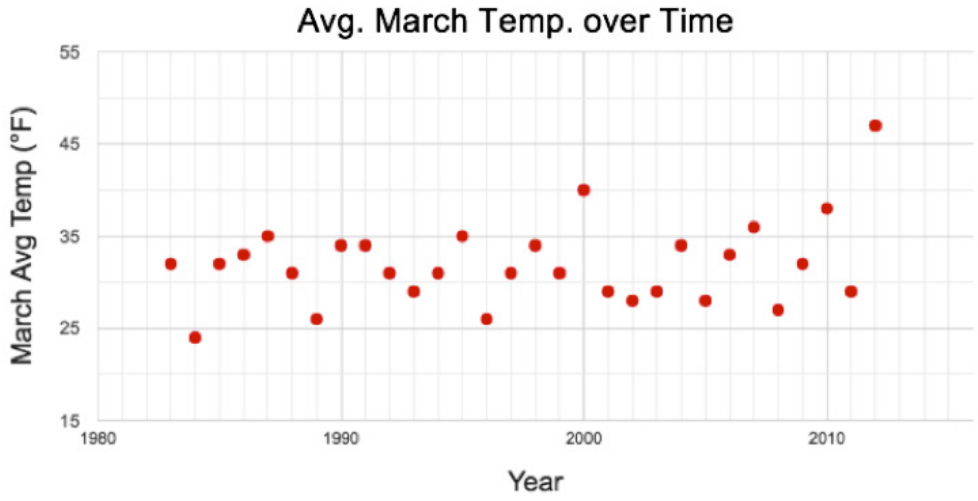
Climate Change and the Future of Michigan Cherries:

- Lesson 1 Worksheet Part 2 & Homework -

Graph 1 - Bloom Date over Time



Graph 2 - Avg. March Temperature over Time



1. What do these two graphs tell us? What trends do you see?

2. Which years stand out on the graph? Why?

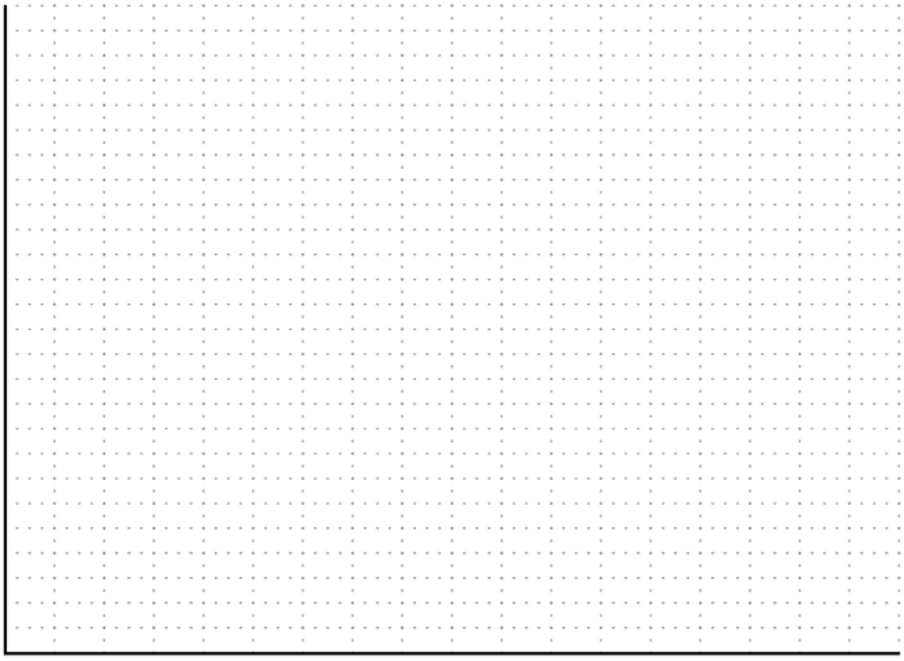
3. Do you see evidence on these graphs to support the claim that there is a relationship between warmer March temperatures and earlier bloom dates? If so, why? If not, why not?

HOMEWORK

- How else could we graph the data to better see the **relationship** between **Avg. March Temperature** and **Bloom Date**?

- If we plotted both sets of data (Data Table 1 and 2) on **ONE** graph, what would that look like?

- Fill in the graph information to the best of your ability. What would be the:
  - X axis/independent variable?
  - Y axis/dependent variable?
  - Units?
  - Title of your graph?



Lesson 1 - Climate Change and the Future of Michigan Cherries

DATA TABLE 1

Table 1: Date of Tart Cherry Full Bloom in Traverse City, MI		
Year	**Date of Year (Julian Day)**	**Date**
1983	141	May 21
1984	142	May 21
1985	127	May 7
1986	125	May 5
1987	125	May 5
1988	134	May 13
1989	139	May 19
1990	125	May 5
1991	132	May 12
1992	133	May 12
1993	132	May 12
1994	141	May 21
1995	139	May 19
1996	143	May 22
1997	148	May 28
1998	124	May 5
1999	125	May 5
2000	125	May 4
2001	126	May 6
2002	137	May 17
2003	137	May 17
2004	133	May 12
2005	130	May 10
2006	123	May 3
2007	128	May 8
2008	136	May 15
2009	135	May 15
2010	118	April 28
2011	140	May 20
2012	110	April 19

DATA TABLE 2

Table 2: March Avg. Temperature in Traverse City, MI	
Year	**Avg. March Temp** (Fahrenheit)
1983	32
1984	24
1985	32
1986	33
1987	35
1988	31
1989	26
1990	34
1991	34
1992	31
1993	29
1994	31
1995	35
1996	26
1997	31
1998	34
1999	31
2000	40
2001	29
2002	28
2003	29
2004	34
2005	28
2006	33
2007	36
2008	27
2009	32
2010	38
2011	29
2012	47