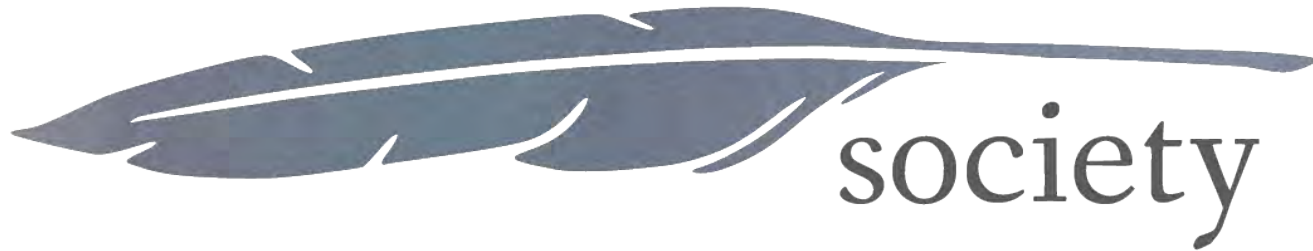


madison
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Climate Initiative

Lesson 1: The Scientific Method told through Phenology

The Scientific Method

The rules of good science:

Because science is **AWESOME!!**



The Scientific Method

1. Ask a question



The Scientific Method

1. Ask a question
2. Make a hypothesis



The Scientific Method

1. Ask a question
2. Make a hypothesis
3. Collect data



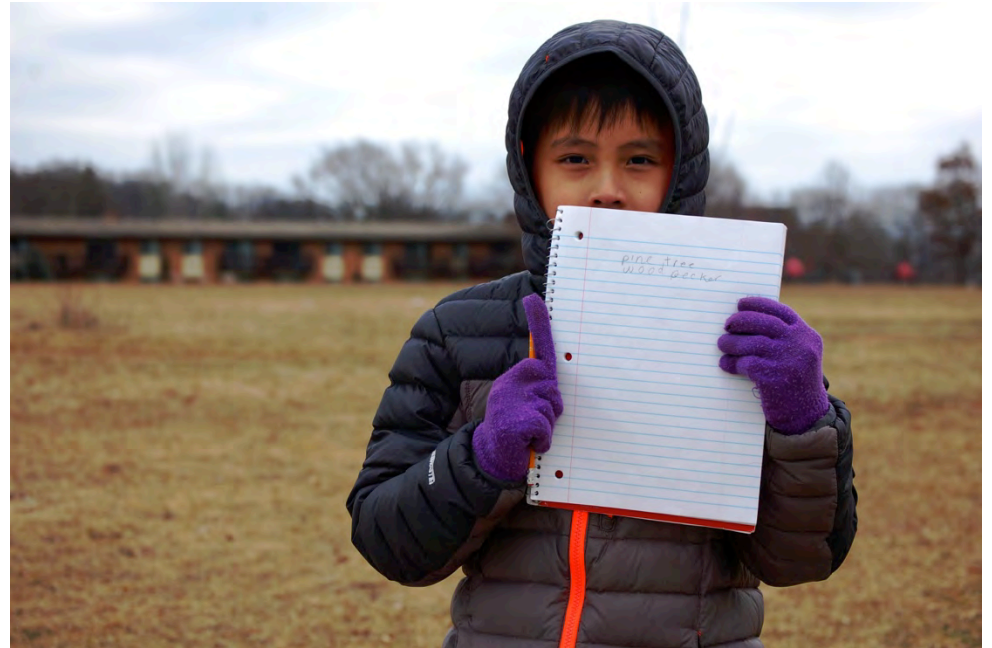
The Scientific Method

1. Ask a question
2. Make a hypothesis
3. Collect data
4. Make conclusions



The Scientific Method

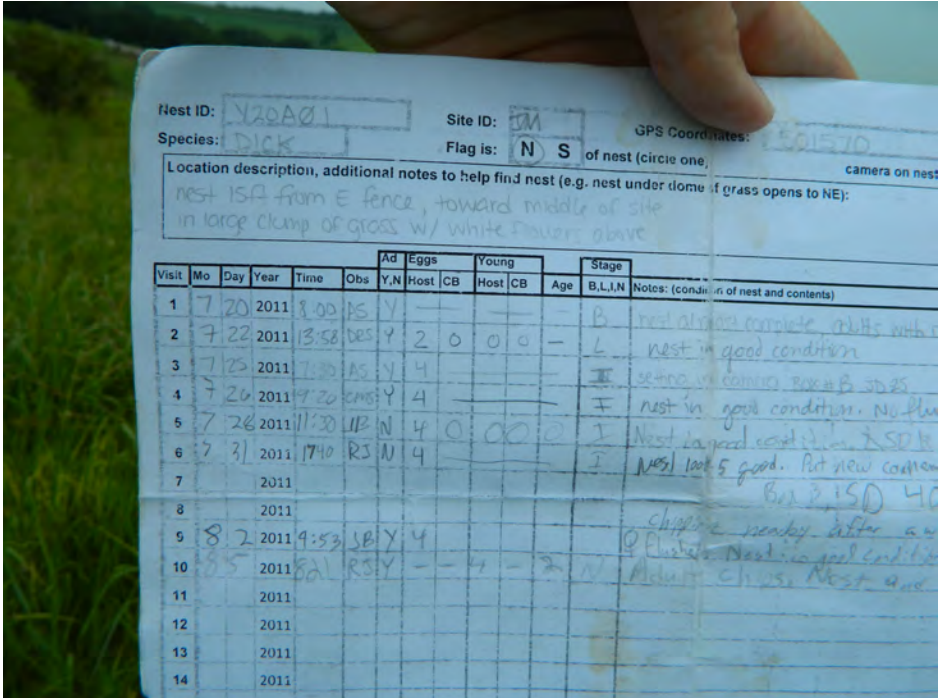
1. Ask a question
2. Make a hypothesis
3. Collect data
4. Make conclusions
5. Share your results



© Emily Meier

The Scientific Method

Data is important
careful, correct, clean!



Nest ID: Y20A01 Site ID: EM GPS Coordinates: 3501570
Species: DICK Flag is: N S of nest (circle one) camera on nest

Location description, additional notes to help find nest (e.g. nest under dome of grass opens to NE):
nest 15m from E fence, toward middle of site
in large clump of grass w/ white flowers above

Visit	Mo	Day	Year	Time	Obs	Ad		Eggs		Young		Age	Stage	Notes: (condition of nest and contents)	
						Y,N	Host	CB	Host	CB					
1	7	20	2011	8:00	RS	Y	-	-	-	-	-	-	B	nest almost complete, adults with	
2	7	22	2011	13:58	DES	Y	2	0	0	0	-	-	L	nest in good condition	
3	7	25	2011	7:30	AS	Y	4	-	-	-	-	-	II	setting in camera trap # B 3025	
4	7	26	2011	9:20	EMS	Y	4	-	-	-	-	-	F	nest in good condition. No flux	
5	7	26	2011	11:30	LIP	N	4	0	0	0	-	-	I	Nest in good condition. 2 SD 11	
6	7	31	2011	17:40	RS	N	4	-	-	-	-	-	F	Nest in good condition. Put new camera trap # B 3150 40	
7			2011												
8			2011												
9	8	2	2011	9:53	SB	Y	4	-	-	-	-	-			chipping nearby after a w
10	8	5	2011	8:21	RS	Y	-	-	4	-	2	-	N		chipping nearby after a w
11			2011												Adult chipping. Nest and
12			2011												
13			2011												
14			2011												

Phenology

recording natural events as they happen
throughout the year



Phenology

recording natural events as they happen
throughout the year



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Phenology

recording natural events as they happen throughout the year



Wisconsin Phenology

Aldo Leopold: Wisconsin phenology 1930s-40s



© Aldo Leopold Foundation



© Bill Hall

Wisconsin Phenology

Nina Leopold: Wisconsin phenology 1970s-2011





The Scientific Method

More data = more POWERFUL!

Long term data sets



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Your Research Project

Our Hypothesis: Many spring events are happening earlier now than they did in the past.



Your Research Project

Whole Class: Bird Species & Behavior



© Carolyn Byers



© Carolyn Byers

Your Research Project

Group 1: Daytime HIGH temperature



© Bryan Alexander



© Daniel Zimmermann

Your Research Project

Group 2: Nighttime LOW temperature



© Bryan Alexander



© Tim Kouroff

Your Research Project

Group 3: Ice



Your Research Project

Group 4: Precipitation



© Christian Kadluba



© Norbert Reimer

Your Research Project

Group 5: Plants





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