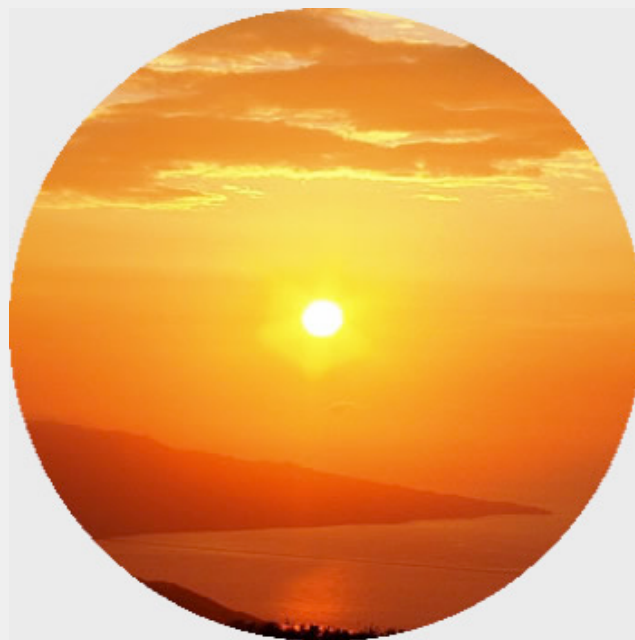


Mystery Class

Teacher's Planning Packet #1



Discovering Photoperiod Clues

Teacher's Planning Packet #1
Discovering Photoperiod Clues

Includes:

Sunrise/Sunset Data (Practice Chart)	Page 3
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Welcome!

The weekly photoperiod clues your students receive during Mystery Class will slowly reveal information about the **latitude** of the 10 Mystery site locations.

Teacher Planning Packet #1 includes the actual, start-to-finish sunrise/sunset data from last year's Mystery Class season. This practice packet will help you discover for yourself the relationships between latitude, sunlight, and seasonal change when you:

- **Practice calculating** photoperiod.
- **Plot** the week-by-week photoperiod data.
- **Examine** the data to find patterns and surprises.
- **Make predictions** and **compare findings**.
- **Reflect** in the Mystery Class journal.

We hope this practice packet will give you a chance to experience the process of discovery your students will have when they begin to collect, organize, and analyze data to identify the locations of this year's Mystery Classes.

The Essential Question

What can seasonal changes in sunlight reveal about a location's latitude?

Sunrise/Sunset Data: *Practice Chart*

The Practice Chart below includes the actual, start-to-finish sunrise/sunset data from the 11-week, spring 2009 Mystery Class season. Use the sunrise/sunset data to calculate the photoperiod. Plot the photoperiod using the Mystery Class practice graph on page 8. (See a completed sample graph on page 10.) Examine and reflect on the data using the Mystery Class journal process described on page 7.

Helpful Links:

Where to find your sunrise/sunset data :

http://aa.usno.navy.mil/data/docs/RS_OneDay.php

Look up your own data from spring 2009. You can also access this link from the Mystery Class map.

Calculating Photoperiod: Advice from Teachers

<http://www.learner.org/jnorth/tm/mclass/TeacherTipIndex.html>

See tips in the section labeled "Photoperiod (Day Length):"

Sunrise/Sunset Data: <i>Practice Chart</i>					
	Home Data	Mystery Site	Sunrise	Sunset	Photoperiod
Week One Monday Feb. 2 2009	Sunrise:	#1	06:36	18:34	
		#2	07:56	17:39	
		#3	06:38	17:44	
	Sunset:	#4	05:26	18:41	
		#5	09:15	17:26	
		#6	06:21	18:10	
	Photoperiod:	#7	07:01	22:29	
		#8	06:32	17:58	
		#9	06:36	20:22	
		#10	07:16	17:25	
Week Two Monday Feb. 9 2009	Sunrise:	#1	06:36	18:35	
		#2	07:46	17:50	
		#3	06:35	17:49	
	Sunset:	#4	05:31	18:37	
		#5	08:57	17:44	
		#6	06:20	18:11	
	Photoperiod:	#7	07:16	22:16	
		#8	06:30	18:01	
		#9	06:43	20:16	
		#10	07:08	17:34	

Sunrise/Sunset Data: Practice Chart					
Week Three Monday Feb. 16 2009	Sunrise:	#1	06:35	18:35	
		#2	07:35	18:00	
		#3	06:30	17:53	
	Sunset:	#4	05:36	18:32	
		#5	08:39	18:03	
		#6	06:19	18:12	
	Photoperiod:	#7	07:31	22:01	
		#8	06:27	18:04	
		#9	06:50	20:09	
		#10	06:59	17:42	
Week Four Monday Feb. 23 2009	Sunrise:	#1	06:34	18:35	
		#2	07:24	18:11	
		#3	06:25	17:57	
	Sunset:	#4	05:40	18:26	
		#5	08:20	18:20	
		#6	06:17	18:13	
	Photoperiod:	#7	07:45	21:45	
		#8	06:23	18:06	
		#9	06:57	20:01	
		#10	06:49	17:51	
Week Five Monday Mar. 2 2009	Sunrise:	#1	06:32	18:35	
		#2	07:11	18:21	
		#3	06:19	18:00	
	Sunset:	#4	05:44	18:19	
		#5	08:00	18:38	
		#6	06:14	18:13	
	Photoperiod:	#7	07:59	21:28	
		#8	06:18	18:08	
		#9	07:03	19:52	
		#10	06:38	17:59	
Week Six Monday Mar. 9 2009	Sunrise:	#1	06:30	18:34	
		#2	06:58	18:31	
		#3	06:12	18:04	
	Sunset:	#4	05:48	18:12	
		#5	08:39	19:55	
		#6	06:11	18:13	
	Photoperiod:	#7	08:13	21:11	
		#8	06:14	18:10	
		#9	07:09	19:42	
		#10	07:27	19:07	

Week Seven Monday Mar.16 2009	Sunrise:	#1	06:27	18:33	
		#2	06:44	18:41	
		#3	06:06	18:07	
	Sunset:	#4	05:51	18:05	
		#5	08:18	20:12	
		#6	06:08	18:13	
	Photoperiod:	#7	08:26	20:54	
		#8	06:09	18:11	
		#9	07:15	19:33	
		#10	07:16	19:14	
Week Eight Monday Mar.23 2009	Sunrise:	#1	06:24	18:31	
		#2	06:31	18:50	
		#3	05:59	18:10	
	Sunset:	#4	05:55	17:57	
		#5	07:58	20:29	
		#6	06:04	18:12	
	Photoperiod:	#7	08:39	20:37	
		#8	06:03	18:13	
		#9	07:21	19:23	
		#10	07:04	19:22	
Week Nine Monday Mar.30 2009	Sunrise:	#1	06:21	18:30	
		#2	07:17	20:00	
		#3	05:52	18:12	
	Sunset:	#4	05:58	17:50	
		#5	07:37	20:46	
		#6	06:01	18:11	
	Photoperiod:	#7	08:52	20:20	
		#8	05:58	18:14	
		#9	07:26	19:13	
		#10	06:53	19:29	
Week Ten Monday Apr. 6 2009	Sunrise:	#1	06:18	18:29	
		#2	07:03	20:09	
		#3	05:45	18:15	
	Sunset:	#4	06:01	17:43	
		#5	07:16	21:03	
		#6	05:57	18:11	
	Photoperiod:	#7	09:05	20:03	
		#8	05:53	18:15	
		#9	06:32	18:04	
		#10	06:41	19:37	

Week Eleven Monday Apr. 13 2009	Sunrise:	#1	06:16	18:28	
		#2	06:50	20:19	
		#3	05:38	18:18	
	Sunset:	#4	06:04	17:36	
		#5	06:55	21:20	
		#6	05:54	18:10	
	Photoperiod:	#7	09:18	19:46	
		#8	05:47	18:16	
		#9	06:37	17:54	
		#10	06:30	19:44	

Capture your questions, thoughts and discoveries:

The Mystery Class Journal: Reflecting on the Data

Use your practice experience to prepare for teaching.

We encourage you to capture your thoughts as you explore the photoperiod data in this practice packet. What observations, questions, discoveries, and teaching ideas did you make as you calculated, recorded, graphed, and examined the data? Think about ways to share your “captured thoughts” with students to model and guide their investigation.

- Jot down possible journal questions you would use to encourage thoughtful reflection.
- Explore Mystery Class Journal pages:
<http://www.learner.org/jnorth/tm/mclass/JournalSpring.html>

Mystery Class Journals for Students

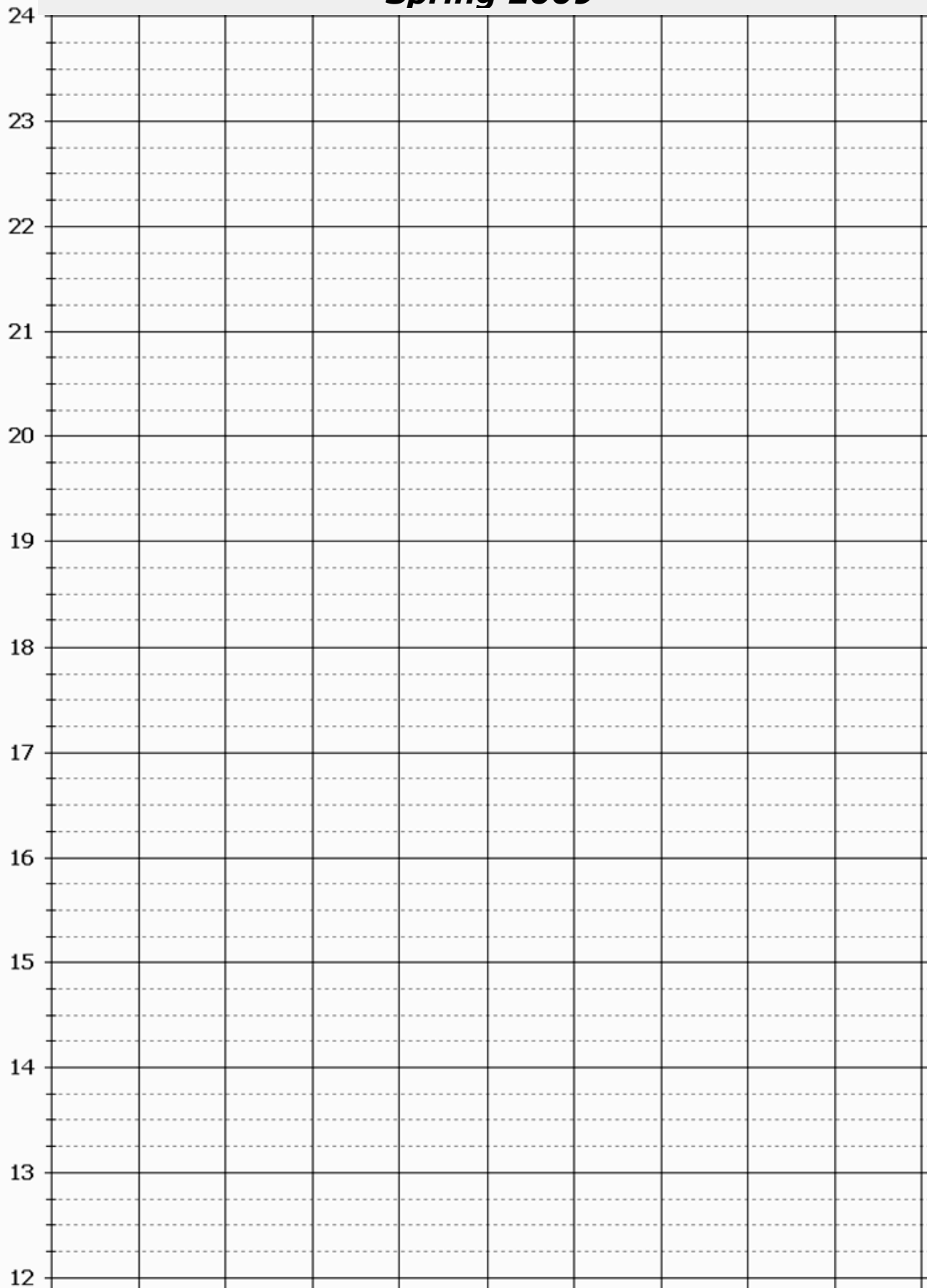
When Mystery Class begins in February, students will use charts and graphs to calculate and record photoperiod data based on sunrise and sunset times. *Examining and reflecting on the data is essential.* Watch for journal questions specific to the week's photoperiod data in each Mystery Class Update. The journal questions invite students to identify patterns, make predictions, compare/contrast findings, and pose possible explanations for results. Mystery Class journals work side-by-side with your students' charts and graphs.

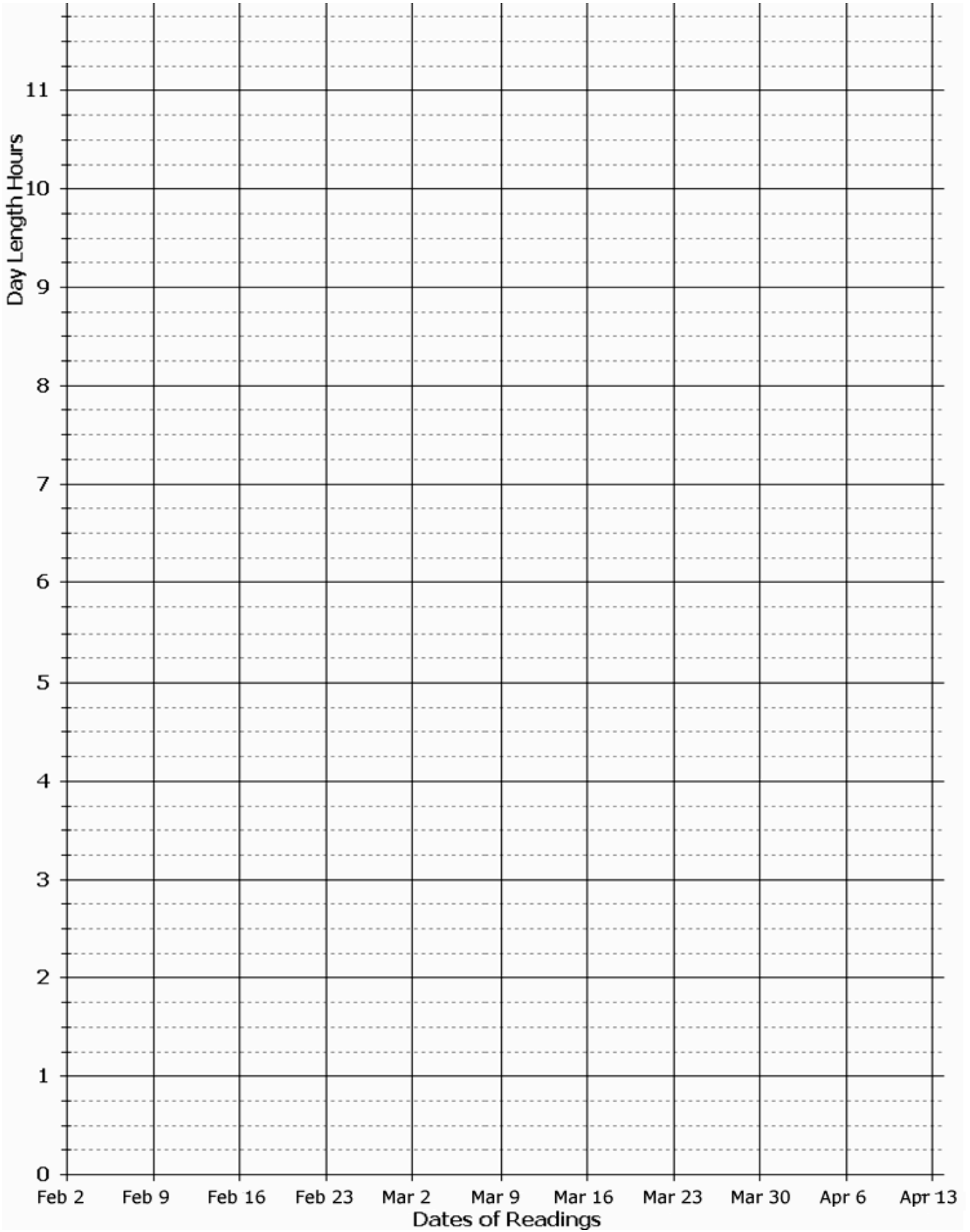
Sample Journal Questions

- Which sites have similar photoperiods? (*Identifying patterns; comparing/contrasting*)
- Why do you think the Mystery Class sites have different hours of daylight? (*Posing explanations*)
- How do you think the hours of daylight will change next week? (*Making predictions*)
- What numbers surprised you this week? Why? (*Posing explanations for unexpected results*)
- What clues can tell us which Mystery Sites are to the north or south of us? How about east or west of us? (*Identifying patterns*)

Mystery Class Practice Graph

Spring 2009





Mystery Class Sample Graph from Spring 2009

