

Science-Based Journaling Activities for Grades 4 – 6

Based on the Journals and Practices of Henry David Thoreau

Henry David Thoreau lived a life of curiosity, principle, and investigation! Over the course of his life he meticulously filled 54 journals in total. These journals are a wealth of information regarding his life, Concord, Massachusetts where he lived, the activities he enjoyed, the natural world, the people he met, and common activities he took part in.

This collection of activities is designed to be done over the course of one academic year. The idea is to introduce aspects of Henry Thoreau gradually and have the students get to know him over time. The activities are designed to emulate Henry's strategies and techniques, help them understand his writings, introduce them to the ideas of observation and record keeping, what it meant to him to live simply, and learn about the context of his life in Concord, Massachusetts.

Henry was a great observer. He took a great deal of care and time to record what he saw happening in nature and the world around him throughout the course of his whole adult life. This year my students will be keeping a science journal that includes many of the observational and record-keeping strategies that Thoreau employed in his own journals. These strategies will be used on an almost daily basis throughout the year and revisited regularly. Not only will the journals be places to keep record of what we are learning but also what is going on in the natural world in our immediate vicinity.

The journal activities we will be doing are outlined on the following pages.

Activity to start the year!

Observation activity

Part 1: Gather together objects that will most likely be unfamiliar to the students. I plan to bring in an old snowshoe, a garlic press or cherry pitter, a mining drill bit, a bamboo rice form, an Indian multi-tiered lunch carrier, an antique fanned picture holder, a crucible, a Dutch cookie press, an antique tobacco holder, and an ink well. This gives me the right number to divide my students in groups of 3-4 for each object.

Begin by reading The Important Book by Margaret Wise Brown, aloud to your students. Ask the students why the author would write an entire picture book about simple, everyday things?

Activity #1: Display an object that is unfamiliar to the students. Walk it around the classroom so they can see it more closely, talk a little about it (without giving anything away), and then place it under the document camera so they can see it clearly and close up. Tell the students that they are not to tell what they think the object was used for but only answer the following questions. Discuss as a class.

- 1) Do you think this object is old or new? Why?
- 2) Do you think this object was crafted by an individual person or produced in a factory? Why?
- 3) What are the materials that this object is made from? How can you tell?
- 4) Would this have been an expensive or inexpensive object to possess? Why do you think so?
- 5) Do you think this object was used a lot or not that much? Why?
- 6) Where do you think this object would have been used? Why?

- 7) What kind of person do you think used this object? Why do you think this?
- 8) Finally, what do you think the purpose of this object is? Tell about how you think it was used.

Next, you will divide the students into groups of 3 or 4 and give each group one of the unfamiliar objects you brought in. Give the students 5 minutes to examine their object and discuss it as a group. Remind them to be respectful of each other's answers and never tell someone they are wrong even if they disagree. Demonstrate how to say "I agree because...", or, "I disagree because...".

After 5 minutes, give each student a worksheet from the back of this packet for each person to fill out. They need to write in complete sentences and explain the answers to each item. Give them about 15 minutes to complete this.

Tell the students that they will now, as a group, show their object to the class. Each person will give their own opinion about what they think the object is and also explain their answer for one question (#1 - #7) from their paper. For example, "I think this object is a _____. I think it was used a lot because _____".

Give them a couple of minutes to organize themselves and quickly practice. Each person in the group should be answering a different question from #1 - #7.

Have each group come to the front, display their object, and have each person tell what they think the object is.

Since I have three class periods throughout the day I won't tell the students what the objects actually are until tomorrow. I know that some of them would spill the beans to the other two classes so will hold off on that!

Give them 15 minutes at the end of class to sketch their object in their journal. If they have time they may color it with crayons or colored pencils.

Part 2: Read The Important Book to the class one more time. Give them each a sheet of lined paper to write on as they listen. As you read tell them that they should write any patterns they hear on each page of the book. They should also be thinking of familiar objects that they use every day that don't seem too special but are important for one reason or another.

The pattern they should hear is "The important thing about _____ is that it's _____.", followed by describing phrases and then, once again, "...but the important thing about _____ is that it is _____.", echoing the first line almost exactly.

Give the students a couple more minutes to finish their list of seemingly everyday objects. Brainstorm as a class on the board. Choose one of the objects and do a demo poem together as a class. For example...

The important thing about a chair is that you can sit on it.

It is solid, has four legs, and makes you comfortable.

It sits upright and helps you every day.

If you have one chair you can be alone. If you have two, you can be with a friend.

If you have three, you can have a conversation.

It is hard or soft and sometimes has spinning wheels.

You can sit with your legs straight, crossed, or tucked up underneath you.

But the important thing about a chair is that you can sit on it.

This type of poem is easily adaptable to different grade levels. You can require a certain number of adjectives, simile or metaphor, or any other language/grammar strategy you are trying to review or reinforce.

Once the students understand what they are supposed to do they will write a rough draft of their poem on regular, lined paper. I will be requiring them to have at least 5 – 6 describing sentences in the middle in addition to the beginning and ending lines. They also need to have 5 – 6 adjectives included. If it is later in the year they will need to also include simile and/or metaphor in one of their lines. Once they have finished their poem they may proceed to their final draft that will be written in their science journal.

Once the poem is copied into their journal they can draw on the page to create an interesting written piece that is visually interesting. I use Waldorf School journals as my inspiration. [See the link here to my Pinterest page about Waldorf journals](#) to see how simple writing can be made beautiful. Not all of these are poetry examples but you can get the idea of what I'm going for with my students.

Tracking the Natural World Around Us!

This activity is designed to give the students a vehicle to practice longitudinal record keeping like Henry Thoreau did. Henry had a practice of going back into his extensive journals and gleaning data from what he recorded. This data was related primarily to the weather, water, temperature, animals, plants, and many other forms of natural phenomenon he observed. The data would then be recorded onto charts.

In 5th grade our science curriculum is divided into life, earth, and physical science. Specifically we cover the following areas:

Chapter 1: The Structure of Living Things; cells and organisms

Chapter 2: Plant Structures and Functions; vascular plants, plant transport systems, and photosynthesis / respiration

Chapter 3: Human Body Systems; general anatomy and the digestive, circulatory and excretory systems

Chapter 4: Earth's Water; the blue planet, the water cycle, fresh water resources, and California's water supply

Chapter 5: Earth's Weather; atmosphere, air currents and wind, oceans and air temperature, and severe weather

Chapter 6: The Solar System; the sun, the structure of the solar system, gravity and orbit

Chapter 7: Types of Matter; properties of matter, elements, mixtures, compounds

Chapter 8: Changes in Matter; chemical reactions, metals and alloys, salts

You should use whatever science standards your classroom is required to cover to guide what your students will track over the academic year.

Thoreau used data from his charts to record what he observed. Here are several photos of what they looked like.

	52	53	54
<i>Corylus</i>		Mar 26 fallen on ice 9' mostly done	
<i>Alnus incana</i> Mar 30-31	11 xx	Mar 22	in late place 6 ap. 1 station long thick
<i>Acer dasycarpum</i>	9 xx	Mar 23 x 4 or 5 done 9'	6 xx
<i>Alnus resinata</i> <i>Cattha Palustris</i>	8 x 25 xx many	Mar 25 x 7 xx	6 in late place prob. 11 xx or more a short many 6
<i>Pop. tremuloides</i> Mar 23-31 (?)	15	Mar 29 x	10 xx
<i>S. didor</i>	72 xx	Mar 30 xx	9 xx (v angle) stigma, red in 27'
<i>Corylus americana</i>	16	Mar 23 fallen Mar 31 x	8 xxx
<i>Myrica gale</i>	x30 in shade or 2	10' with very soon 2° female in shade	19" generally 23' female much how long? prob 6 xxx
<i>Corylus rostrata</i> Mar 22-31	27-52 xx	3' xx	8 xxx
<i>Saxifraga virginiana</i>			5 or 6 xxx

Flowering of April flowers					
55	56	57	58	59	60
XXXX	4" scale, normal 9X 3 distinct flowers			2 ground, part fl. more with fl. to 10' 80% done generally	mar first 18
XXX	generally 14" 9X	mar 27 prob 24	29 XXXX	13 about done	
XXXX	8 prob. 2 or 3 days		60% in 14 or 20XX	8 some just begun 9 Michael Messant normal parts	mar. 25 XX
XX	8X normal cotton mar. 22		6 some big & 6 apple	26 about done	may 5 low some time mar 25X
XX	13X	mar 26 (1 cal. and 18 to 19 small)	well out 4 part. some fl. 3 - inf. 12'	80% in h 17 mostly done	2 in fl. 8 in fl. 20 small in fl. 20 mar 26
XXX	11X	2 XX	may 10 before in h.	may 2 abundant	may 15 flowers 2 flowers in h 11 - at all 20 in - inf. a week ago at least
18 XX	25 prob. normal days at least	18 no shooting (part out - 18 in 18 then the summer)		Apr 2 day after the summer (18-57)	13 - abundant - wood in h.
KX in h at dec 30	Apr. 18 - 4 or 5 days		6 very little tax. not at all. possibly 4 or 5 days	3 day at night may 4	may 5 in h. mar 31 ready
KXX in h. 30"	18 2 or 3 days		6 more yet or in 11 days or 2	at highway 4"	may 5 part h. at 10 22 in h. at 10
4" X	25 prob a day	may 10 abundant	13 may 12 in h.	25 with white may 4 day after clouds; rare 0.5 15 again rare	7 low long; may 2 quite about 11 in h. flowers fallen

General Phen		
52	53	54
6 cattle going up. c.	2 cattle going up. c.	11 cattle going up. c.
10	16 1" cold NW wind 8 to 4 SW wind	6 cold up. c.
some warm haze days before the 14	16 the 14 weather weather	12 2nd in 1000
5" north 11 K. north		11 15
some warm haze days before the 14	10 - wide front 28	
9 reduce work cloth	10 kg. 8 thick 9 thin coat	
Breeding	29" begins	
Thunder	16" also had some in April March - 18" as 20" in h.	11 Thunder

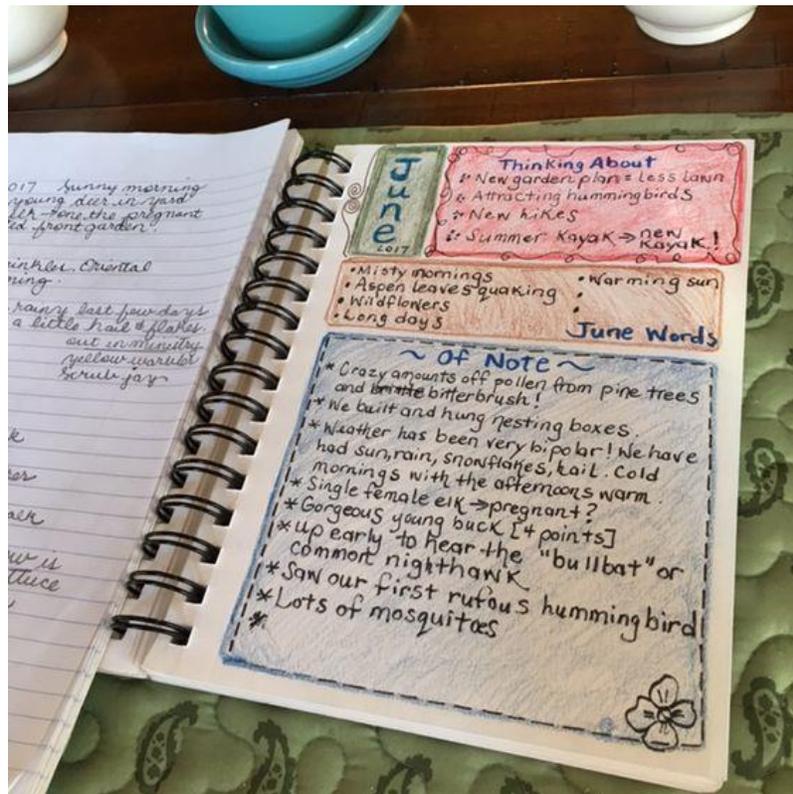
The first thing you probably notice is that Thoreau had atrocious handwriting! But when we look closely we can see that he made observations about numerous things related to the natural world. In the first and second examples he is listing types of plants and flowers he observed, how many of each were in seed, in flower, their heights, and how many were blooming on the specific plants he was observing. In the 3rd example we see that he was making observations about how cold or hot it was, how windy it was, or if there were thunderstorms. On other charts he tracked the dates that the ice broke up on the ponds, the date people started wearing light or heavier clothing, the amount of water in lakes, and when birds hatched from their eggs. All of the information collected in the chart was gathered from the journals he kept on a daily basis.

My plan for the year is to have students keep a similar chart based on the specific content of our science program. We will create the chart at the beginning of the year and pull it out once every two weeks to track the data we observe outside. By the end of the year we will have approximately 15-16 data points for each phenomenon we track. Students will record brief descriptions, numeric data, dates, measurements, and small pictures in the cells on the chart. The chart will look something like this. I plan to print 8 ½" by 14" paper, taping them end-to-end if needed.

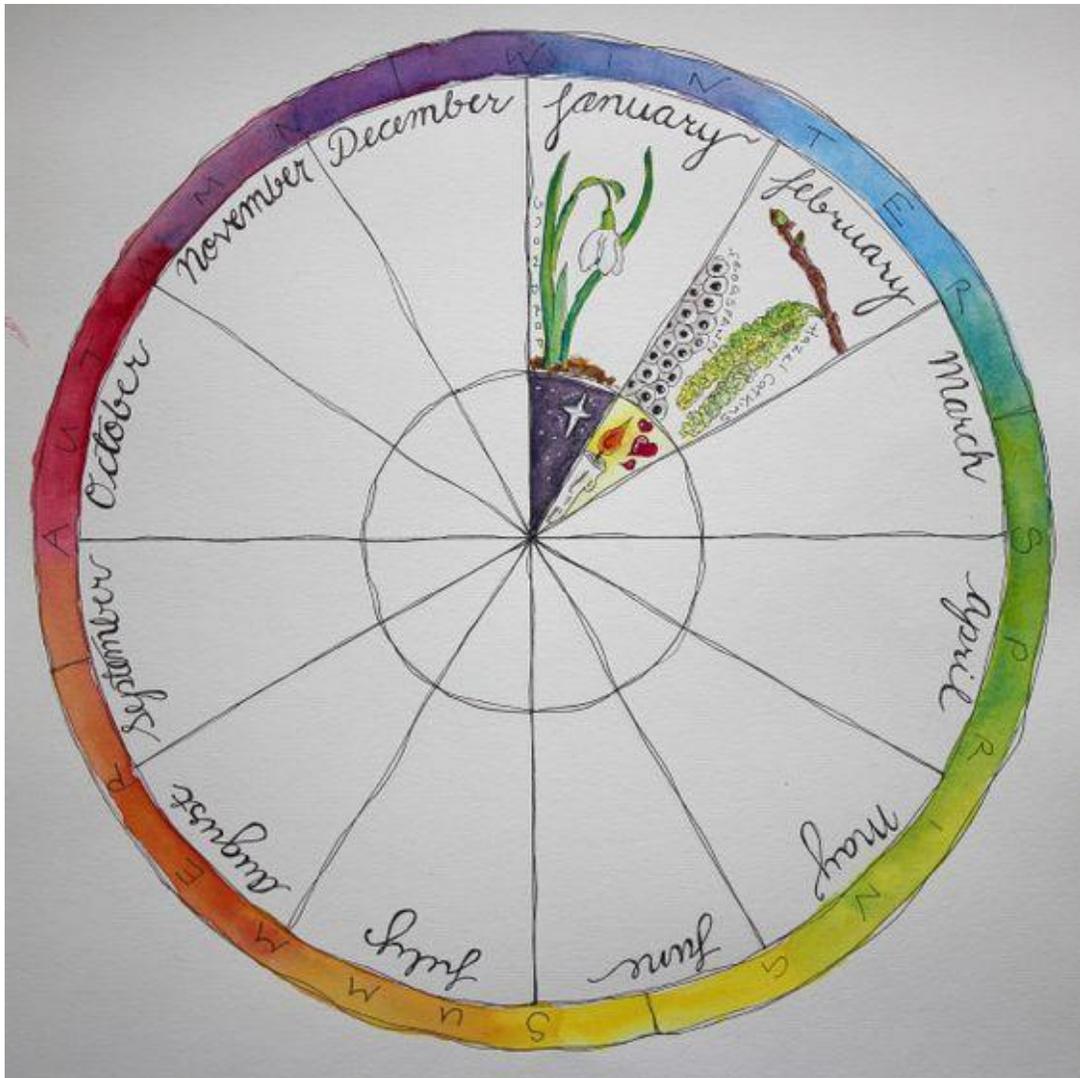
Longitudinal Data Collection	Date:	Date:	Date:	Date:	Date:
Organism #1					
Organism #2					
Vascular Plant _____					
Non- vascular plant _____					
Deciduous Plant _____					
Evergreen Plant _____					
Sun					
Wind					
Rain					
Phase of the Moon					

Besides these there will be a number of other categories in the final printed copies I pass out to students the second week of school. This is just meant to be an example of how the chart will look.

In addition to a chart students will create a monthly data overview page in their science journal. At the end of the month we will look back at our charts and take note of the things we have observed. Students will create a visual representation of what we have seen that month. Here is an example. Mine will most likely also include pictures and labels for each thing observed to make it more visually interesting. I will also have it span the two facing pages of their journal.



I am also considering having the students create some kind of phenology wheel but that may be overkill and I probably won't have time to do both. Here's an example of one.



As we track the data from our observations I will be reading excerpts from Walden where he describes his surroundings and observations in detail.

Journaling Like Thoreau

The trend in K-12 science right now is interactive journals. Students are supposed to collect information on the right-hand side of their notebook and write responses that show their learning on the left-hand side. This is all well and good but I believe a journal should be more in order for it to have meaning and for the students to take ownership of it. Thoreau's journals were a wealth of strategies, recording styles, scientific data, and personal reflection and thoughtfulness. Therefore, in my class this year, we will be utilizing journals as "lesson books" where students not only collect and respond to information but where they create meaning and have a space to gather and reflect creatively and authentically as Thoreau did.

To this end I have created a list of all the different kinds of entries and activities that my students will take part in and include in their journals. Each of these things will be directly tied to the curriculum we focus on in 5th grade.

- 1) Plant pressing – vascular and non-vascular plants. Pages labeled and colored. We will collect these seasonally.
- 2) Leaf rubbings – seasonal rubbings of leaves that are labeled and described.
- 3) Vocabulary – students will gather key vocabulary words and illustrate their meanings in a variety of ways.
- 4) Content area organization – students will take notes and gather information in a variety of ways including but not limited to
 - a. Cornell notes
 - b. Foldables
 - c. Visual models
 - d. Drawings and diagrams

- e. Lab notes
 - f. Traditional outlines
- 5) Output / reflection pages that include
- a. Drawings
 - b. Acrostic poems
 - c. Comics
 - d. Additional questions they have
 - e. Quick writes to respond to learning
 - f. Compare / contrast charts
- 6) Bell ringers – these are 5 minute activities that they students will complete daily when they come into the classroom. They will include very short activities about a variety of things including the following. (Links included in case you are looking for resources)
- a. Thoreau quotes along with a writing prompt for students to think more deeply. (See next section for 20 weeks of Thoreau quotes and prompts!)
 - b. Greek and Latin root word work
 - c. Quick write / observations to get them thinking about the topic for the day
 - d. Reading about famous scientists and responding to a prompt.
 - e. [Scientist “Quote of the Week”](#)
 - f. 3-minute fiction story starters; [NPRs weekly competition](#) was my inspiration for this. I just make something up once every week or two and see how creative the kids can be. AMAZING!
 - g. Answer an essential science question based on what you have learned.

- h. Vocabulary “doodle notes” – [similar to this](#) but I make them so the students have to generate their own information. (WWK = Words Worth Knowing)
- 7) “I Wonder” pages. Small written pieces where students list further questions they have and want to learn the answers to about what we have been studying. Use as a springboard for our science fair at the end of the year.
- 8) Monthly Page of chart observation data gathered in one place in a visual way.

Thoreau Quotes and Writing Prompts

Henry Thoreau thought deeply and expressed himself eloquently about what he observed in the world. I want students to be introduced to several well-known quotes that are commonly known as well as some that are less so. Here are 20 quotes with accompanying prompts that are designed to be done every week or two, either during class opening, or at some other time during your school day. They are arranged in no particular order but I tried to choose things that my 5th grade students can relate to in their own lives. I will start having students respond to these prompts only after I have given them an overview of Henry’s life so they understand their context.

#1: “I sailed on the north river (the Assabet) last night with my flute – and my music was a tinkling stream which meandered with the river – and fell from note to note as a brook from rock to rock.”

- Do you play a musical instrument? How would you describe its sound? Thoreau described the sound of his flute as “a tinkling stream which meandered with the river” and “a brook from rock to rock”. Create a 4–5 sentence paragraph about playing your instrument or an instrument you have heard played. Include at least 3 similes that describe how the instrument sounds to you.

#2 – “It is one of the regular pursuits of the spring...I go in search of arrowheads when the proper season comes round again...methinks the last one gives me about the same delight that the first did...It is a stone fruit. Each one yields me a thought.”

- Thoreau loved to hunt for Native American arrowheads and collect them. What is something you like to collect? Thoreau said that finding them was just as good as eating his favorite fruit! He said “Each one yields me a thought”. What do you think he thought when he found each arrowhead? What do you think about when you find something that you like to collect?

#3 – “I am no more lonely than a single mullein or dandelion in a pasture, or a bean leaf, or sorrel, or a horse-fly, or a humble-bee. I am no more lonely than the Mill Brook,, or the north star, or the south wind, or an April shower, or a January thaw, or the first spider in a new house.”

- When Henry moved into his small house on Walden Pond everyone asked if he was lonely. The above quote is what he had to say about that! Do you think that being lonely was a positive thing for him or a negative thing? Have you ever felt lonely? Talk about how you felt and if you feel that being lonely is a positive thing or a negative thing.

#4 – “I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived.”

- Hmm...this is a little hard to read, isn't it? Turn to a neighbor (or maybe two!), read each part of the sentence between the commas, and see if you can decide together what Thoreau means. Once you think you understand, explain what you think he means by this. (Once they have written this give them the second part of the prompt.) What is something that you do in your life that you think helps to make it a good life? Write a few sentences about it and explain why it helps your life be better.

#5 – Thoreau read a book that said this...“An abode without birds is like meat without seasoning.” Thoreau thought about this when he moved to his small house on Walden Pond. He wrote, “Such was not my abode, for I found myself suddenly neighbor to the birds; not by having imprisoned one, but having caged myself near them.”

- What do you think about this idea? Do you think Thoreau would have kept a pet? Do you think he looked at the birds as pets or not?

#6 – “I find it wholesome to be alone the greater part of the time. To be in company, even with the best, is soon wearisome and dissipating. I love to be alone.”

- Would you rather be alone and happy or be around people you don't really like and miserable? Why or why not? Explain your reasoning.

#7 – “The language of friendship is not words but meanings.”

- What do you think Thoreau meant by this? How can you apply this to your friendships? How would this idea help you to be a better friend?

#8 – “Friends...they cherish one another’s hopes. They are kind to one another’s dreams.”

- Do you know what your friends hope and dream for? What are some of the things you know about the things your friends want for themselves. Tell about them and also explain how you can support your friends in their hopes and dreams.

#9 – “As a single footstep will not make a path on the earth so a single thought will not make a pathway in the mind. To make a deep physical path we walk again and again. To make a deep mental path, we must think over and over the kinds of thoughts we wish to dominate our lives.”

- What kinds of thoughts are negative and what kinds of thoughts are positive? What are the thoughts that you can think about that will make your life better?

#10 – “Rather than love, than money, than fame, give me truth.”

- Why do you think that truth was more important than the other things he listed? What are the things that are truly important to you? Why?

#11 – “We must learn to reawaken and keep ourselves awake, not by mechanical aid, but by an infinite expectation of the dawn.”

- Thoreau didn’t think that people needed things to be awake, alive, and happy. He thought that just living and looking forward to each day was enough. Do you

agree or disagree? Why? Do you think that having things makes you more happy? Explain.

#12 – “Aim above morality. Be not simply good, be good for something.”

- What do you think he meant by this? How can you apply this to how you live your life?

#13 – “Books are the treasured wealth of the world and the fit inheritance of generations and nations.”

- Do you agree? Are books the most valuable thing that we can leave to future generations or are there other things you think are more valuable? Explain.

#14 – “I would rather sit on a pumpkin and have it all to myself, than be crowded on a velvet cushion”

- What on earth does he mean by this? Do you think he is right or wrong? Why?

#15 – “The greatest compliment that was ever paid me was when one asked me what I thought, and attended to my answer.”

- Some people don't take the time to listen to others. Why is it important to listen to others as well as be listened to?

#16 – “What is the use of a house if you haven't got a tolerable planet to put it on?”

- What is Thoreau talking about? Explain what he means and whether you think he is right or not?

#17 – “I put a piece of paper under my pillow and when I could not sleep, I wrote in the dark.”

- That seems kind of like a silly thing to do! What are some things you do that might seem silly to other people?

#18 – “In the long run, men hit only what they aim at. Therefore they had better aim at something high.”

- What is something in your life that you want to aim at? Do you think you are aiming high enough or not? Why?

#19 – “A truly good book teaches me better than to read it. I must soon lay it down and commence living on its hint. What I began by reading, I must finish by acting.”

- Is there a book you have read that makes you want to do something new or start doing things in a different way? What was the book and why did it make you want to take some sort of action? Be prepared to explain it to a friend.

#20 – “To have done anything just for money is to have been truly idle.”

- Do you think it's OK to do a job just for money even though you may not like it or do you think it's also important to do something good or that brings you pleasure? Explain.

Mystery Object Observation Worksheet

Name: _____

1) Do you think this object is old or new? Why?

2) Do you think this object was crafted by an individual person or produced in a factory? Why?

3) What are the materials that this object is made from? How can you tell?

4) Would this have been an expensive or inexpensive object to possess? Why do you think so?

5) Do you think this object was used a lot or not that much? Why?

6) Where do you think this object would have been used? Why?

7) What kind of person do you think used this object? Why do you think this?

8) Finally, what do you think the purpose of this object is? Tell about how you think it was used.
