

Maries Atlas –

Enrichment Activities

Dear kids, parents and teachers:

These activities are just a handful of enrichment ideas. Please email me if you have more to add. I would love to share! I encourage discussion groups, book clubs, and love to hear from my readers. You can contact me at www.MariesAtlas.com. If you want a talk or discussion from free to contact me. I hope you enjoy the book! If you find a typo that hasn't been found before you get a surprise.

Regards,
Sophia

These worksheets are free and reference many online websites. Please confirm a site is appropriate prior to use and be aware that links can change and break.

Marie's Atlas

Chapter 1 – Meet Arti

Reflection Questions

- What aspects of Marie's life appeal to you?
- What aspects of Marie's life do you think are challenging?
- What do you have a knack or passion for?
- How do you think being truthful and trustworthy give freedom?

Art Activity

Draw a daydream

Math Activity

How do you visualize the 987 pieces looking?

- Draw a sample piece (don't share it, and keep it for the next chapter).

Science Activity

Bone articulation is a real job. Bone articulators reconstruct skeletons of many life forms for museums and scientists. Some activities:

- Dissect owl pellets and reconstruct what bones are found (use proper safety when doing this).
- Field trip to a museum that has dinosaurs. Imagine assembling the displays (even if you didn't have all of the parts).
- Use many science worksheets available for puzzles with bones (example: <http://www.dmns.org/media/223672/a%20bone%20identity%20crisis%20with%20key.pdf>)

Vocabulary

Fluctuate
Meditatively
Zen
Exhilarating
Crevasse
Particular
Abundance
Monologue
Knack
Articulator
Formulate
Methodically
Aroma
Scintillate
Artifacts
Exceptional
Perception
Serenity

Other Resources

- Your local museum

Marie's Atlas

Reflection Questions

- Have you ever had a project that you had to stay determined to finish?
- Have you ever imagined having wings?

Art Activity

- Draw a dinosaur comic.
- Make up a rhyme.
- Draw yourself with wings.

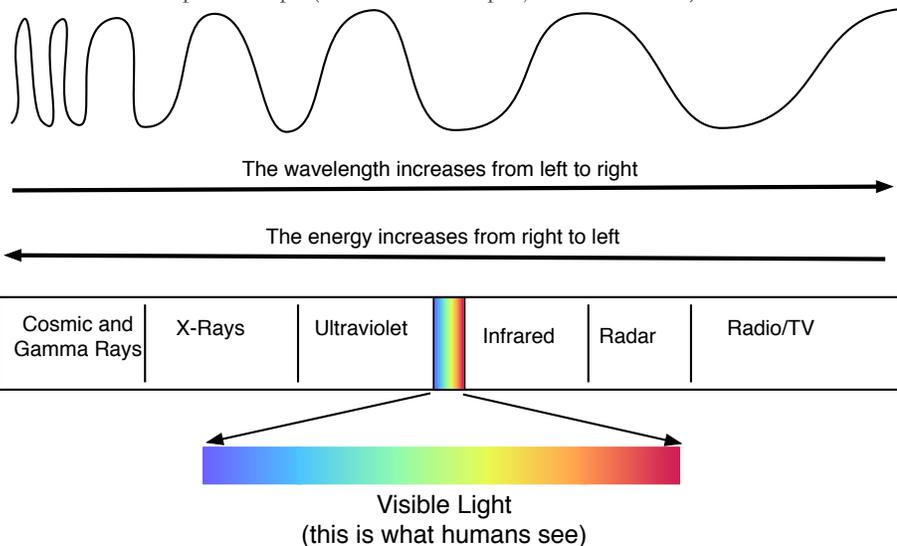
Math Activity

- Blow up balloons and look at various ellipsoids – can you spin them?
- Draw your interpretation of the egg. Does the piece you drew from the last chapter fit?
- Write out the Fibonacci sequence to 1,597 and embellish it with comics.

Science Activity

The visible light is part of the electromagnetic spectrum. Marie has super-sight that allows her to see outside the normal range for humans.

- Play with prisms to look at visible light broken out
- Make a spectroscope (there are lots of projects on the web).



Graphic is not to scale – there are many useful graphics in your physics books, and as online resources.

Vocabulary

- Harness
- Perplex
- Contemplate
- Addend
- Divulge
- Discriminating
- Disposition
- Nudge
- Ellipsoid
- Contour
- Fragment
- Phenomena
- Cretaceous
- Mimic
- Hysterical
- Optimism
- Zeal
- Embellishment
- Splendor
- Hypnotizing
- Spectrums of light
- Coincidence

Other Resources

- ViHart videos on Fibonacci
- <http://en.wikipedia.org/wiki/Fibonacci>
- spectraSnapp – app

Marie's Atlas

Chapter 3 – Airless String Thing

Reflection Questions

- Have you imagined flight with your own wings?
- What do you think it would be like in space?
- Could you imagine being able to absorb the energy of the sun to fly?

Art Activity

- Collage yourself in space
- Draw some of your own constellations

Math Activity

- Can you find the next Sophie Germain Prime?
- Who was Sophie Germain?
- Prime can also mean first or important. Can you make a math comic with prime numbers and this meaning? That would be a pun.

Science Activity

Did you know there are many theories on space travel? One theory is “solar sails” or “photon sails.” Marie’s wings incorporate a little of this theory. They use energy of stars to move her. The idea is that the wings (sails) use solar pressure as propulsion. Can you draw a spaceship that has these sails to propel through space?

There are many theories for space travel. Can you think of some in books or movies that you have seen/read? Which ones are most believable to you?

Vocabulary

Humble
Instinctively
Primitive
Yearned
Iridescence
Ignition
Iota
Immobilizing
Accuracy
Pulsar
Compress
Cluster
Orbit
Consciousness
Illuminate
Transforming
Particles
Void
Intuition
Absorb
Propulsive
Monolith
Boggling
Gyrate
Anticipate
Vortex

Other Resources

- http://en.wikipedia.org/wiki/Solar_sail
- “Icarus at the Edge of Time” B. Greene

Marie's Atlas

Chapter 4 – Kolos

Reflection Questions

- Did you know that Kolos means colossus in Dutch? What in this chapter is colossal? Symbolically?
- How would you have reacted with Kolos sniffing you?
- What do the verses in the end mean to you? Can you visualize the dream?

Art Activity

- Create a piece of artwork that depicts the origin of Atlas.

Math Activity

- Can you draw your interpretation of the solar system geometry from this chapter? (binary stars, multiple moons...)

Science Activity

How do you think binary star systems work? Did you know that every mass has a center of mass? That includes your body. Some binary star systems are theorized to have equilibrium with their center of mass.

Can you find the center of gravity for an object? A balancing point? How do you think this concept applies in life (airplanes, acrobats, ...)?

Vocabulary

Fragrance
Intimidating
Jolted
Sultry
Wafting
Olfactory
Musty
Dank
Pungent
Feat
Companion
Origin
Optical
Bliss
Tranquil
Jutted
Array
Dormant
Astounded
Dismalite (spelling typo-pg47 in 1st edition)
Bioluminescent
Assembly
Merged
Portray
Ascension
Edifice
Encumbrance

Other Resources

- Khan Academy (center of mass)

Note, If you have a first edition without corrections there is one other spelling typo, did you find it? (Clue – it's on the first page of the chapter). If you have a corrected version, it's fixed.

Reflection Questions

- Cosmos has more than one meaning, what are they?
- How would you have reacted with Kolos sniffing you?
- Why would Atlas refocus Marie onto the present rather than the past?
- What do you think Atlas can represent symbolically?
- What are some famous tragedies? Famous heroes?
- What do you think it would be like to have everyone hear your thoughts?
- How are the five steps to Impetus related?
- What does Impetus mean?

Art Activity

- Can you create the paintings on the walls?
- Can you create the orb?
- Can you act out part of this chapter with friends?

Math Activity

- The cycle of plants can be drawn with a graph – can you create your own mathematical graph for plants? Seed, growth, germination, etc.

Science Activity

- Plant a seed or look at the cycle of a cosmos (or other flowers). A biology book is a good resource here.

Vocabulary

Vivid
Metaphorically
Burden
Tragedy
Potential
Abundance
Adversity
Anticipating
Enthusiastic
Vulnerable
Endow
Diversity
Unity
Prophecies
Somber
Steadfast
Persevere
Abstract
Impetus
Detachment
Eureka
Subterranean

Other Resources

- [BBC kids](#) has resources on flowers

Reflection Questions

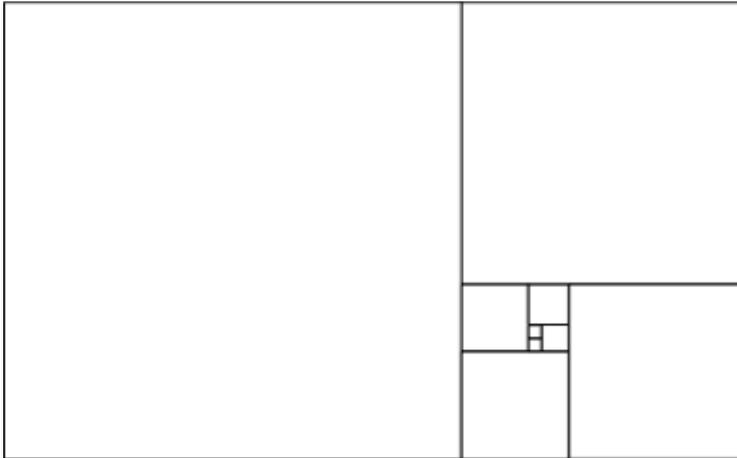
- How is fear contagious? Examples?
- How can fear drain your energy?
- What is courage? Would you have courage without fear/anxiety/worry?
- Have you ever done something even though you were afraid?

Art Activity

- Can you create a breathing exercise or meditation to create calmness?
- Draw/paint a scene from the chapter

Math Activity

- A hurricane is similar shape to galaxies and other spirals. You saw Fibonacci numbers in the previous chapters, but did you know there is a Fibonacci spiral?
- Connect the corners of these squares with a spiral. The sides of the squares are 1,1,2,3,5,8,13,21,34,... (You may need to try a couple of times to get the spiral right)



Science Activity

- What causes hurricanes? On earth we have hot air, cold air, moisture, oceans, and currents that all play together.
- What goes on in the eye of a hurricane?
- Can you draw a picture of a hurricane and label it?

Vocabulary

Cyclone
Meditation
Currents
Rhythmically
Immense
Eerily
Suction
Tubular
Perish
Ominous
Intimidating
Dissipate
Emerged
Encounter
Gratitude
Shockwave
Foundation

Other Resources

- [BBC has an animated guide for hurricanes](#)

Reflection Questions

- What does steadfast mean?
- Swirls are a reoccurrence, what could they symbolize?
- Could there be a hero without tests, difficulties, and risks?
- What can circles symbolize?

Art Activity

- Using a compass can you make overlapping circles into art?

Math Activity

- How can the equation for a circle be used in life?
- Pi is a fun number. People have played sequences on the piano with it, drawn it as a city, used it to build unique architecture (pyramids) and more. Can you find a fun way to use Pi?

Science Activity

- Elements test Marie in this chapter. How do these same elements test people on earth via natural phenomenon?

Vocabulary

Ponder
Waver
Inscription
Hover
Quenched
Brutal
Abrasions
Rational vs. Irrational (all meanings)
Illogical
Resonated
Ratio
Circumference
Diameter
Hesitation

Other Resources

- Look up Pi on the piano
- Look up the Pyramids and Pi
- Look up Pi city art

Reflection Questions

- How does purpose change how we do things?
- What are the stages of grief that people go through?
- If we were mirrors that reflect light, then what would make our mirrors drossy and distorted? What would make the pure and reflective?
- What is detachment? How does it apply in your life?
- What do you think walking through the wall symbolizes? What about losing her wings and sight? What are the things that we can shed?
- Can you lose someone and still keep them close to you? Is that easy to do?

Art Activity

- Using tinfoil, create a scene with mirrors.

Math Activity

- Why is zero so significant?
- The universe is full of zero (nothing). Would you be able to recognize something without nothing?
- Zero is both a placeholder in the number sequence and a representative of emptiness. How old do you think zero is?
- Marie solves a riddle in this chapter. Can you create a logic puzzle?

Science Activity

- Psychology is an applied science that studies the human mind and behavior. In what ways can this science look at Marie's experience in this chapter?

Vocabulary

Metropolis
Severance
Cease
Tension
Disoriented
Graze
Encased
Meticulous
Drossy
Distorted
Self-pity
Indifferent

Other Resources

- [History of Mathematics \(zero\)](#)

Reflection Questions

- What can be considered abstract in this chapter? Can you smell peace?
- What to all of the smells of each flower have in common?
- Can hope and fear coexist?
- What are the nine steps? Could these apply to your life?

Art Activity

- Create a flower arrangement.
- Create an abstract piece of the flowers.

Math Activity

- Factorials are fun! Bring in a number of flavors of food and see how many different ways you can combine them. Do the flavors change, when you change the order? Calculate the number of combinations with a factorial.

Science Activity

- Smell can be a very strong sense for people. It has been linked to memory and emotion in individuals. Investigate your sense of smell. What triggers memory or emotion for yourself. Do you have any hypothesis why smell can trigger memory and emotion?
- Look in a biology book or human body book on your sense of smell; it's really quite amazing.

Vocabulary

Exquisite
Orchid
Arrangements
Faithfulness
Humility
Compassionate
Combinations
Factorial
Excellent

Other Resources

- <http://kidshealth.org/kid/htbw/nose.html>

Marie's Atlas

Chapter 10 – Sea of Time

Reflection Questions

- How are swimming and flying similar?
- What is foreshadowing?
- How does Marie struggle with trust? Do you ever doubt yourself?
- Atlas wanted Marie to try. Why is trying so important?
- Time seems to flow at different speeds depending on our state of mind (bored, excited, sad...). Do you think that “atime” is physical or mental in this chapter?

Art Activity

- Can you find a way to make art or music with Pascal's triangle? (Crochet stitches, piano, architecture...)

Math Activity

- Create Pascal's triangle and see how many patterns you can find.

Science Activity

- Physicists used to think time moved the same for everyone everywhere. Modern theories hypothesize that time can flow more slowly in a lot of gravity (ex: black holes) and for objects that move close to the speed of light.
- Who was Einstein? How did he change how we think about time?
- Read “Icarus at the Edge of Time” by Brian Greene.
- Can you write a story that involves time dilation (changing of the flow of time)?

Vocabulary

Gravity well
Duo
Neutral
Foreshadow (typo in chapter)
Suspended
Brink
Nadir
Apex
Vaguely
Slope

Other Resources

- Icarus at the Edge of Time by Brian Greene
- <http://www.ducksters.com/science/physics>

Reflection Questions

- What is going on in Marie's mind? How do the decision trees get involved?
- What is the struggle?
- How does an obsession with the past affect people?
- Does the page stare at you? Why is an internal test so challenging?
- How do you think Marie felt after she hit the red button?
- How do you think the inhabitants of Maneo felt?

Art Activity

- Can you create the eye?
- Can you act out a moment frozen in time?
- Draw the red button scene.
- Paint the festivities.

Math Activity

- Trees have a base and branches. Can you draw the decision tree for this book?
- Can you draw a decision tree for your day? (Sometimes it's easier to draw the trees upside-down).
- Can you plot how you think time flowed for the last 4 chapters? What about the time through the book?

Science Activity

- Time is thought to flow very slowly at the edge of a black hole.
- Look up pictures of black holes and draw some of your own.
- How is a vacuum or drain similar? If allowed a drop of food coloring (washable) in the bathtub with a drain may be a fun way to demonstrate suction.
- What is a laser and how are they used on earth?
- What are forms of force fields used? (Think electromagnetic, deep underwater, out in space, shelters, etc.)

Vocabulary

Spellbinding
Vice-versa
Diorama
Abstraction
Devastating
Momentum
Undeserving
Evaporating
Graciously
Laser

Other Resources

http://www.kidsastronomy.com/black_hole.htm
<http://spaceplace.nasa.gov/black-hole-rescue/en/>

Reflection Questions

- How do you feel about the end?
- How do you think Marie and Atlas will be connected?
- Were you surprised by the passage of time?
- Do you think there will be a sequel?

Art Activity

- Create a comic of the last scene with her parents.

Math Activity

- Create a math comic

Science Activity

- Do you think the flow of time is possible in this book? Why?
- If we want to better understand our universe, what does the human race need to do?

Vocabulary

What new vocabulary do you have after reading this book?