



Adventures Through Open Minds Science™
(A.T.O.M. Science Club)

2025 Summer Camp:

An Exciting Journey Into Science and the Story of Life on Earth

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1) Invitation To Explore Earth's Amazing Geological and Biological History

You are cordially invited to a summer filled with adventure and exploration. In addition to the 8-week Summer Camp offered below, we will also be gifting **FREE Bonus Weeks** and **FREE Family Field trips** to make this a summer you'll never forget!

Who: Children ages 6-18

What: An Exciting Journey into the Science and History of Life on Earth Summer Camp

Where: Online via Zoom & (optional In-person)

When: June 2-12 (Bonus weeks); June 16-Aug. 7 (8 camp weeks); Aug. 11-14 (Bonus week)

Why: To have fun & learn about the formation of our Earth and the life upon it

Days: Mon/Wed/Thurs (3 days Highly Recommended) OR Mon/Wed (2 days)

Times: 4pm - 5:30pm for Elementary Students

6pm - 7:30pm for Middle/High School Students

FREE & Optional Bonuses

• **3 FREE Bonus Weeks:** Campers are gifted a total of 3 FREE optional bonus weeks of online Zoom meetings (June 2-12 and August 11-14). These weeks are great for campers whose summer begins earlier or ends later than other children's. Join for as many or as few bonus meetings as you wish! See the Bonus Weeks section on page 5 for more details.

• **3 FREE Family Field Trips:** Campers are invited to join us on 2 in-person and 1 online field trips throughout the summer at no additional cost. See the Family Field Trip section for more details.

Vacation make-ups should be scheduled in advance

We are happy to offer make-ups for campers who miss meetings due to family vacations. Please see the Family Vacations section for more details.

2) Elementary School Students (6-10yr)

3 days a week option A.T.O.M. Science Summer Camp is offering 8 exciting weeks of **online Zoom meetings (June 17 - Aug 8)** (plus an additional 3 bonus weeks) that meet up to 3 days a week. This summer camp has been designed to be taken 3 days a week. To receive the optimal experience, students will benefit from taking all 3 days.

2 days a week option While attending twice a week will be an enriching addition to the summer, the additional 3rd meeting will take your child deeper into that week's topic for a greater understanding and an even more enlightening experience. However, if the 3-day/week option does not work, you can choose the twice-a-week option. All campers are also invited to attend three additional FREE BONUS weeks as well as several FREE BONUS field trips.

Package	Meeting Days / Time of day	Age	Grade	Camp Level
3 Days per Week	Mon/Wed/Thurs @ 4:00 - 5:30 p.m.	6 - 10 yr	1st - 5th	Elementary
2 Days per Week	Mon/Wed @ 4:00 - 5:30 p.m.	6 - 10 yr	1st - 5th	Elementary

3) Middle & High School Students (11-18yr)

3 days a week option A.T.O.M. Science Summer Camp is offering 8 exciting weeks of **online Zoom meetings (June 16 - Aug 7)** (plus an additional 3 bonus weeks) that meet up to 3 days a week. This summer camp has been designed to be taken 3 days a week. To receive the optimal experience, students will benefit from taking all 3 days.

2 days a week option While attending twice a week will be an enriching addition to the summer, the additional 3rd meeting will take your child deeper into that week's topic for a greater understanding and an even more enlightening experience. However, if the 3-day/week option does not work, you can choose the twice-a-week option. All campers are also invited to attend three additional **FREE BONUS** weeks as well as several **FREE BONUS** field trips.

Package	Meeting Days / Time of day	Age	Grade	Camp Level
3 Days per Week	Mon/Wed/Thurs @ 6:00 - 7:30 p.m.	11 - 18yr	6th - 12th	Middle / High
2 Days per Week	Mon/Wed @ 6:00 - 7:30 p.m.	11 - 18yr	6th - 12th	Middle / High

4) Camp Calendar

Dates	Activity	Location
June 2 through June 12 (Mon.,Wed.,Thurs)	Optional 2 FREE Bonus Weeks! (See details)	Online (Zoom)
June 16 through August 7	Online Summer Camp for Everyone! (See details)	Online (Zoom)
August 11 through August 15	Optional FREE Bonus Week! (See details)	Online (Zoom)

5) Topics Covered Each Week

June 2–June 12: FREE BONUS WEEKS

During the first week, we'll practice using our microscopes and dive into some exciting discussions about: 1) the invention of the microscope and telescope 2) what microscopes allow us to do today and 3) imagining the future of microscopy and optics. Then in the second week, we'll explore the concept of *size*—from the largest (the Universe) to the smallest (the Planck length). Finally we'll imagine what it would be like to live inside a drop of water, like tardigrades do!

June 16-July 7 (first section): Summer campers will turn into planetary geologists! We will focus on the geological story of Earth and all its transformations—from a cloud of gas and stardust (known as a nebula), to a clump of primitive material in the coalescing disc of the early Solar System, to a giant lava ball, and then to early Earth, where convection currents resulted in the upwelling of magma that started plate tectonics. We'll see **chemistry in action** while learning about the carbon cycle, hydrothermal vents,

weathered sediments neutralizing the acidic ocean, and how the poisonous carbon dioxide that filled the early atmosphere combined with rocks that were transported to the bottom of the ocean through weathering and erosion. By the end of the month, **campers will understand how all this amazing geology and chemistry resulted in Earth becoming the habitable home to life** we know and love today.

To make our planetary geology studies become an exciting reality, we will—with the help of a NASA scientist—conduct exciting first-hand observations. Using telescopes, we will gaze out into the spiral arms of our galaxy to see vast glowing nebulae, stellar nurseries where new stars are being born and new solar systems are forming. We will then visit NASA to conduct microscopic examinations of rock samples from outer space, seeing how meteorites, rocks from the Moon, and rocks from Mars can tell us stories of how the planets formed. We will learn to use real NASA analysis tools to study real NASA data coming to us from spacecraft across the Solar System to compare various primitive asteroids, a more evolved planetesimal, and full-fledged planetary bodies. **I am particularly excited to announce that, as part of this exercise, campers will go home with their very own meteorite, obtained under the supervision of our NASA scientist, and ready for them to continue to study and share for years to come.**

July 10-July 24 (second section): Summer campers will become evolutionary biologists and paleontologists. We will study, in depth, the characteristics of all life and its evolution and discuss the current hypotheses of how life might have started on early habitable Earth. Watching carefully selected videos, **we will imagine joining paleontologists as they unearth real fossils so we can vicariously experience the thrill of discovery.** I will share with them a carefully chosen visual timeline that will help make these concepts become a reality for the campers, and which can be a valuable resource for them into the future.

We will then observe how the slowly unfolding story of our evolution has been pieced together, from the most primitive of all cells, LUCA (last universal common ancestor of all life), to fish, amphibians, and reptiles. Like an enormous puzzle or treasure hunt, each unique structure on a bone, chemistry in a rock, or sequence in a species' genome helps us weave together and understand our incredible human evolutionary timeline.

Campers will continue using their own microscopes to study both single-celled and multicellular organisms. They will raise their own community of multicellular organisms known as tardigrades or “water bears.” Campers will need to be scientifically conscious of chemistry (the atoms the tardigrades will be living in) and physics (the correct lighting and temperature for the algae they will grow to feed their tardigrade community). This will help them understand how Earth evolved to provide the correct chemical and physical environment for life to begin and then flourish.

July 28-August 7: (third section) Summer campers will turn into physical anthropologists. We will study mammals with a focus on primates, starting with *tritheledont*—a primitive mammal currently being compared to an advanced reptile—and ending with the *Homo sapiens* of today.

Mammals began to flourish 65 million years ago after dinosaurs became extinct. Watching along online, we will feel the thrill paleontologists and physical anthropologists experience as they unearth bones—such as the partial skeleton of Lucy—that serve as evidence for the most incredible story ever told: the evolution of the human body. We will participate vicariously in a key moment in our evolutionary story when paleontologists discover a bone believed to be the link between our human mammalian skeleton and a reptile's skeleton.

Then we will join physical anthropologists to uncover evidence of our quadrupedal tree dwelling ancestors from Africa. We will trace our evolution into bipeds with opposable thumbs who migrated and inhabited the entire planet, using fire and cooking to develop our extraordinary brains, which today have invented technologies that enable us to leave our home planet and potentially inhabit other worlds in our Solar System.

Fossil hunting is near and dear to Madame Atom's heart, since it was part of her work pursuing her college degree in Physical Anthropology. She has exciting stories to share about digs she went on, artifacts she found, and people she met, including famous scientists like Louis Leakey and Jane Goodall!

August 11-14: FREE BONUS WEEK: This final Bonus Week will fill in more details on the amazing story of our Universe, starting with the Big Bang. Through discussion and videos, campers will understand that **we** are what the Big Bang turned into after 13.75 billion years!

6) Three Special Summer Highlights!

- **Caring for a Community of Microscopic Animals (Tardigrades)** - Many people know and love the water bear, also known as the tardigrade. Campers are thrilled to hear they will get a chance to observe this amazing animal! Using their own tardigrade community and microscopes, campers will gain a clear understanding of how tardigrades eat and digest food and have babies (they have transparent bodies). They will then observe the baby tardigrades grow to maturity. Following the scientific method taught in STEM education, campers will report their observations to each other and discuss their hypotheses for these observations. This amazing hands-on activity will let campers observe, with microscopic detail, the entire life cycle of the tardigrade, known to be one of the toughest animals alive on Earth.
- **Exploring Where Solar Systems Are Born** - Campers will enjoy a special session at Foothill College Observatory where we will use high-tech telescopes to examine nebulae where new stars and solar systems are forming. We also take a close look at how stars process their atomic fuel, turning it into heavier atoms, and eject this material back into space, to form complex molecules that are the building blocks of planets and of life.
- **Examining Rocks From Space and Taking Home Their Very Own Meteorite From Space** - Campers will visit NASA and work with a NASA scientist to understand the stories that are told to us by diverse types of rocks from outer space. We will conduct first-hand examinations of a variety of samples including different types of meteorites, and rocks from the Moon and Mars. Students will use their microscopes to conduct detailed examinations. They will then take home their very own, specially selected meteorite for ongoing study and enjoyment.

7) Three Bonus Weeks - (FREE & Optional)

All campers are invited to attend a total of 3 FREE bonus weeks of **Online Zoom meetings (June 2-12 and August 11-14)** filled with amazing information about the journey our space program has taken. The three FREE weeks are **OPTIONAL** and **NOT required** to attend summer camp. If your child does not attend the bonus weeks, they will NOT miss any important information needed to understand the summer theme. There are 3 camp meetings (Monday, Wednesday and Thursday) each week during Bonus weeks. Feel free to attend as many or as few as you wish.

Dates	Meeting Days & Times	Age	Grade / Level
June 2 - 12 (2 Weeks) Aug 11 - 14 (1 Week)	Mon/Wed/Thurs @ 4:00 - 5:30 p.m.	6 - 10 yr	1st - 5th (Elementary)
June 2 - 12 (2 Weeks) Aug 11 - 14 (1 Week)	Mon/Wed/Thurs @ 6:00 - 7:30 p.m.	11 - 18yr	6th - 12th (Middle / High)

8) Family Field Trips - (FREE & Optional Real-Life Adventures)

NEW exciting additions this summer are in-person field trips! This summer, all campers and their families are invited to attend a number of in-person and online bonus family field trips for FREE. Each student must be accompanied by an adult and they may register to bring along additional family members and friends. Those who live in the San Francisco Bay Area are highly encouraged to attend the field trips. We'd love campers and their families from afar to join us if they are able to make the trip.

If unable to attend these BONUS field trips, your child will not miss any material needed to ensure a fulfilling and exciting summer camp experience. These BONUS field trips are meant as additional opportunities to experience fun science together.

Please note, the field trips below are weather-dependent and may be canceled or rescheduled as needed. For example, telescope viewing may be canceled due to cloudy or rainy weather conditions. Activities with NASA are also subject to any changes that may result from presidential executive orders that may impact NASA facilities and staffing. Additionally, some facilities require a minimum number of people to participate.

	BONUS Family Field Trips	In Person	Online	Dates
1	Night-Time Telescope Viewing – Foothill College Observatory Observe stellar nurseries (nebulae) and the return of processed stellar material to space with a Space Scientist from NASA	<input checked="" type="checkbox"/>		TBD
2	NASA Ames in Mountain View Examine rocks from space with a Space Scientist from NASA	<input checked="" type="checkbox"/>		TBD
3	Lick Observatory I am also working to finalize an online tour of Lick Observatory which is a world-famous scientific institution operated by the University of California right here in the Bay Area.		<input checked="" type="checkbox"/>	TBD
4	Possible Tour of NASA Ames Research Center I am also looking into the possibility of touring the facilities of NASA Ames Research Center.	<input checked="" type="checkbox"/>		TBD

9) Technical Requirements

All weekly camp meetings (Monday/Wednesday/Thursday) will be held online via Zoom. **Please ensure your child has access to a device with a functioning camera and microphone.** We ask that someone be available to help your child with any technical difficulties.

While we make every effort to start on time, due to unforeseen technical difficulties with both instructor and campers' equipment, start times may be slightly delayed to ensure all participants can be present. We ask that your child log on a few minutes early to account for any technical issues they may encounter with their cameras and microphones.

Please be aware that sessions may end 10-15 minutes after the listed end time. If students are engaged in a question or activity, I always aim to provide them with a complete answer or give them time to complete the activity. If your child needs to leave at the stated end time, they are free to do so.

10) Materials List

A.T.O.M. Science Club will provide a materials list to all families who register. In the beginning, we ask you to help teach your child the importance of having ALL their materials within arm's reach before they log on to each summer camp session. The idea is the same as going to a sports activity where each child is required/responsible to bring all their sports gear to class. This is a valuable and confidence-building skill I am teaching the summer camp members. Please note: I will not stop the class for an unprepared camper, as this becomes a problem for everyone.

Below is a summary list of materials you must purchase for your science campers. Detailed materials list with detailed specifications will be provided upon registration.

1. Digital Microscope, suitable for children and online collaboration (Cost of \$200 or less). This will be a model that I have carefully and specially selected for collaborative experiences for the campers. **It is imperative that we are all using the same equipment for this experience.** I will provide you with the make and model of the microscope upon registration. It will be used for their study of geological and biological specimens, and will be a valuable tool that students will want to continue using well after the camp.
2. Additional materials for biological microscope study including: live specimens, 2 prepared slides, and microscope equipment—for example blank slides, cover slips, pipettes (approximately \$100).

11) Tuition

Tuition covers all of the items in the table below.

Item	Description	Provides
8 Weeks of Camp	1.5 Hour classes 3 times per week	Total of 36 hours of instruction
Camp Materials	A real meteorite will be given to each camper during our NASA field trip.	Campers will get to keep their meteorite for ongoing study and enjoyment
3 BONUS weeks of camp	1.5 Hour classes 3 times per week	Total of 13.5 hours of instruction
3 BONUS Field Trips	In-person and Online Field Trips to: <ul style="list-style-type: none"> • Foothill Observatory (in person) • NASA Ames (in person) • Lick Observatory (virtual) 	Total of ~ 10 hours of instruction with scientists who are experts in their field
BONUS Help	Online Hours by Appointment Only. In the event you are unable to attend science summer camp due to vacation , you may have a makeup session with Madame Atom FREE of charge in order to make sure your camper is prepared to continue learning when they resume. Please see section on family vacations for more details.	~ 2.5 hours
		TOTAL * 62 hours of instruction * 11 weeks (8 Camp + 3 Bonus)

Benefits of the A.T.O.M. Summer Camp includes the following:

- Up to 62 hours of instruction
- Up to 4 field trips (Subject to change due to unforeseen circumstances, for example weather)
- Opportunities to interact with REAL scientists
- Opportunity to visit a real observatory
- Receive a real meteorite
- Learn to use a microscope

Level	Package	Camp Days	Tuition	Early Bird Discount
Elementary 1st - 5th Grade	3 Days per Week	Mon / Wed / Thurs	\$1,200	\$1,140
	2 Days per Week	Mon / Wed	\$900	\$855
Middle/High 6th - 12th Grade	3 Days per Week	Mon / Wed / Thur	\$1,200	\$1,140
	2 Days per Week	Mon / Wed	\$900	\$855

12) Early Bird Registration

SIGN UP BEFORE APRIL 30 for a 5% DISCOUNT! (\$1,140 / \$855)

Financial assistance is available based on need. Campers will never be turned away simply because they cannot afford Summer Camp tuition. Please reach out for any financial aid concerns so we can ensure your child can attend.

13) Vacations: Good News for Families Planning Vacations

I will be recording **selected** summer camp meetings held over Zoom. YOUR CHILD WILL BE SEEN AND/OR HEARD IN THESE ZOOM RECORDINGS. The recordings will be used only so your child can catch up with missed camp meetings. These camp meeting **recordings will be available until August 28, 2025**, which is three weeks after the date of the final camp session. At least two-weeks notice via email is required for all recording requests, which are granted only in special circumstances. Recordings will be shared (password protected) only with the requesting family(ies). On the rare occasion that I might record, if you do not wish your child's image to appear in the video, you are free to have them turn off their camera and microphone during the meeting.

If a student has to miss a class due to vacation, you must call me (650-271-2035) to discuss options, one of which is to receive a recording of the meeting the other will be to work with me online so I can be sure to help your child catch up with the other campers.

14) Registration Open Now!

You can click the links below to reserve your spot. Space is limited! Please sign up early to ensure your child can participate. **Early registrations before April 30 will receive a 5% discount.**

- [Elementary - 3 Days/Week Program](#)
- [Middle/High - 3 Days/Week Program](#)
- [Elementary - 2 Days/Week Program](#)
- [Middle/High - 2 Days/Week Program](#)

If you have other special requests, like forming your own group or this schedule doesn't work for you, please contact me.

Thank you so very much for being a part of A.T.O.M. Science Club's Summer Camp 2025. I can't wait for our exciting summer of science exploration!

Enthusiastically,

Madame Atom

Leslie Herleikson, aka Madame Atom

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