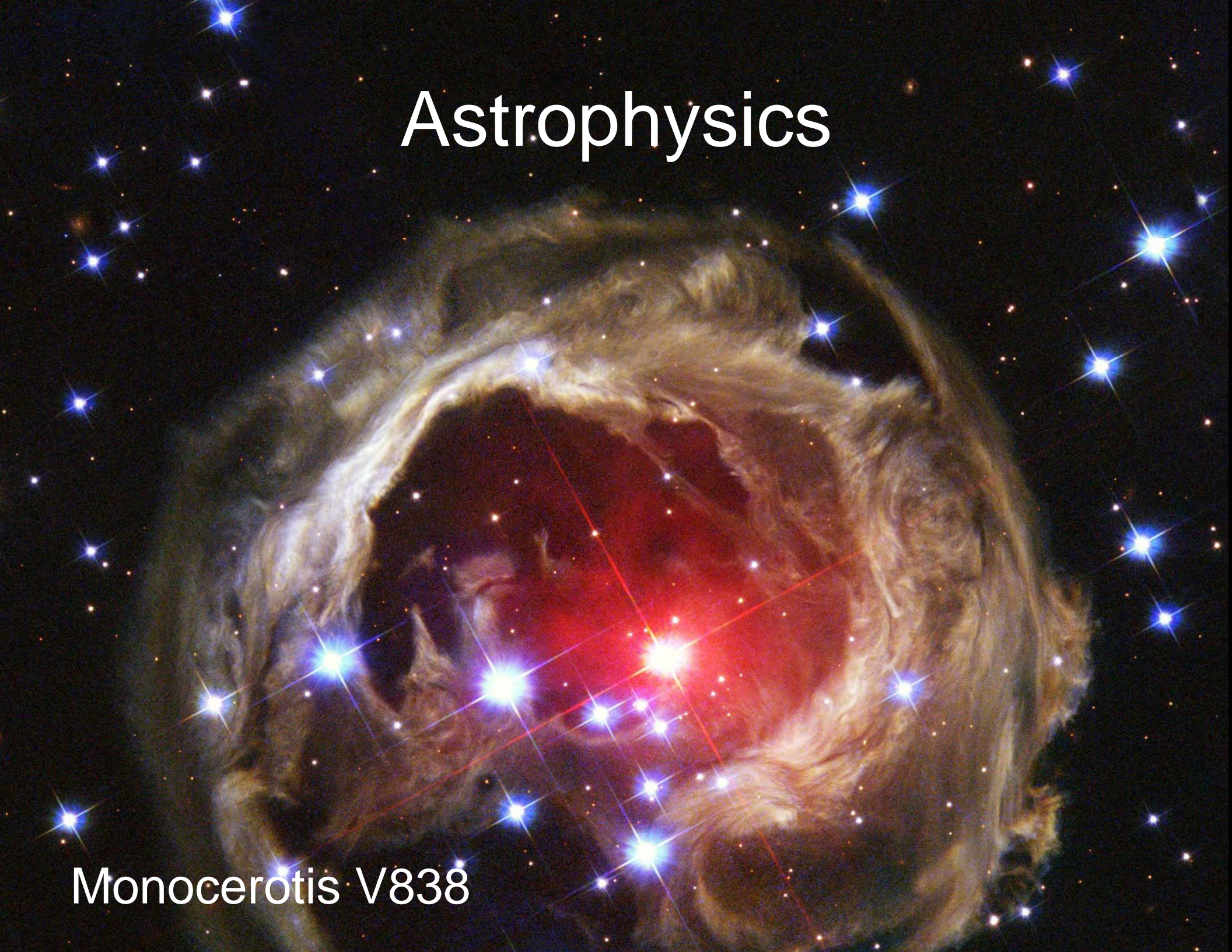


# Astrophysics

Monocerotis V838



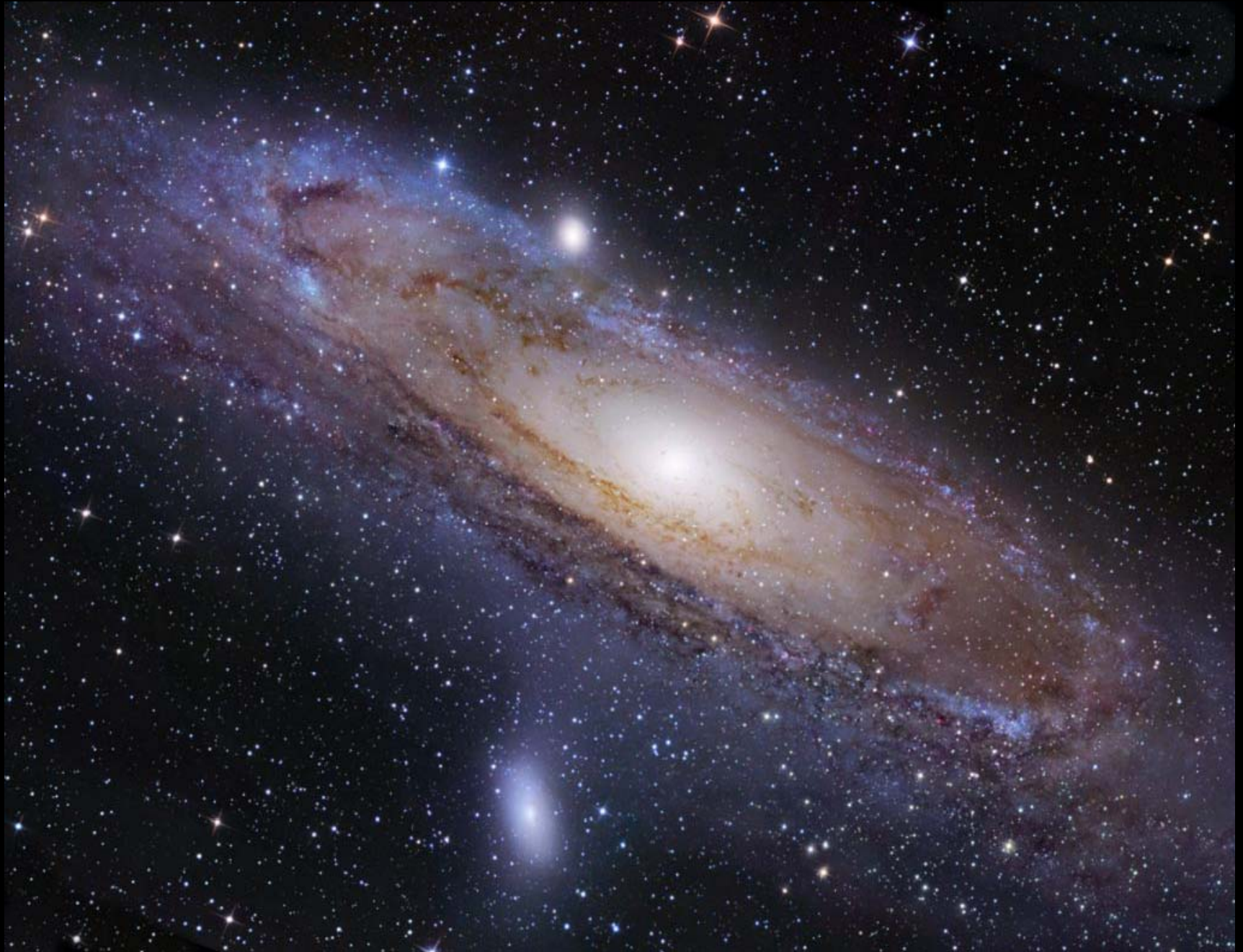
# Hello from Aurora!



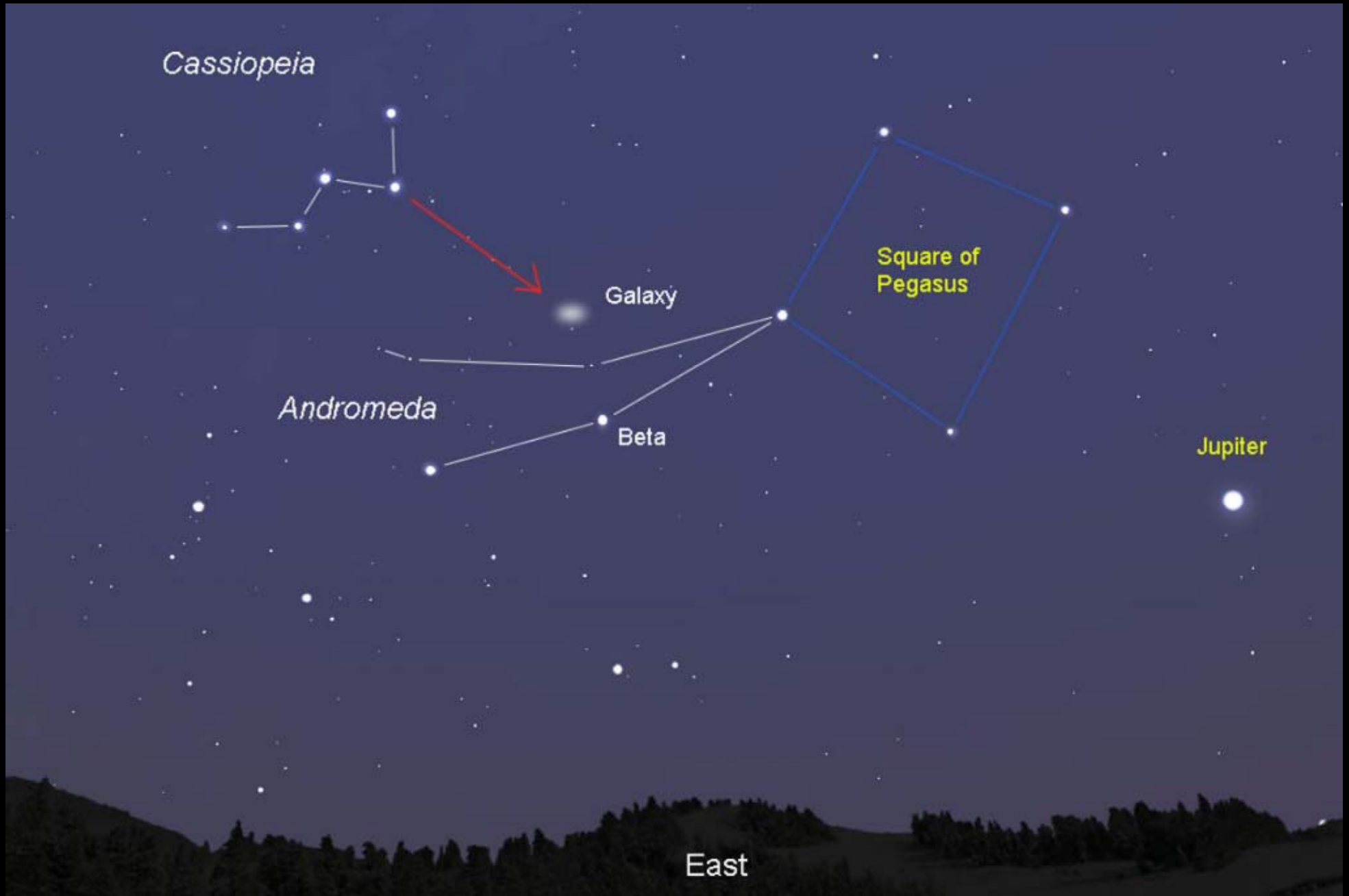
# In My Backyard...



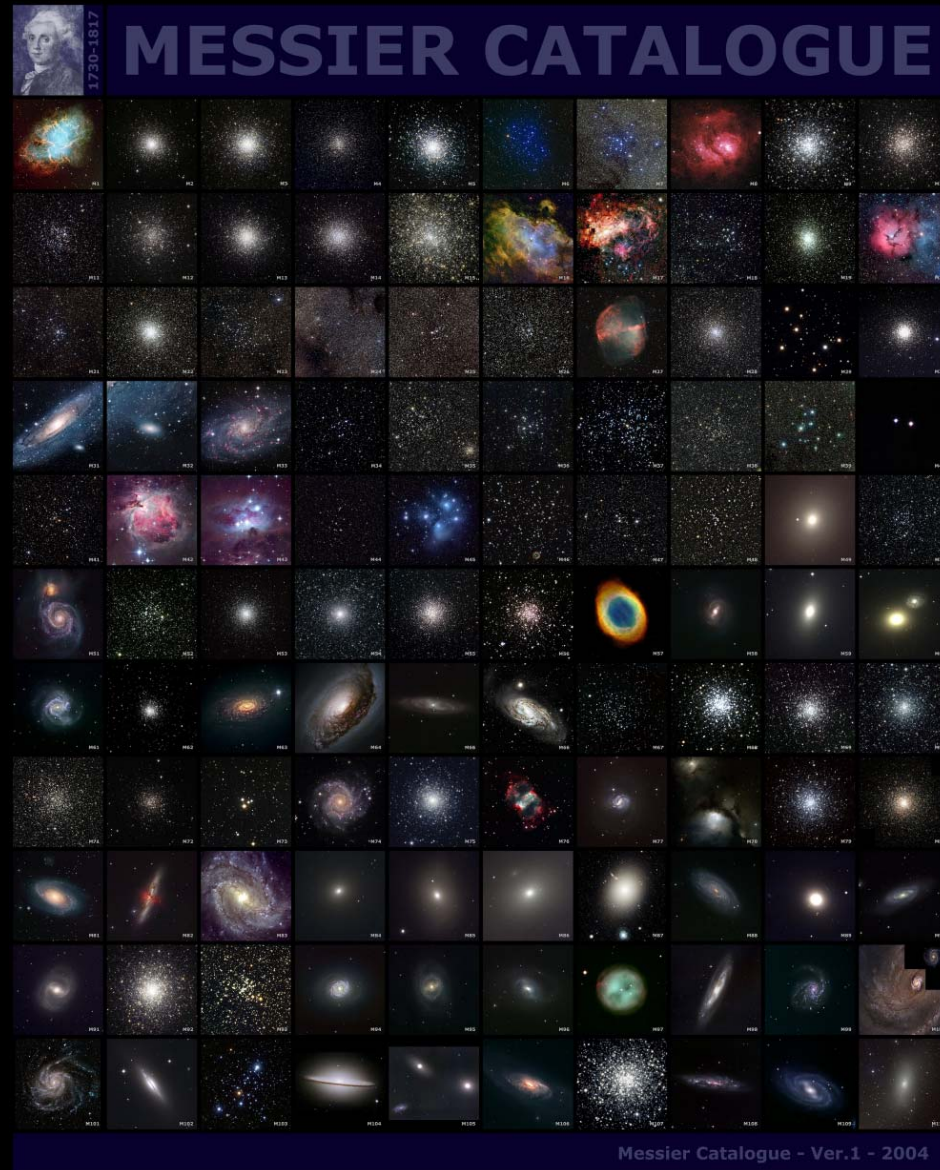
# Andromeda Galaxy



# Where to find Andromeda Galaxy

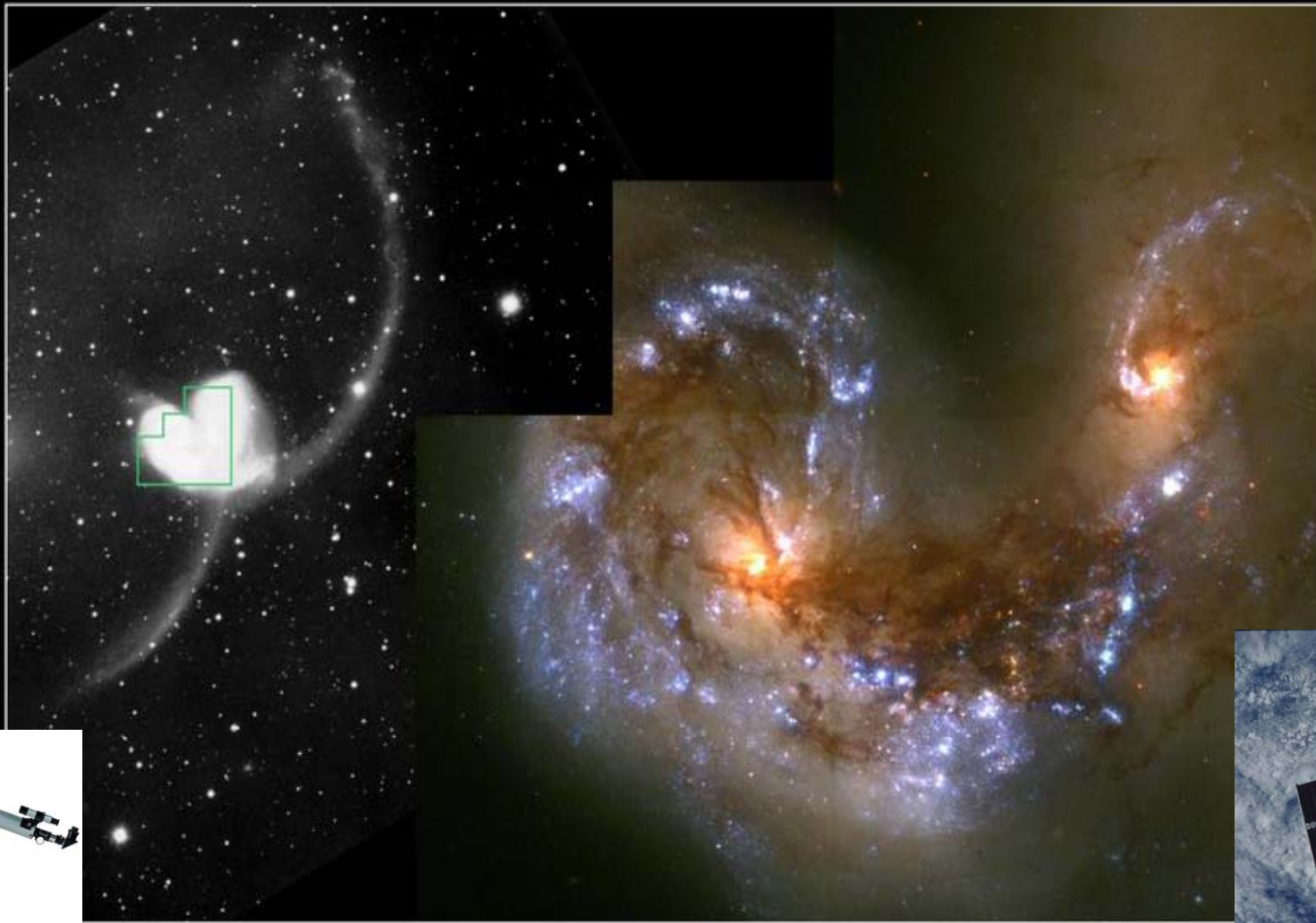


# Messier Catalog: The Nuisance List



# Viewing Comparison:

## Backyard Telescope vs. Hubble Space Telescope

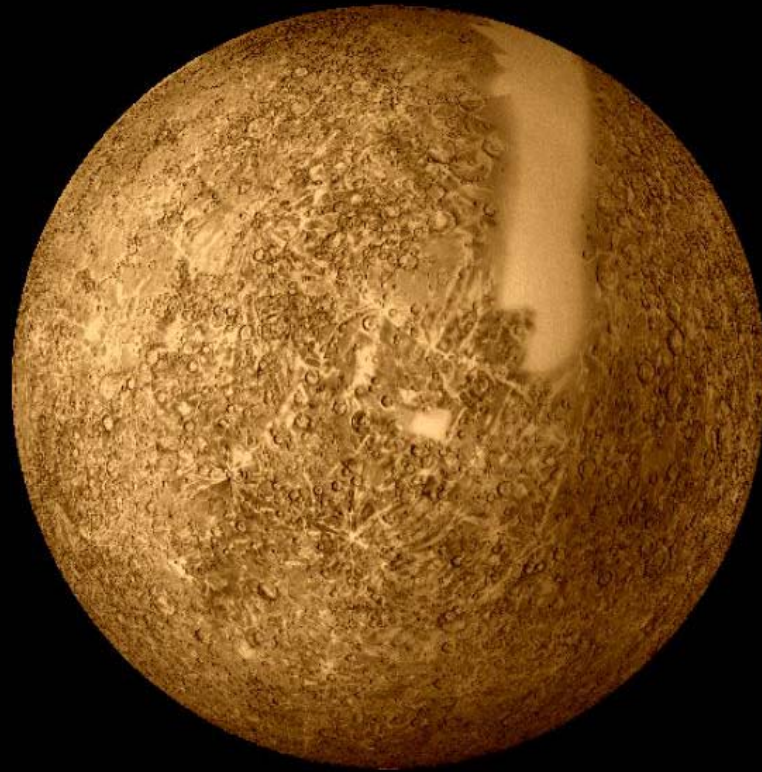


# Solar System





# Mercury



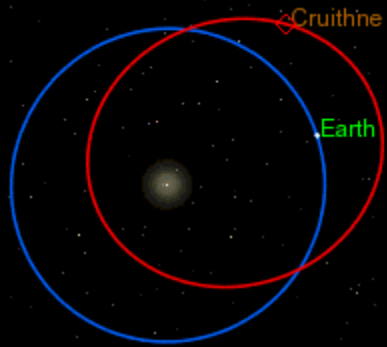
# Venus



# Earth & Moon

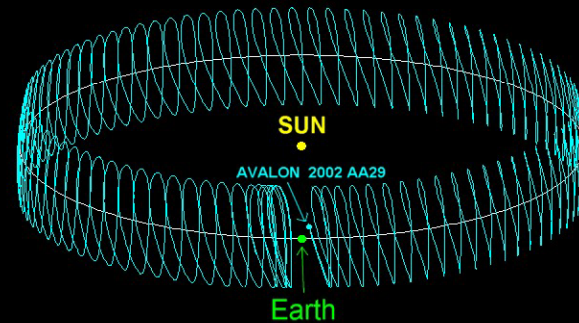


# Earth's THREE Moons?



3753 Cruithne

ORBIT OF AVALON AROUND  
THE SUN - 95 YEARS



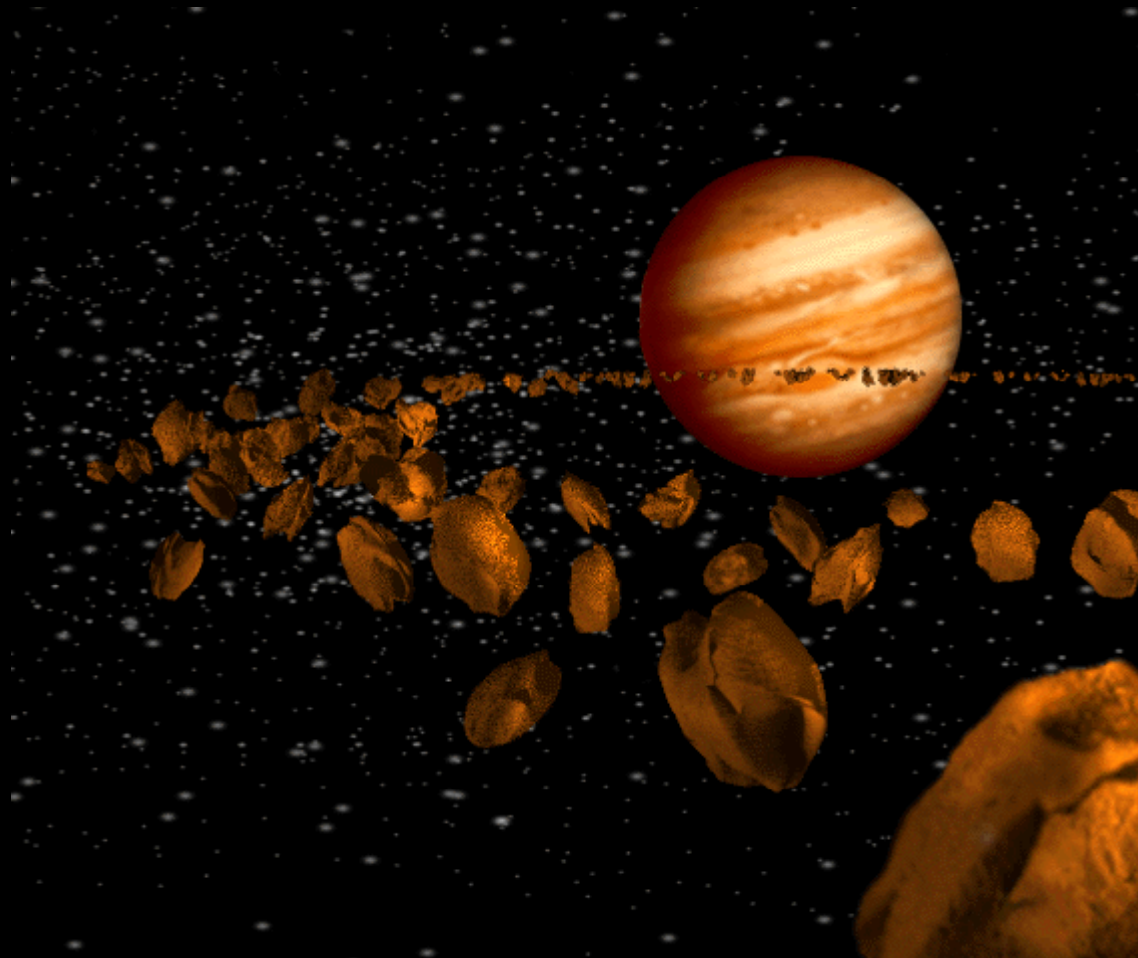
AA29 Avalon



# Mars



# Asteroid Belt



# Jupiter



**Before**

Aug. 4, 2009



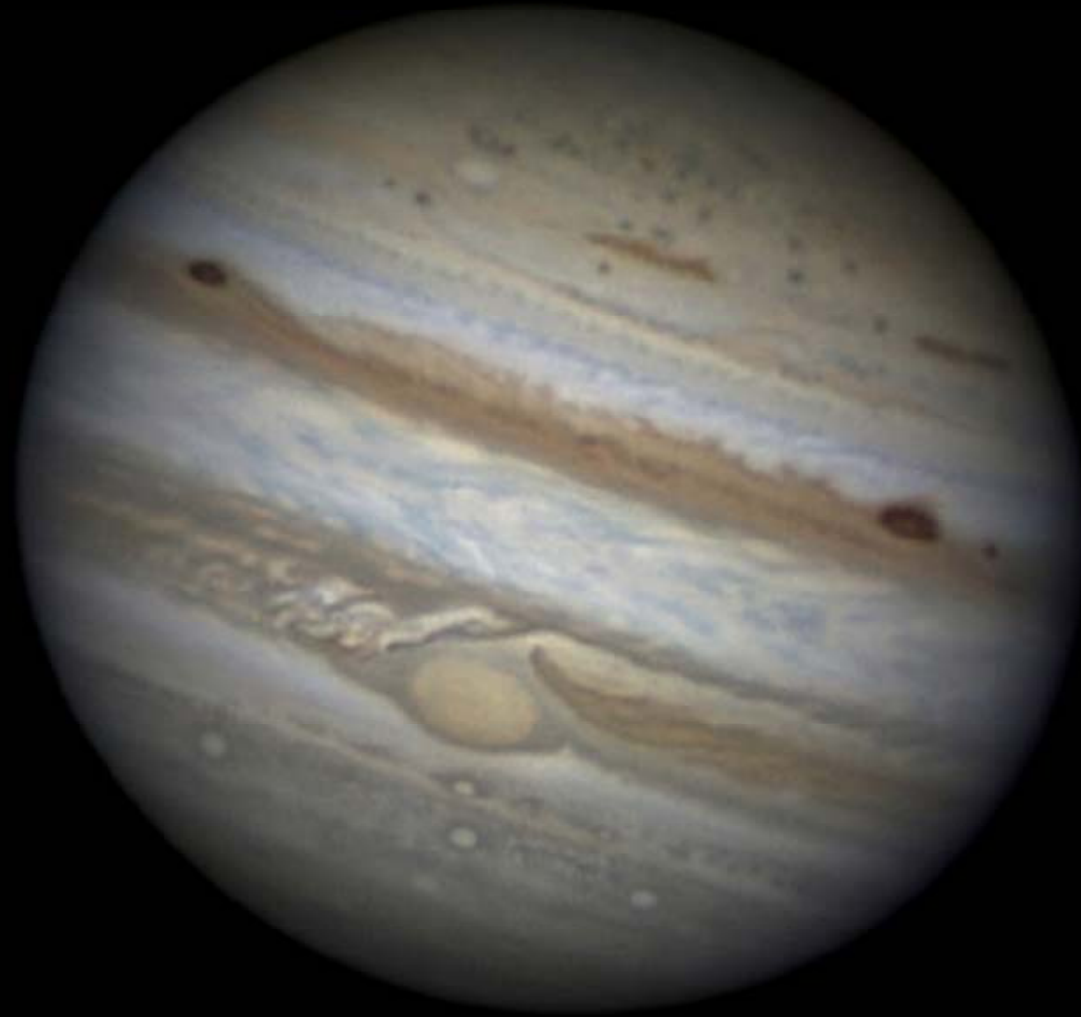
**Jupiter**

Credit: Anthony Wesley

**After**

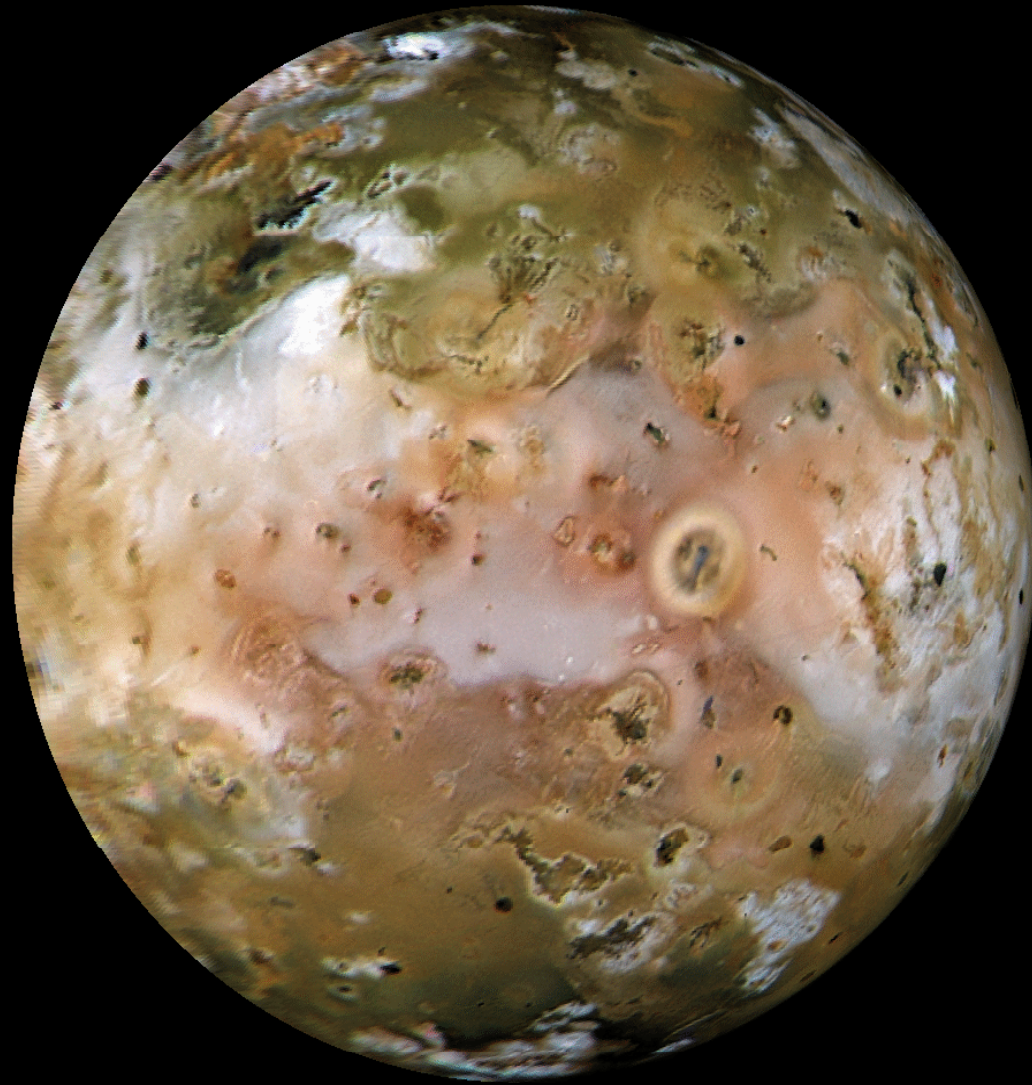
May 8, 2010

# Jupiter, Nov 2011

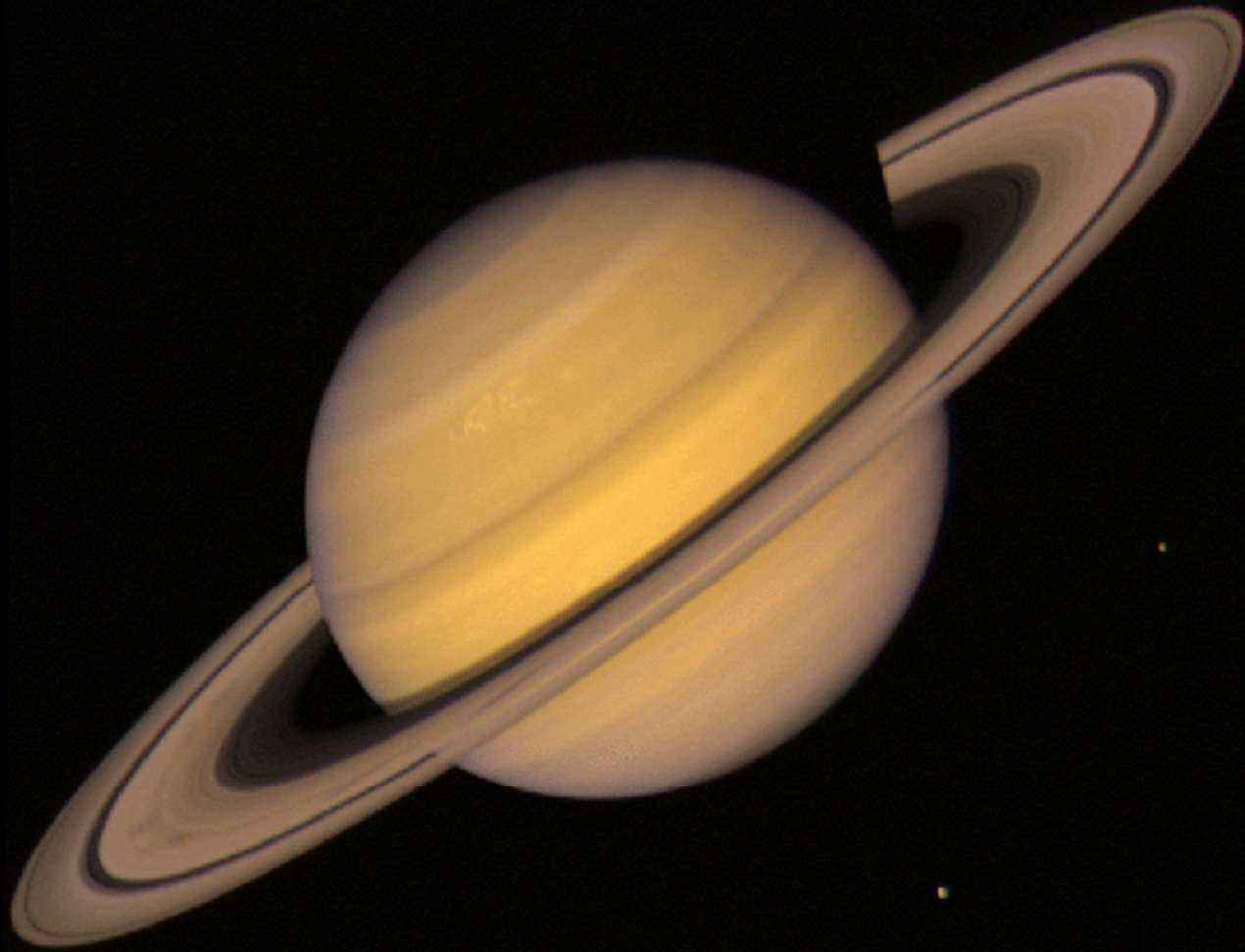




# Jupiter's Moon: Io



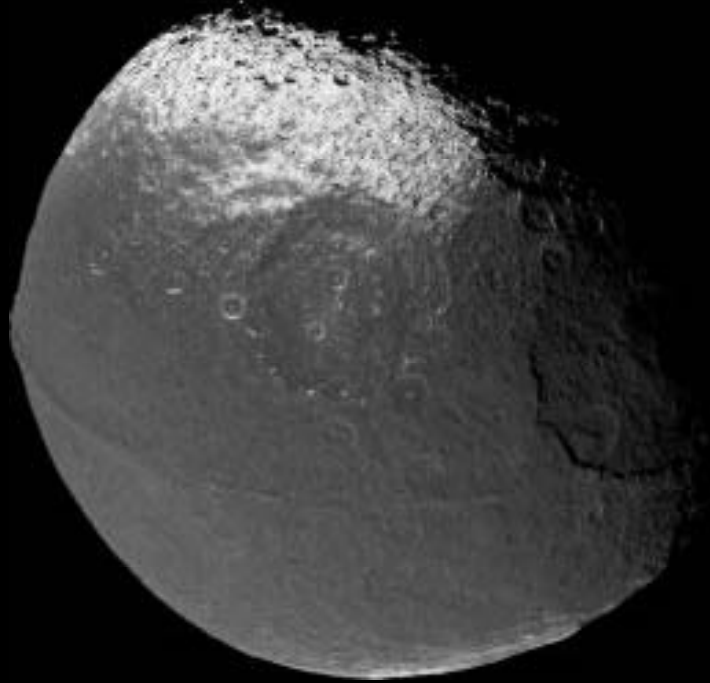
# Saturn



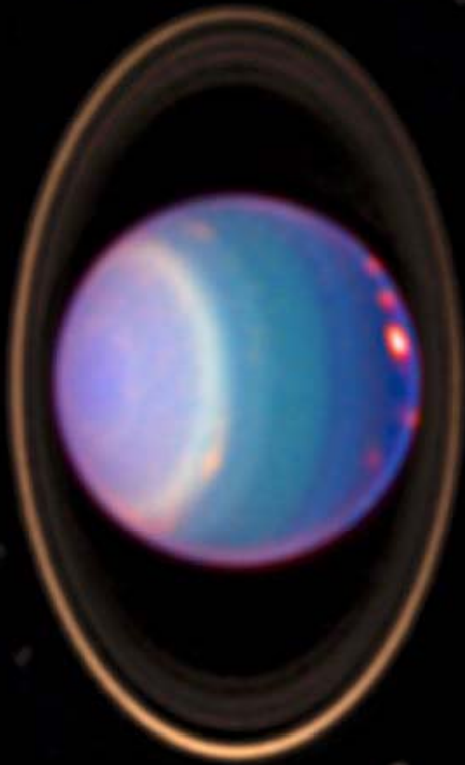
# Saturn's Moon: Titan



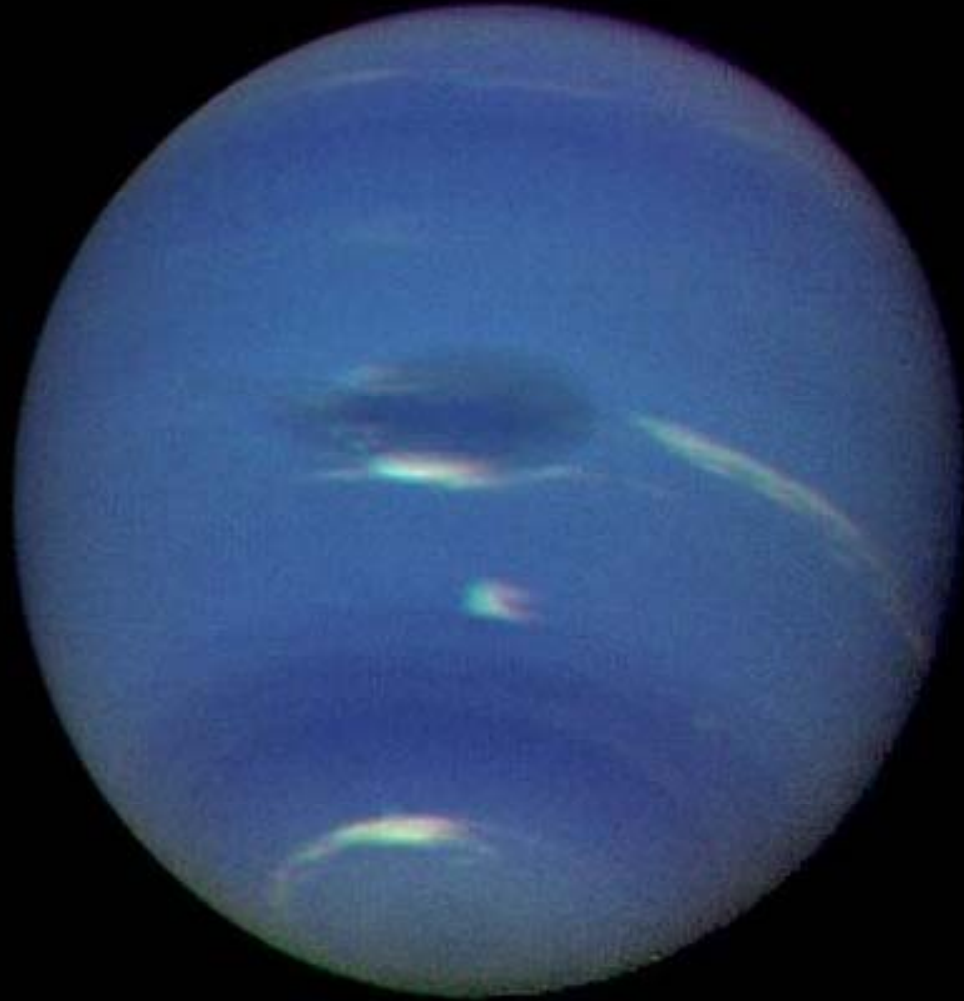
# Saturn's Moon: Iapetus



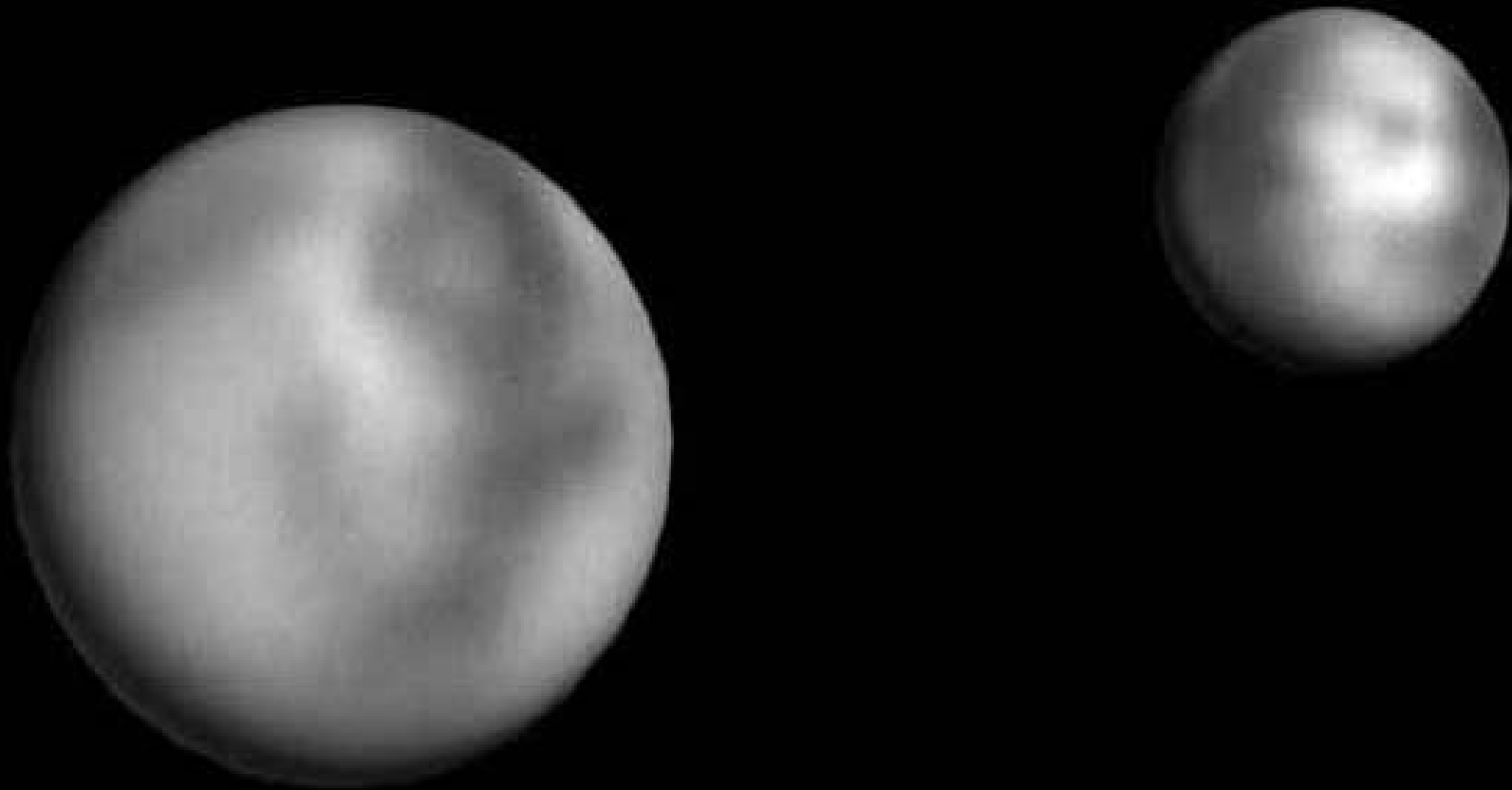
# Uranus



# Neptune



# Pluto & Charon

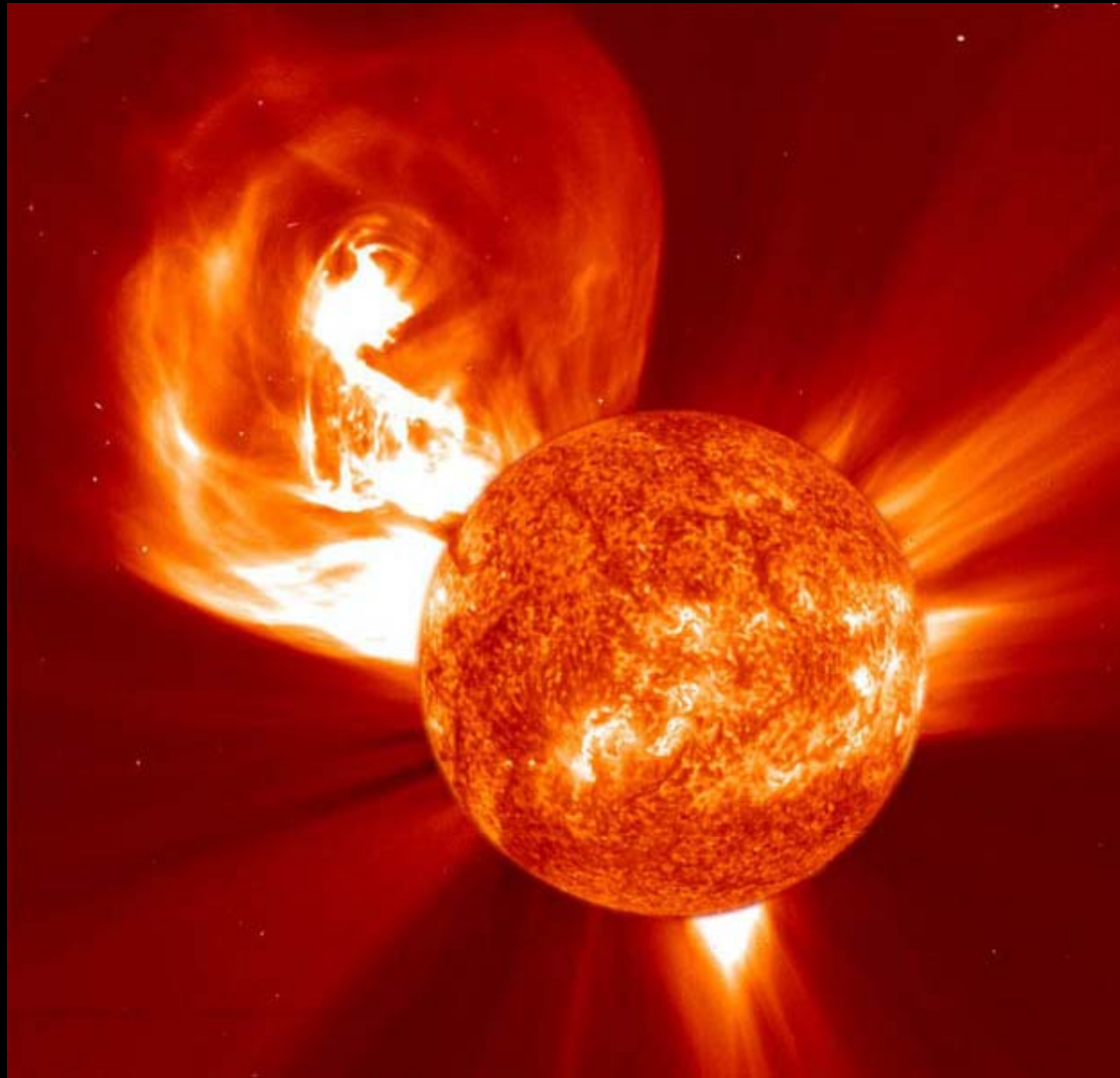


# The Sun

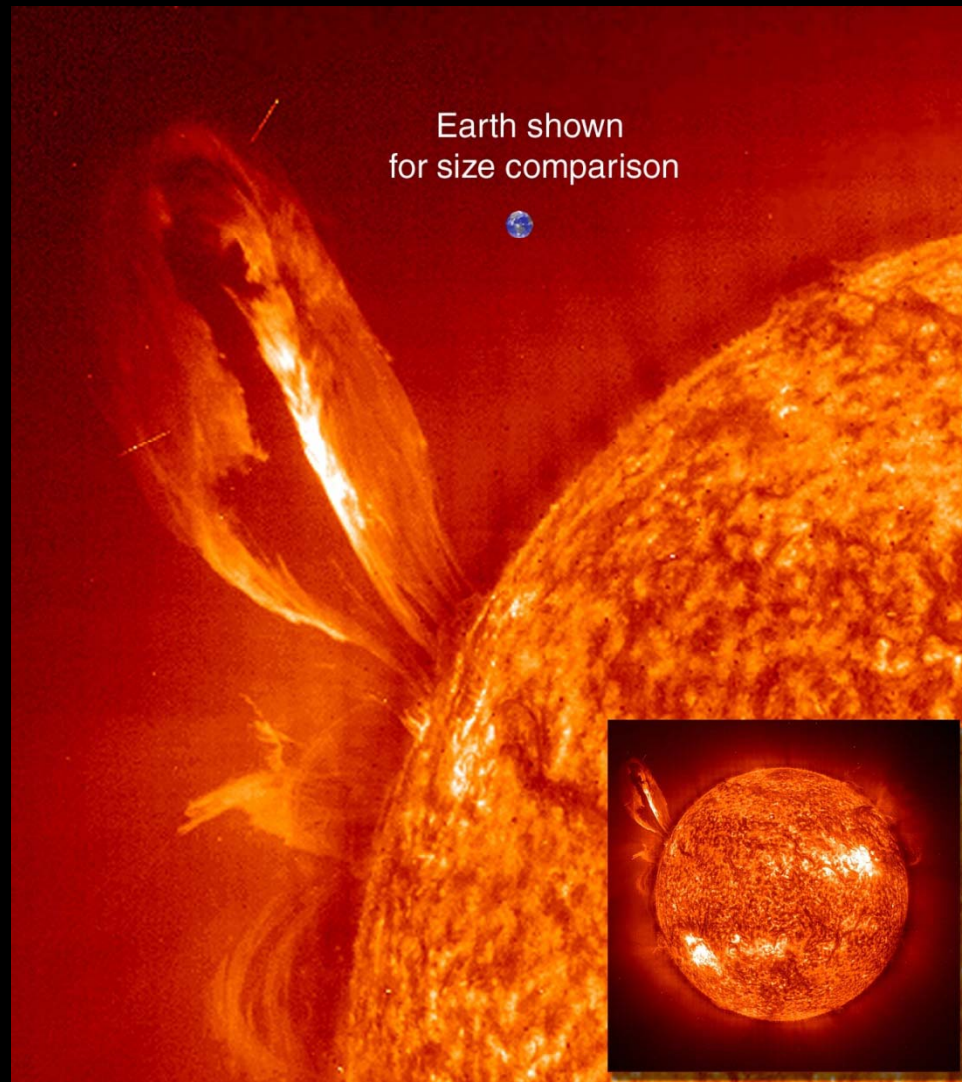




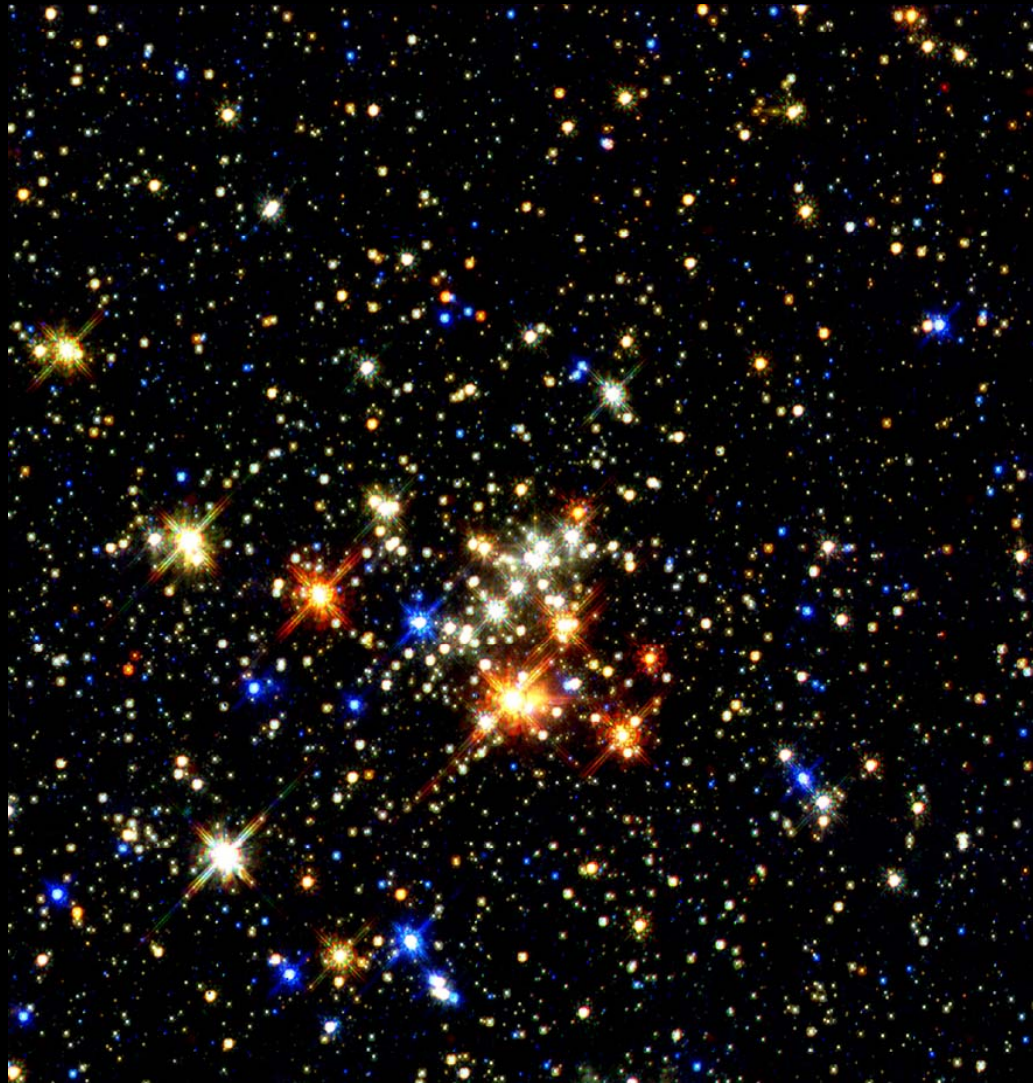
# Solar Flares and CMEs



# Solar Flare Size Comparison



# Star Variations



# Pistol Star



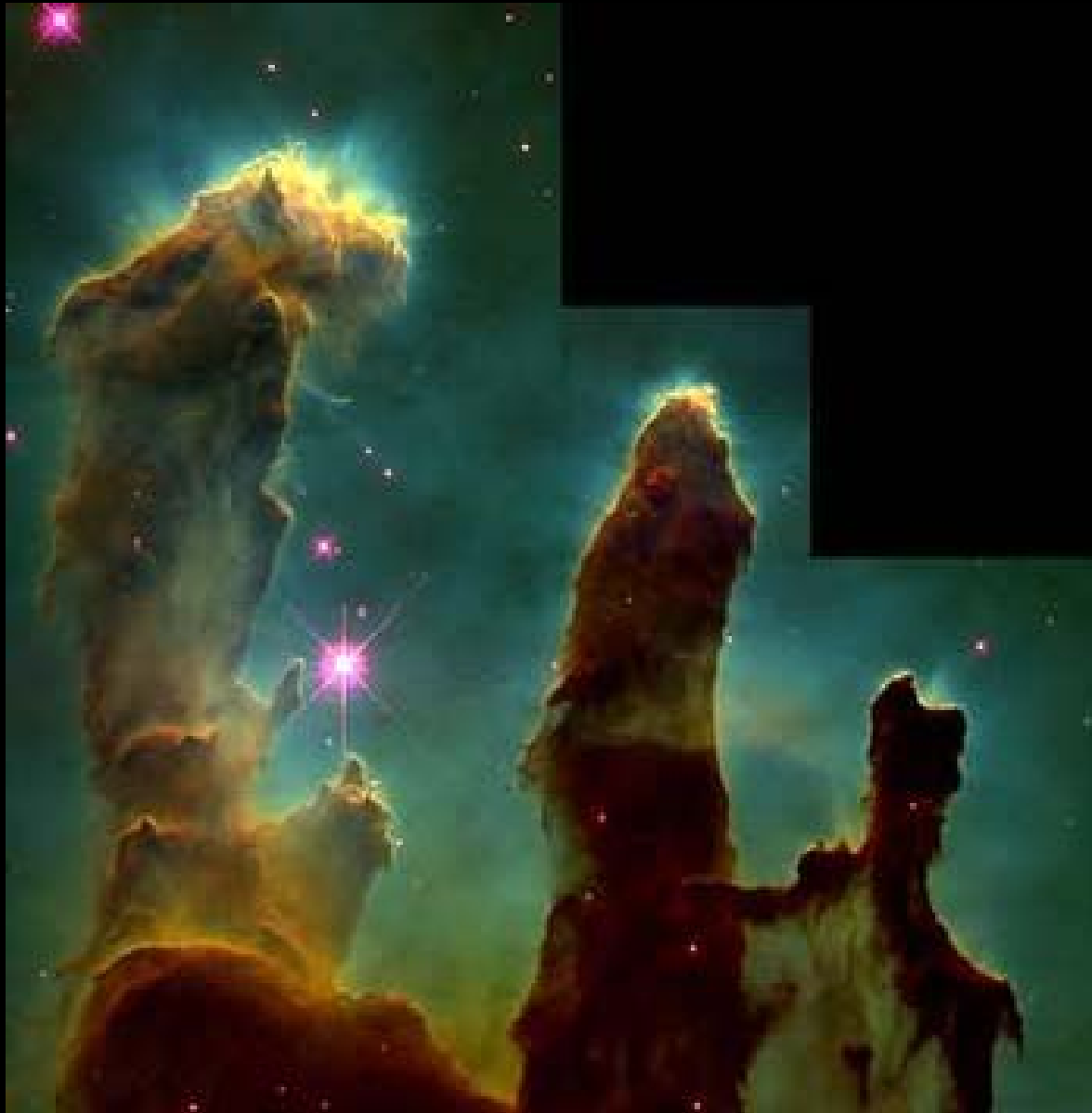
# Orion Nebula



# Eagle Nebula



# Eagle Nebula (closer view)



# Cone Nebula





# Reflection Nebula



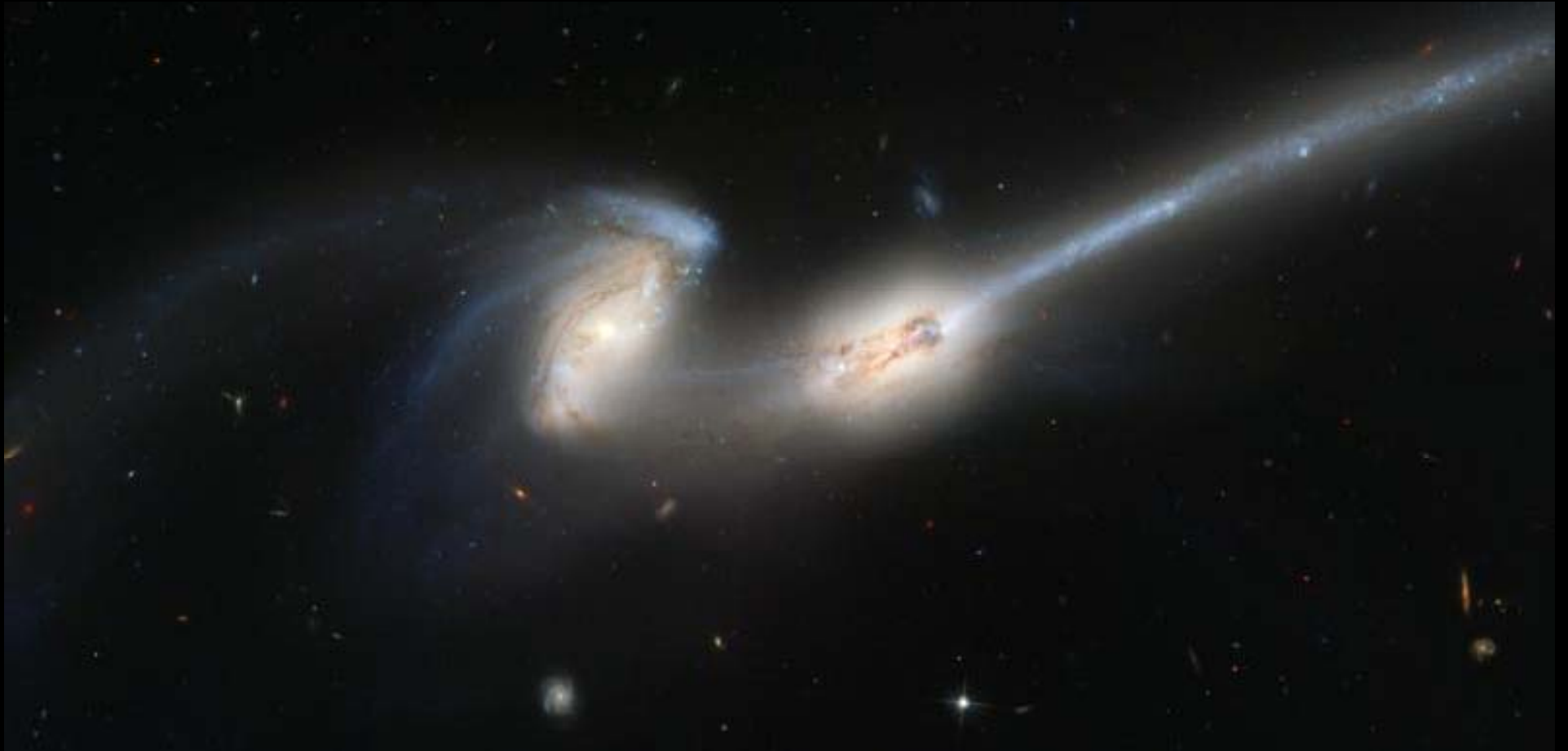
# Sombrero Galaxy



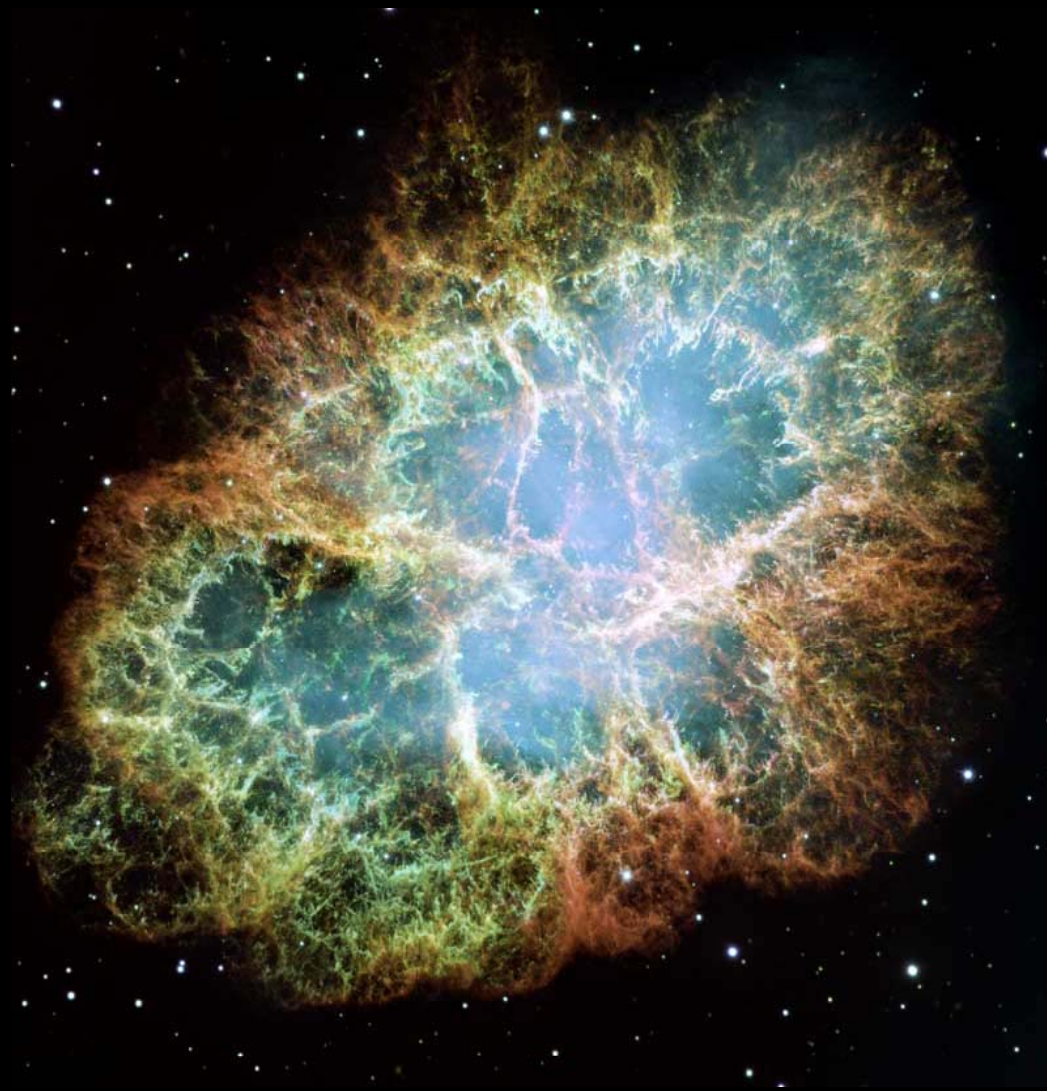
# Whirlpool Galaxy



# The Mice



# Crab Nebula



# Crab Nebula Pulsar



# Ring Nebula



# Cat's Eye Nebula





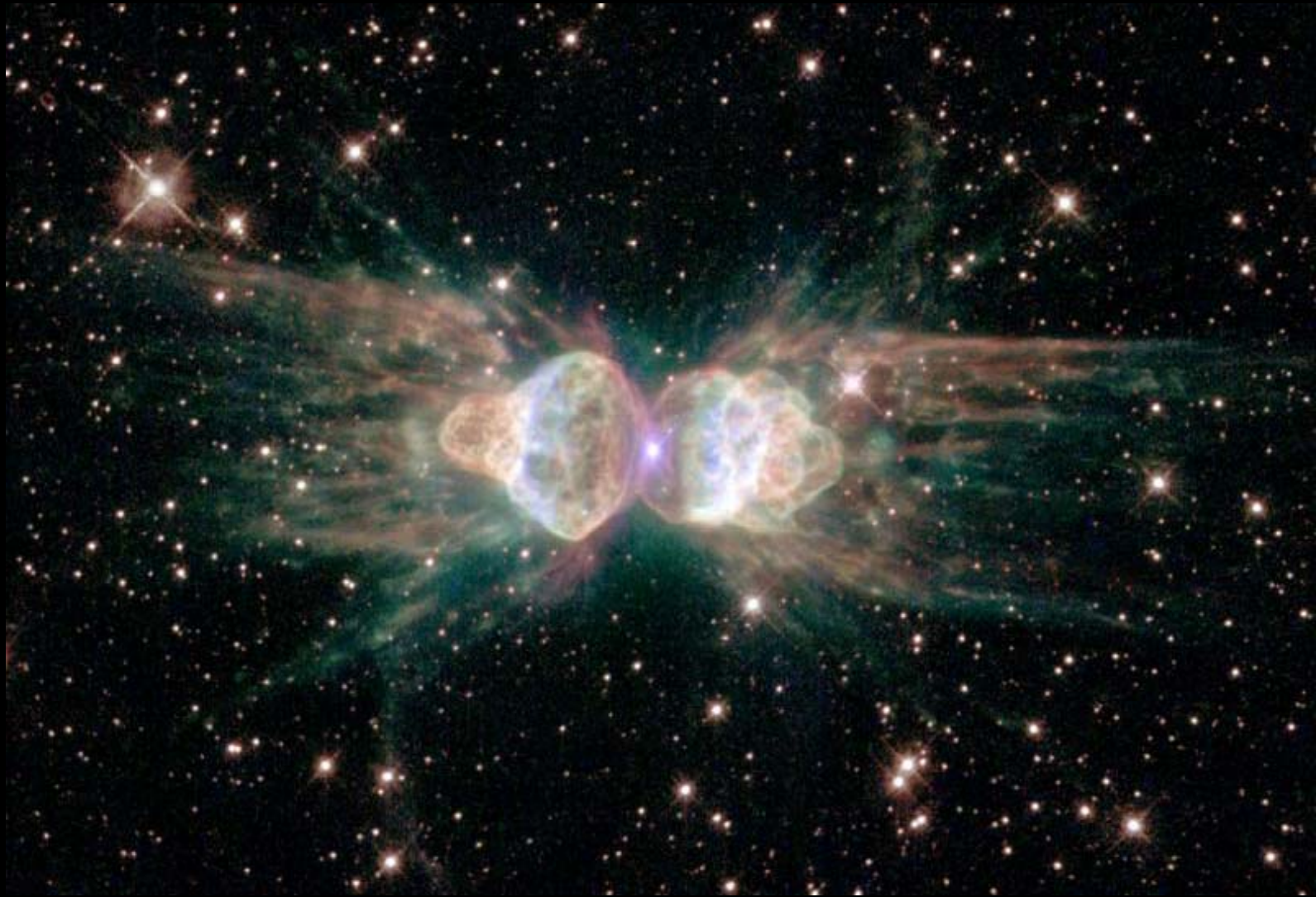
# Eskimo Nebula



# Eta Carinae



# Ant Nebula



# Deep Field



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## Summer e-Camp

What are YOUR kids doing this summer? I give your kids a full summer science camp that they can do at home. It's packed with loads of totally fun K-8 activities that are also educational. Your kids will be having a great time, while at the same time keeping their science

**FREE!** [Click Here of a Free Sample of e-Science.](#)

### LATEST NEWS



#### [What's in the Sky for August?](#)

New video that shows you exactly what's in the sky for the summer month of August, no matter where you live. Let me know. [Read More](#)

### PARENT RESOURCES



#### [My Secret to Teaching Science](#)

How to Teach Science That Kids Really Enjoy AND That's Easy To Teach. You CAN do this for your own kids. It's not. [Read More](#)

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## Unit 15: Chemistry Part 2 ~ Getting Started

This second unit on Chemistry is chocked full of demonstrations and experiments for two big reasons. First, they're fun. But more importantly, the reason we do experiments in chemistry is to hone your observational skills. Chemistry experiments really speak for themselves, much better than I can ever put into words or show you on a video. And I'm going to hit you with a lot of these chemistry demonstrations to help you develop your observing techniques.

**Special Note:** This unit builds on the topics covered in [Unit 8](#). Unit 15 is appropriate for students grades 5-12th.



### UNIT 15: CHEMISTRY PART 2

- ▶ [Getting Started](#)
- ▶ [Unit 15 Lesson Plans](#)
- ▶ [Unit 15 Lesson 1: Intermediate Chemistry](#)
  - ▶ [Intermediate Chemistry Highlights](#)
  - ▶ [Intermediate Chemistry Introduction](#)
  - ▶ [Intermediate Chemistry Reading](#)
  - ▶ [Intermediate Chemistry Experiments & Videos](#)
  - ▶ [Intermediate Chemistry Exercises](#)
- ▶ [Unit 15 Lesson 2: Advanced Chemistry](#)
  - ▶ [Advanced Chemistry Highlights](#)
  - ▶ [Advanced Chemistry Introduction](#)
  - ▶ [Advanced Chemistry Reading](#)
  - ▶ [Advanced Chemistry Experiments & Videos](#)
  - ▶ [Advanced Chemistry Exercises](#)

### RECENT COMMENTS:

- ▶ [Aurora](#) on [Rocket Car](#)
- ▶ [Aurora](#) on [Fruit Battery](#)
- ▶ [Sophia Pitcher](#) on [Fruit Battery](#)
- ▶ [Sophia Pitcher](#) on [Dinosaur Toothpaste](#)
- ▶ [Scphia Pitcher](#) on [Fruit Battery](#)
- ▶ [sharon Parry](#) on [Rocket Car](#)
- ▶ [Aurora](#) on [Tetrahedral Kite](#)
- ▶ [Catalina Pcsada](#) on [Tetrahedral Kite](#)
- ▶ [MJ Wixsom](#) on [Dinosaur Toothpaste](#)



## Unit 8: Chemistry (Molecules) Video

[6 Comments](#)

Soon you'll be able to explain everyday things, like why baking soda and vinegar bubble, why only certain chemicals grow crystals, what fire really is made of, how to transform copper into gold, and how to make cold light. Once you wrap your head around these basic chemistry ideas (like acids, polymers, and kinetics), you can make better choices about the products you use everyday like pain relievers, cold compresses, and getting a loaf of bread to rise. Are you ready? This video will get you started with your lesson in molecules:



### LESSON SECTIONS

- [Molecules Introduction](#)
- [Molecules Reading](#)
- [Molecules Experiments & Videos](#)
- [Molecules Exercises](#)

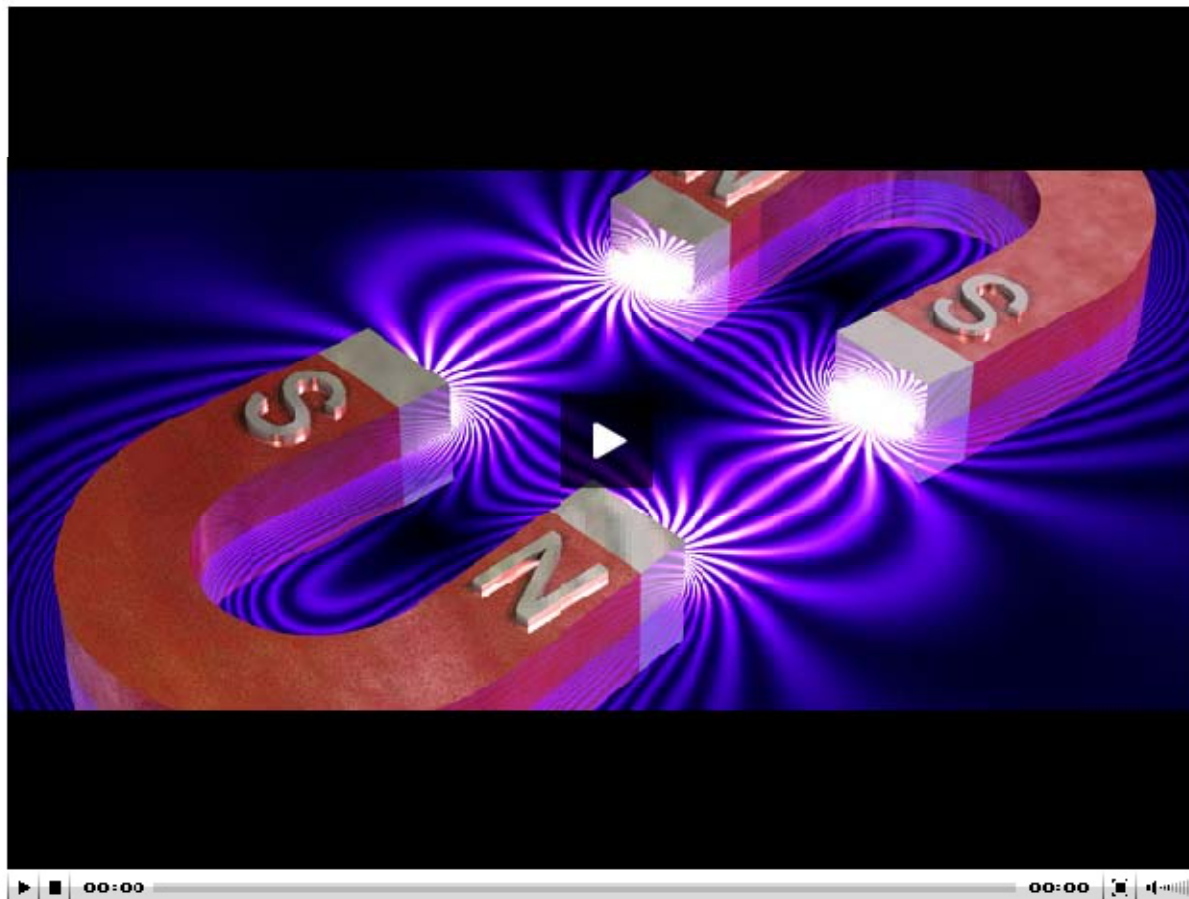
### RECENT COMMENTS:

- [Aurora](#) on [Rocket Car](#)
- [Aurora](#) on [Fruit Battery](#)
- [Sophia Pitcher](#) on [Fruit Battery](#)
- [Sophia Pitcher](#) on [Dinosaur Toothpaste](#)
- [Sophia Pitcher](#) on [Fruit Battery](#)
- [sharon Parry](#) on [Rocket Car](#)
- [Aurora](#) on [Tetrahedral Kite](#)
- [Catalina Posada](#) on [Tetrahedral Kite](#)
- [MJ Wixsom](#) on [Dinosaur Toothpaste](#)
- [Celeste Mcveigh McVeigh](#) on [Underwater Presidents](#)
- [Aurora](#) on [Simple Hovercraft](#)
- [Aurora](#) on [Underwater Presidents](#)
- [Aurora](#) on [PVA Slime](#)
- [Miranda Weigel](#) on [Corny Slime](#)
- [Miranda Weigel](#) on [PVA Slime](#)
- [Leanne Burgess](#) on [Dinosaur Toothpaste](#)
- [Richard Gress](#) on [Underwater Presidents](#)
- [tracy nelms](#) on [Humming Balloon](#)
- [tracy nelms](#) on [Humming Balloon](#)
- [Caroline Wood](#) on [Dinosaur](#)



## Unit 11: Magnetism ~ Getting Started

Did you know that if you cut a magnet in half to try to separate the north from the south pole, you'll wind up with two magnets, each with their own north and south poles? Turns out that the poles are impossible to separate! Now that you've spent a few lessons learning about the strange world of the atom ([Unit 3](#) & [Unit 8](#)), it's time to discover which part of the atom is responsible for magnets and magnetic fields.



### UNIT 11: MAGNETISM

- ▣ [Getting Started](#)
- ▣ [Unit 11 Lesson Plans](#)
- ▣ [Unit 11 Lesson 1: Magnets](#)
  - ▣ [Magnets Highlights](#)
  - ▣ [Magnets Introduction](#)
  - ▣ [Magnets Reading](#)
  - ▣ [Magnets Experiments & Videos](#)
  - ▣ [Magnets Exercises](#)
- ▣ [Unit 11 Lesson 2: Electromagnetism](#)
  - ▣ [Electromagnetism Highlights](#)
  - ▣ [Electromagnetism Introduction](#)
  - ▣ [Electromagnetism Reading](#)
  - ▣ [Electromagnetism Experiments & Videos](#)
  - ▣ [Electromagnetism Exercises](#)

### RECENT COMMENTS:

- ▣ [Aurora](#) on [Rocket Car](#)
- ▣ [Aurora](#) on [Fruit Battery](#)
- ▣ [Scphia Pitcher](#) on [Fruit Battery](#)
- ▣ [Scphia Pitcher](#) on [Dinosaur Toothpaste](#)
- ▣ [Scphia Pitcher](#) on [Fruit Battery](#)
- ▣ [sharon Parry](#) on [Rocket Car](#)
- ▣ [Aurora](#) on [Tetrahedral Kite](#)
- ▣ [Catalina Posada](#) on [Tetrahedral Kite](#)
- ▣ [MJ Wixsom](#) on [Dinosaur Toothpaste](#)
- ▣ [Celeste Mcveigh McVeigh](#) on [Underwater Presidents](#)











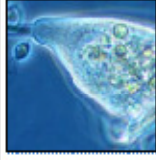
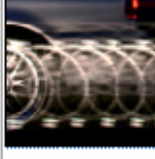


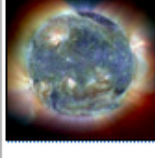

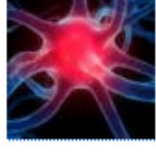



# Supercharged Science

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## Study Units

Here are all the lessons covered by the e-Science program. Some units take only a couple of weeks to complete, while others can take several months. Remember, your own goals for your child's science learning combined with your schooling philosophy will determine what is right for you. In any case, there are over 800 activities, experiments and projects, so you shouldn't have trouble finding good stuff to work on and learn from!

**New to e-Science?** Be sure to watch our [Introduction Video](#) first!

	<a href="#">How to do the Scientific Method</a>		<a href="#">Unit 7 Astrophysics</a> Lessons in Astronomy, Particle Physics, and Relativity		<a href="#">Unit 15 Chemistry 2</a> Lessons in Intermediate and Advanced Chemistry
	<a href="#">Unit Zero</a> Overview of e-Science		<a href="#">Unit 8 Chemistry Part 1</a> Lessons in Molecules and Chemical Kinetics		<a href="#">Unit 16 Life Science 1</a> Lessons in Living Organisms, Cells, Genetics, Microscopes
	<a href="#">Unit 1 Mechanics</a> Lessons in Force, Gravity, and Friction		<a href="#">Unit 9 Light</a> Lessons in Light Waves and Lasers		<a href="#">Unit 17 Life Science 2</a> Lessons in Prokaryotes, Plants, Protists & Fungi
	<a href="#">Unit 2 Motion</a> Lessons in Velocity and Acceleration		<a href="#">Unit 10 Electricity</a> Lessons in Electricity and Robotics		<a href="#">Unit 18 Biology 1</a> Lessons in Invertebrates, Fishes, Amphibians, Reptiles, Birds, Mammals
	<a href="#">Unit 3 Matter</a> Lessons in Atoms, Density, and Solids		<a href="#">Unit 11 Magnetism</a> Lessons in Permanent Magnets and Electromagnetism		<a href="#">Unit 19 Biology 2</a> Lessons in Skin, Bones, Muscles, Digestive, Cardiovascular, Respiratory
					



## Unit 7: Astrophysics ~ Getting Started

Astrophysics combines our knowledge of light (radiation), chemical reactions, atoms, energy, and physical motion into one. The things we're going to study in this unit borders on sci-fi weird, but I assure you it's all the same stuff real scientists are studying. This unit is broken into two sections: easy-and-fun, and mind-bending-hard. If you feel like you're getting a little lost, simply jump over to the experiments and just have fun.



The first Lesson, [Particle Physics](#), is mind-bending-hard, because we're going to deepen our understanding

### UNIT 7: ASTROPHYSICS

- [Getting Started](#)
- [Unit 7 Lesson Plans](#)
- [Unit 7 Lesson 1: Particle Physics](#)
  - [Particle Physics Highlights](#)
  - [Particle Physics Introduction](#)
  - [Particle Physics Reading](#)
  - [Particle Physics Experiments & Videos](#)
  - [Particle Physics Exercises](#)
- [Unit 7 Lesson 2: Astronomy](#)
  - [Astronomy Highlights](#)
  - [Astronomy Introduction](#)
  - [Astronomy Reading](#)
  - [Astronomy Experiments & Videos](#)
  - [Astronomy Exercises](#)
- [Unit 7 Lesson 3: Relativity](#)
  - [Relativity Highlights](#)
  - [Relativity Introduction](#)
  - [Relativity Reading](#)
  - [Relativity Experiments & Videos](#)
  - [Relativity Exercises](#)

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- [Aurora](#) on [Rocket Car](#)
- [Aurora](#) on [Fruit Battery](#)
- [Sophia Pitcher](#) on [Fruit Battery](#)
- [Sophia Pitcher](#) on [Dinosaur Toothpaste](#)
- [Sophia Pitcher](#) on [Fruit Battery](#)
- [sharon Parry](#) on [Rocket Car](#)
- [Aurora](#) on [Tetrahedral Kite](#)



## Shopping List for Unit 1

[17 Comments \(Edit\)](#)



### How many of these items do you have?

You'll find dozens of experiments with every lesson, so you can pick and choose the experiments you want to do. This program has *hundreds* of experiments, projects, and activities to choose from depending on your child's interest, your family budget, and what's available to you in your area. **You don't need to do them *all* to get a great science education!**

Focus on *quality*, not quantity when planning your activity list.

Here's how to use this shopping list:

1. Look over the list and circle the items you already have on hand.
2. Browse the experiments and note which ones use the materials you already have. Those are the experiments you can start with.
3. After working through the experiments, your child might want to expand and do more activities. Make a note of the materials and put them on your next shopping trip OR order them online using the links provided below.

We've tried to keep it simple for you by making the majority of the items things most people have within reach (both physically and budget-wise). We'll be re-using these materials in later units as well.

**Shopping List for Unit 1: Force, Gravity, & Friction** [Click here for Shopping List for Unit 1.](#)

#### LESSON SECTIONS

- [Unit 1 Shop List](#)
- [Unit 2 Shop List](#)
- [Unit 3 Shop List](#)
- [Unit 4 Shop List](#)
- [Unit 5 Shop List](#)
- [Unit 6 Shop List](#)
- [Unit 7 Shop List](#)
- [Unit 8 Shop List](#)
- [Unit 9 Shop List](#)
- [Unit 10 Shop List](#)
- [Unit 11 Shop List](#)
- [Unit 12 Shop List](#)
- [Unit 13 Shop List](#)
- [Unit 14 Shop List](#)
- [Unit 15 Shop List](#)
- [Unit 16 Shop List](#)

#### RECENT COMMENTS:

- [Aurora on Disappearing Beaker](#)
- [Anand Vyas on Ring Thing](#)
- [Anand Vyas on Ring Thing](#)
- [Helen Morton on Unit 1: Mechanics \(Friction\) Static, Kinetic, Dry, Fluid,](#)

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### Unit Zero: Overview

There are 18 key scientific principles, many of which kids need to know before they hit college. These key concepts are what the e-Science program is built around. We're going to overview these top scientific principles and show you how to dive into each one on a

**FREE!** [Click Here of a Free Sample of e-Science.](#)

#### LATEST NEWS



#### [NEW! Unit 17: Life Science Part 2](#)

Learn all about Prokaryotes, Plants, Protists and Fungi in this wild unit that starts your adventure into the living world of... [Read More](#)



#### [NEW! Unit Zero: Overview of e-Science](#)

There are 18 principles in science, 10 of which kids must know before they hit college. How many does YOUR

child understand? [Read More](#)

#### [NEW! Getting Started Video](#)

I've added so much to the site since

#### PARENT RESOURCES



#### [Easy Steps to Award-Winning Science Fair Projects](#)

Click here for a printer-friendly version of this page. Science Fair Projects. This phrase will strike more fear into

the hearts... [Read More](#)



#### [Common Misconceptions and Myths in Science Textbooks Revealed... and How to Deal with Them](#)

I gave a teleclass on the biggest "oops!" found in science textbooks, and in addition to the teleclass recording, I thought you'd... [Read More](#)

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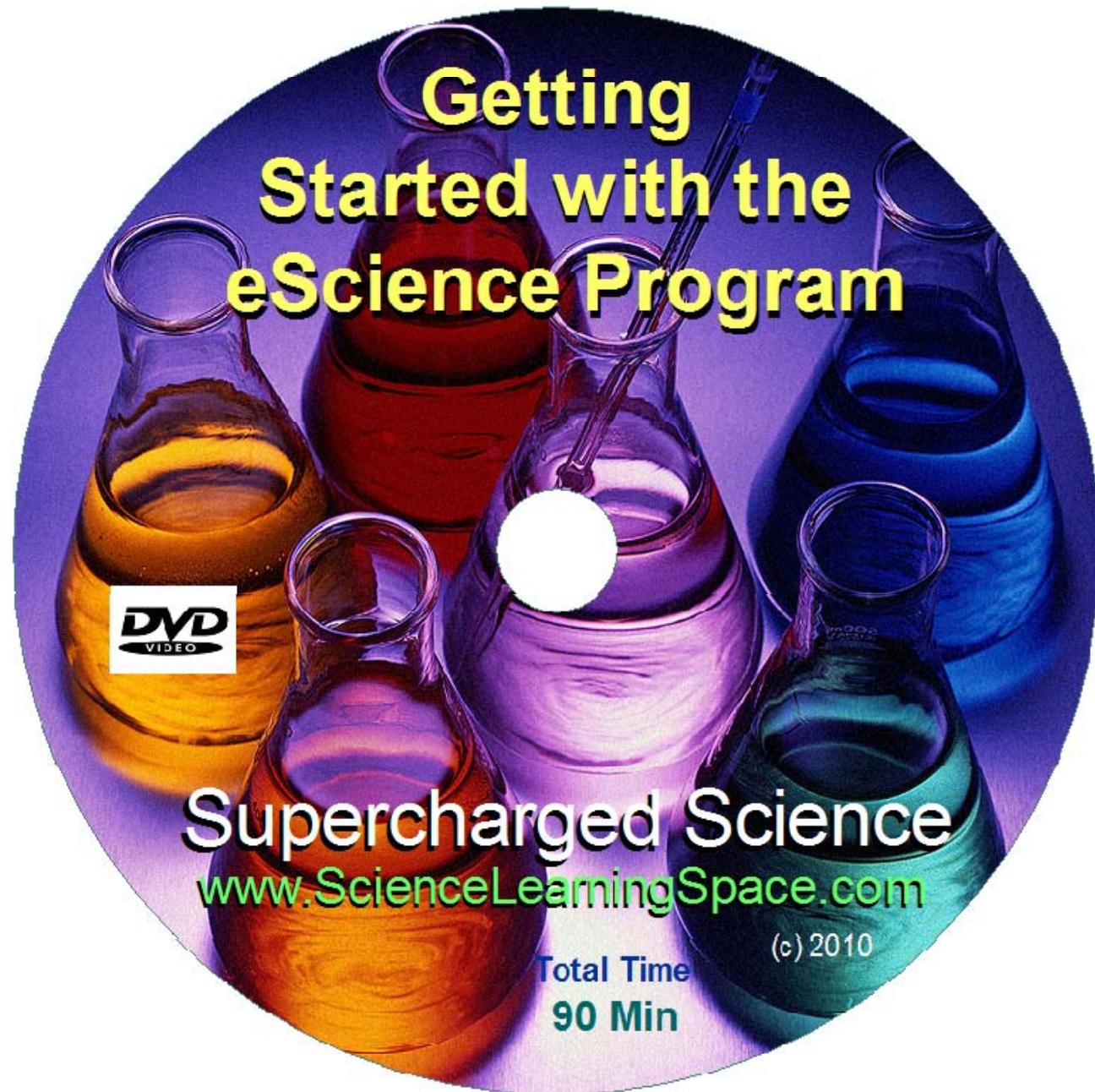
#### FEEDBACK

We love to hear from you! Check out some [feedback from other parents...](#)

91 people recommend this.

#### LINKS

[www.SuperchargedScience.com/discovery.htm](http://www.SuperchargedScience.com/discovery.htm)



**Getting  
Started with the  
eScience Program**

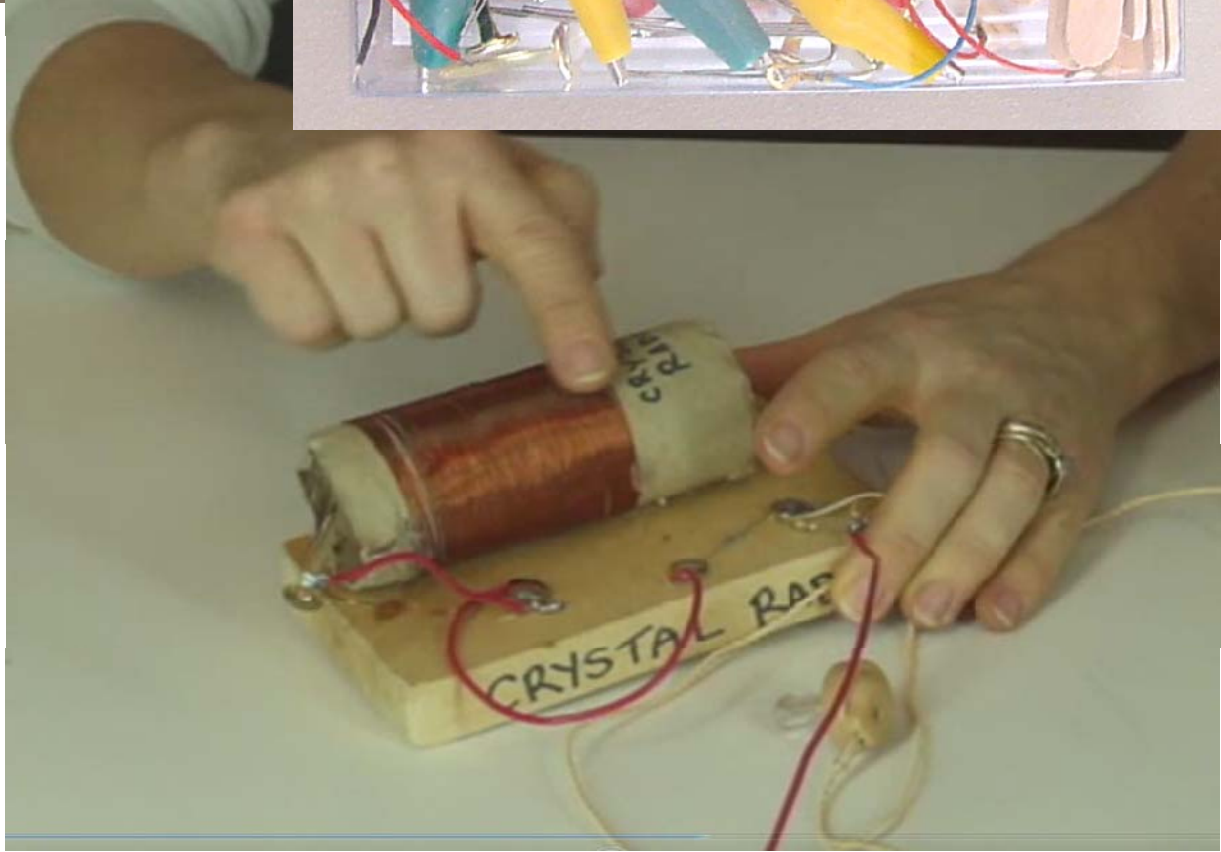
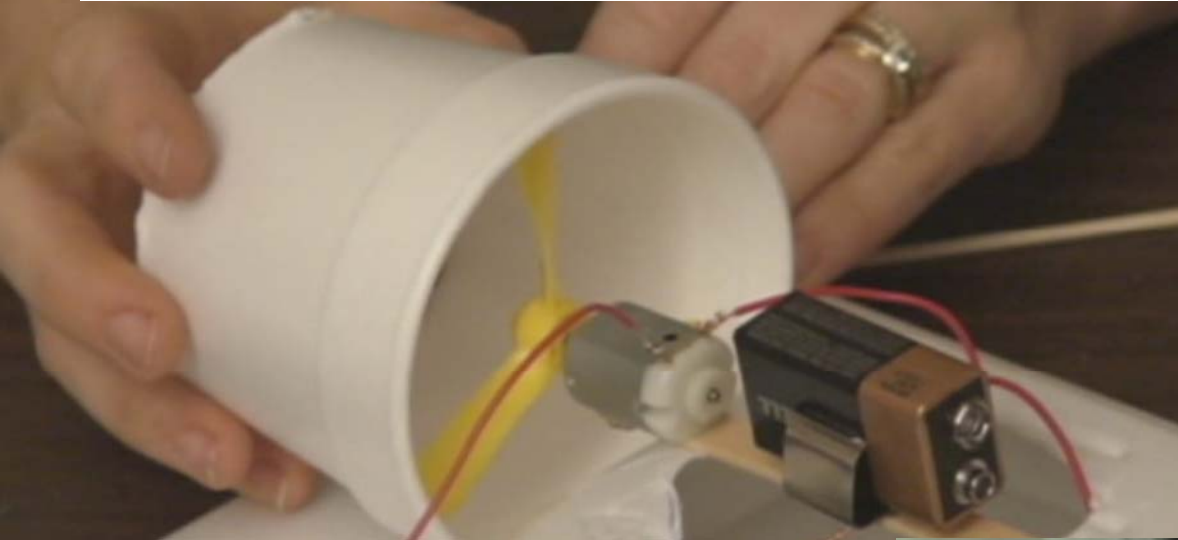


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[www.ScienceLearningSpace.com](http://www.ScienceLearningSpace.com)

Total Time  
90 Min

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www.SuperchargedScience.com/discovery.htm



# SUPERCHARGED SCIENCE

Teach Homeschool Science the Easy Way



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## Science Teleclass Bonus Experiments



**\$1 Trial for e-Science** If you want your kids to learn Science in a way that really lasts long-term, by doing activities that are genuinely educational and also fun... then e-Science is for you. [Click here to sign up.](#)



**Spectrometer** Split light into its emission signature to find out which elements from the periodic table are being used to generate the light.



**Solar Projector** Safely image the sun using a pinhole projector.



**Optics, Fire, and Eyes** Ever wonder why you should never look at the sun through anything with lenses? Here's why.



Tell me what you think! please enter a comment below...

### Comments

aurora

enter your comment here

comment

No one has commented yet. Be the first!



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Topics for This Unit

**Unit 3: Matter**

Atoms are the building blocks of all matter. These odd little fellows make up tables, buildings, chihuahuas and even you. They are impossibly small and yet absolutely vital for all matter and all interaction between matter. They are extremely mysterious and constantly offer new puzzles for science to tackle. And ...

Welcome to the **eScience Learning Program!** Click on the video at the right to get started.

### GETTING STARTED WITH ESCIENCE



#### [Welcome to the Supercharged Science Family!](#)

One of my main goals with the eScience program is to help you untangle the madness of figuring out what your kid needs to learn... [Read More](#)

### SYLLABUS & SCHEDULE



#### [Syllabus & Schedule](#)

The eScience program is appropriate for students grades K-12. You'll find lots of experiments for students in this entire grade... [Read More](#)

### PARENT RESOURCES

[NEW! Lesson Plans with each unit!](#)

### SIMPLE EXPERIMENTS

[Pop Beakers](#)

**NEW MEMBERS! WATCH THIS VIDEO TO LEARN HOW THIS SITE WORKS**

Read our [Welcome Letter!](#)



Too small? [Click here.](#)

### NOT A MEMBER?

**Are you new?** Join today and get access to the FULL K-12 online science learning program. [Click HERE to join NOW!](#) No previous experience required!

### FEEDBACK

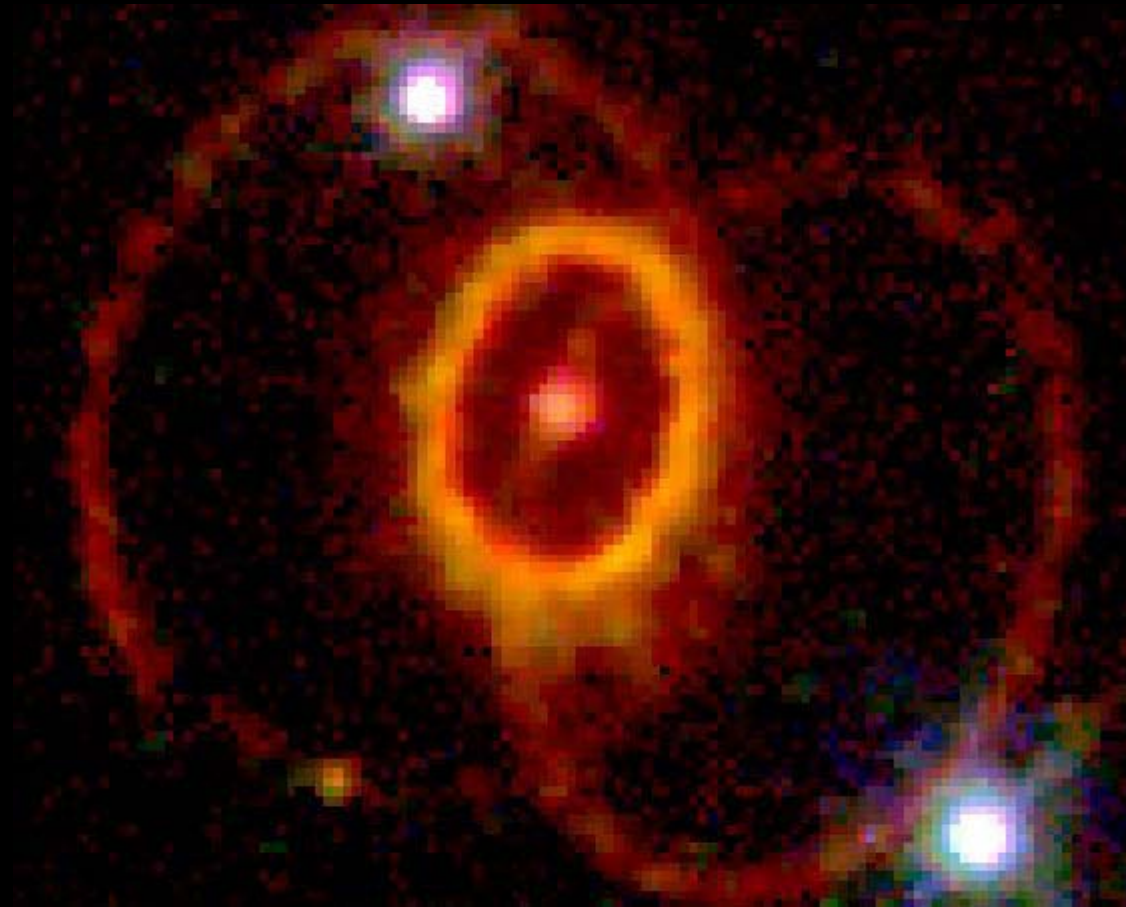
**We love to hear from you!** Check out some [feedback from other parents...](#)

### LINKS

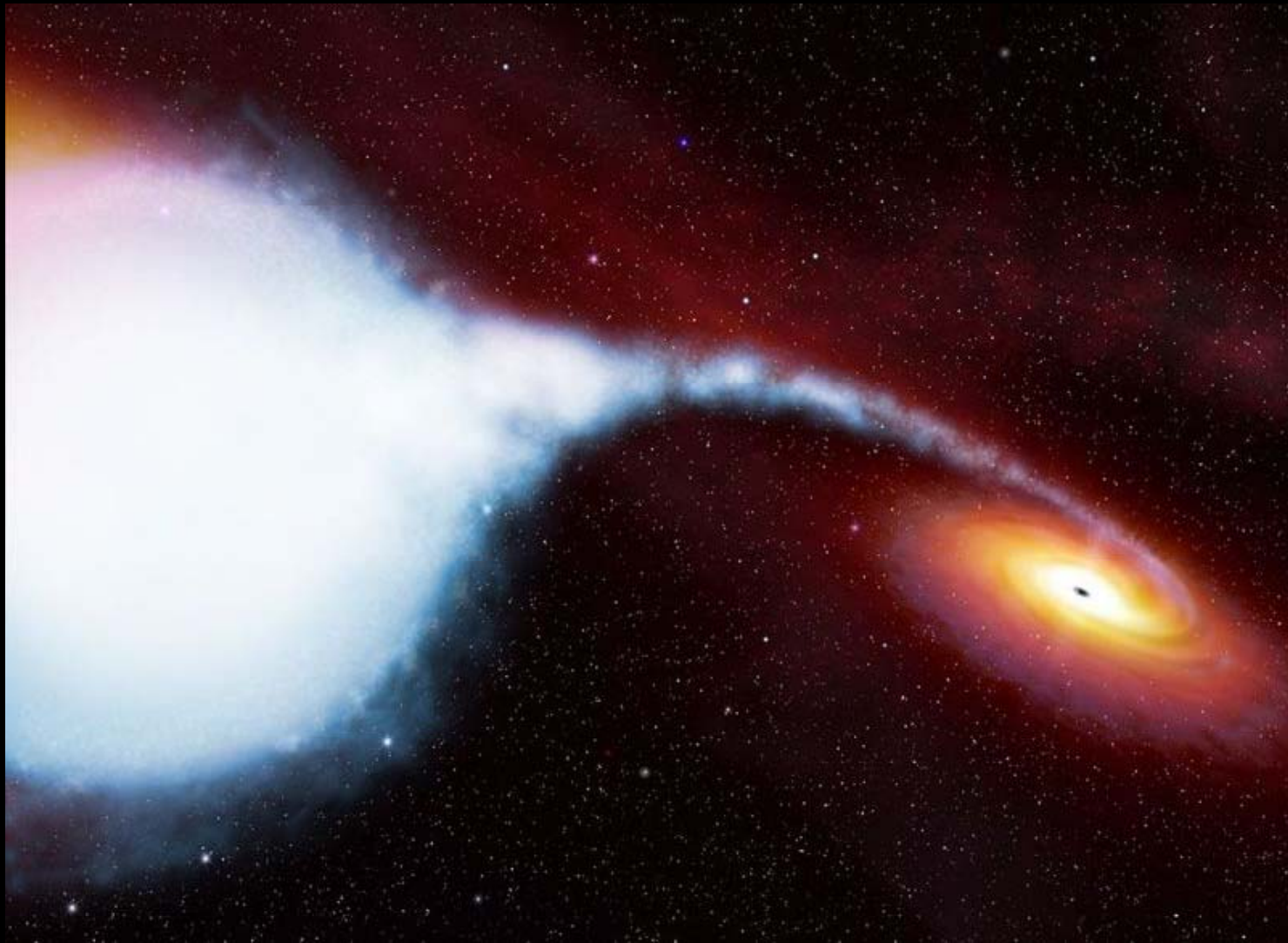
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- [Science Jim](#)
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- [Supercharged Science](#)



# Supernova 1987



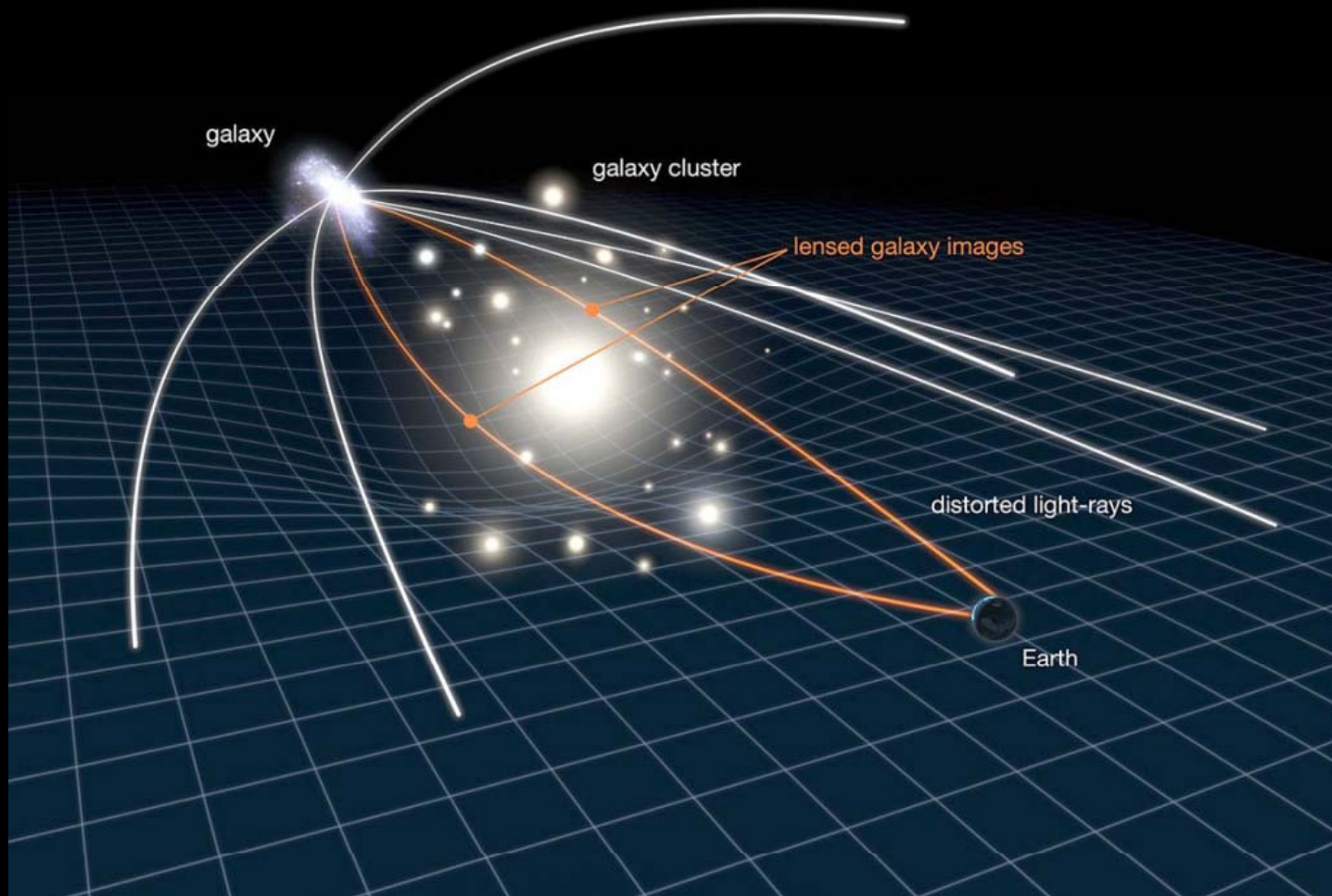
# Cygnus X-1: Into a Black Hole



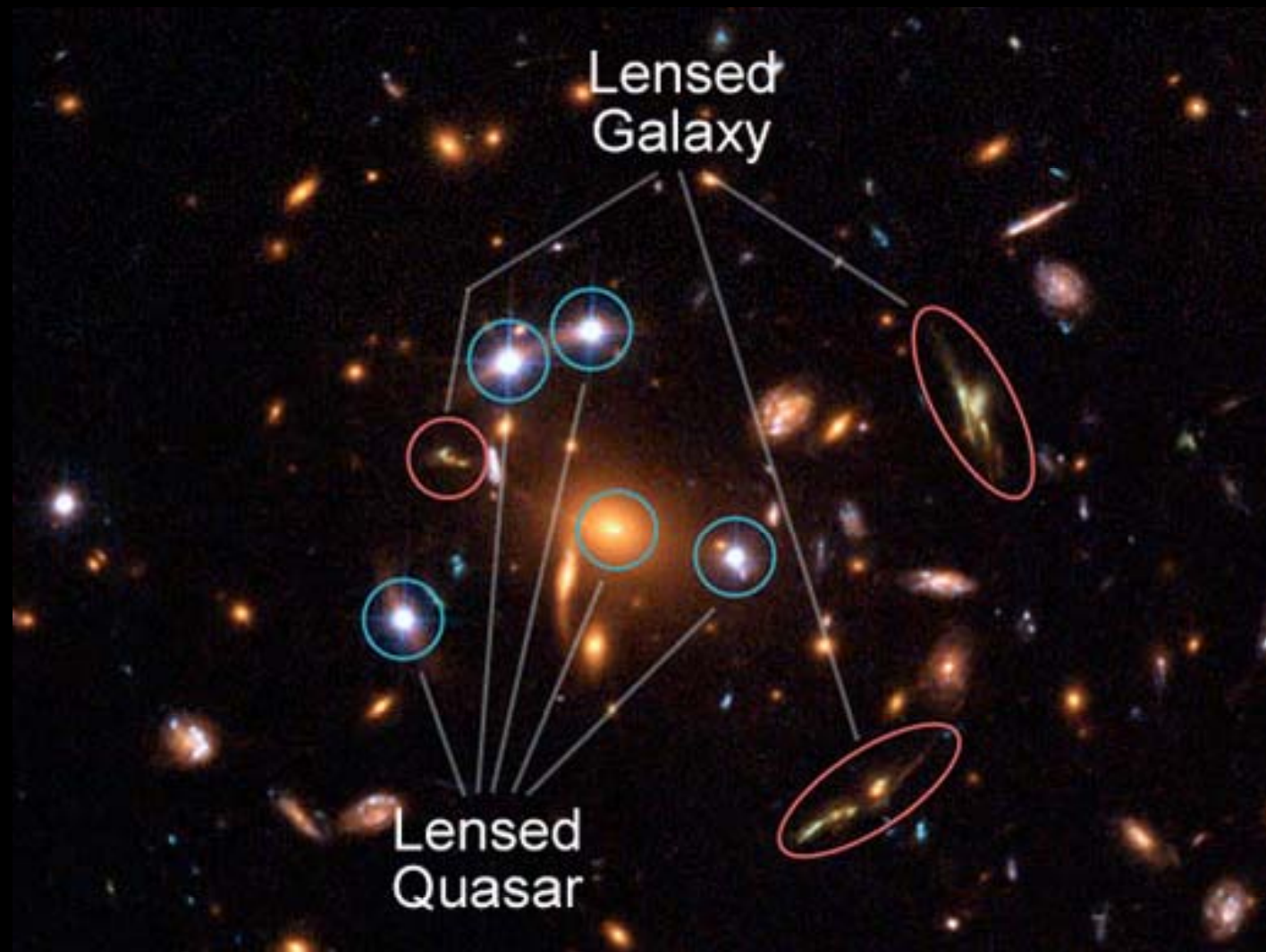
# Screaming Black Hole



# How to Find a Black Hole



# Distorted & Duplicate Images



# Where did the stars go?

